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DIGITAL BOOKS IN LITERARY EDUCATION:
A SEMIOTIC APPROACH TO ANALYSIS
Master Thesis

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I have written the Master Thesis myself, independently. All of the other authors' texts, main viewpoints and all data from other resources have been referred to.

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INTRODUCTION

Literary education in modern schools needs to be perceived against the background of the considerable decline in reading motivation. In a constant quest for readers' attention, books are competing not only with the Internet, games or TV, but also with different versions of the original text – audiovisual adaptations, summaries, retellings, reviews and digital editions. First digital books have been introduced several decades ago and nowadays represent an integral part of everyday life. According to the report of the Pew Research Center, already the half of American adults own a tablet or e-reader („E-Reading Rises as Device Ownership Jumps” 2014). The beginning of massive electronic publishing by *Project Gutenberg* in 1970s was followed by the development of early devices and programs – and by the outburst of digital reading in late 2000s, when the Kindle and iPad were introduced. While the landscape of digital books is rapidly evolving, educational systems in many countries remain highly conservative and reluctant to adopt new materials and practices.

Indeed, the reluctance is not baseless. The unwillingness to integrate digital books is related to traditional priorities of literary education. The existence of vast “required reading lists” implies that the role of education is often reduced to the transmission of certain works. Many educational systems are still based on a traditional content-delivery system, with a teacher (or educational content provided by teacher) playing the leading role. In these transmission 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). Most comprehension questions in old-fashioned literary textbooks may be associated with recitation: they require neither the independent construction of knowledge, nor the possibility to use it creatively, but the mere searching for the “appropriate phrase in the text and arranging it to fit the question stem” (Ibid.).

A common-sense definition of a literary work as a stable and completed entity contradicts the principles of the new media landscape where texts are bound by hyperlinks and presented non-linearly. Moreover, it does not take into account the whole variety of textual forms that appear in the course of cultural autocommunication – “a process of interpretation, mediation, deformation, elimination” of primary and secondary texts (Ojamaa, Torop 2015: 64). Thus, literary education faces a double challenge: “the specific nature of literary discourse should be kept clear, and at the same time the overall media landscape and the sprawl of media forms, old

and new, should be acknowledged, with literary discourse seen as an inseparable part of this larger field”. (Koskimaa 2007: 182).

Furthermore, the relative unpopularity of digital books in literary education may be explained by the considerable gap between the developers and users of digital books, as well as by the lack of theoretical support from the academic society. On the one hand, educators do not have efficient tools for choosing, analyzing and assessing extracurricular materials. Digital books are often relegated – not without reason – to the class of entertainment products. The problem is accentuated by the ambiguous status of nonverbal texts in literary education that remains logocentric (incidentally, the same bias postponed the usage of cinematic adaptations in the literary classroom). On the other hand, the developers themselves do not a proper theoretical framework and are not aware of educators’ needs.

The implementation of digital tools requires that literary education takes into account the multimodality of cultural autocommunication. By acquiring a semiotic perspective, it is possible to extend the literary pedagogy beyond its current limits and develop the framework for the analysis and implementation of multimodal and multimedial texts. To read and produce multimodal texts that are inherent to contemporary communication, “students need to be able to combine traditional literacy practices with the understanding, design and manipulation of different modes of image, graphics, sound and movement with text” (Walsh 2009: 13). The redundant notion of literacy should be expanded by multimodal literacies reflecting the semiotic systems that young people use (Jewitt 2005: 330).

In 2009, the International Reading Association emphasized the importance of integrating information and communication technologies into current literacy programs (Lamb 2011: 15). This requires not merely a transition from print to e-books, but a transformation of a whole learning experience: a reconsideration of the nature of text, the nature of reading and the nature of new media. The shift from a logocentric transmission model implies that the student learns how to correlate different sign systems and generate meaning, since “there is no dictionary that tells how to represent language in images” (Siegel 1995: 464). Already in 2007, the study in the United Kingdom demonstrated that children of all ages are more likely to access digital rather than print-based texts outside school (Bearne et al 2007). According to annual review by *Scholastic*, one-third of the young people would read more if they had access to e-books (“Kids and Family Reading Report” 2015: 68). Digital learning materials are being actively used in literary classes in the North America, Western and Northern Europe, East Asia and other regions. Even less tech-savvy education systems step towards digital learning: thus, the new

concept of language and literature teaching in Russia implies that “from their childhood, modern learners deal with large amounts of digital texts [...] which should not be ignored by the school system” (“Концепция преподавания русского языка и литературы” 2015: 15).

Research overview

Whereas the framework dedicated specifically to digital literature in education is still developing, it is possible to sketch out a wider theoretical background. The main directions include media studies, narratology and pedagogy.

First of all, digital literature is widely discussed in the context of the new media. The seminal work by Aarseth (1997) dedicated to the cybertext is followed by the research on the remediation (Bolter and Grusin 2000), language of new media (Manovich 2001), digital textuality (Pelizzi 2006), „digitally-born“ literature (Hayles 2007), communicational aspects of digital media (Jensen 2007) and contemporary types of remediation (Franco 2014).

Moreover, current works are strongly related to the previous research on the mental experience of reading. Constructivist approach to education remains highly influential in the field: after Piaget and Vygotsky, contemporary scholars emphasize the interactive nature of reading, generative nature of comprehension and the role of different sign systems in learning (Herr-Stephenson et al 2013). In line with this, the concept of multimodality is developed: by exploring the multimodal nature of reading, the authors (Jewitt 2005, 2008; Kress 2005, 2010; Kress, van Leeuwen 2006) advocate the usage of nonverbal elements that are often underestimated by teachers, parents and learners themselves. The problem of the effective distribution of meaning across various platforms and sign systems remains open. The attempt to develop a theoretical framework was undertaken by Herman (2004) who proposed that all typological variations of a given text comprise a coherent whole, and it is possible to designate the medium-specific variations of each.

Even though different forms of digital books have been available for several decades, studies examining how students interact with and respond to digital texts are still few and results are conflicting (Larson 2010: 16). On the one hand, the researchers pay attention to distractive effects of multimodal features (Ohler 2006) and excessive navigational freedom (Trushell et al 2001). According to the research made by Wolf (2008), electronic reading may negatively affect the way the brain responds to the text, including reading comprehension, focus, the ability to maintain attention to details like plot and sequence of events. Several studies demonstrated that students using interactive digital books recall significantly fewer

details that those who read a print version of the same story (Chiong et al 2012). On the other hand, researchers claim that digital texts may help to deeply engage learners (Fleming 2013); promote active role of the reader (Pence 2011-2012; Clark 2010; Bazinet 2015); help to acquire vocabulary through animated scenes (Bus, Smeets 2014); develop 21st century literacies such as ability to search, remix and synthesize information (Griffith, Bower 2013). Within the research, a special place is held by transmedia storytelling, which requires that a “story unfolds across multiple media platforms, with each new text making a distinctive and valuable contribution to the whole (Jenkins 2006: 97–98). The possibility to recreate a storyworld across different media is famously explored by Klastrup and Tosca (2004) and tested by numerous researchers and educators (Jenkins 2009; Chen et al 2011; Bomberg et al 2012; Fleming 2013).

Despite the almost thirty-year history of the research in the field, the terminological framework remains pretty vague. *Digital*, or *electronic*, *literature* is a most commonly used umbrella term for different types of products: e-books, interactive fiction, transmedia storytelling, digital games, etc. Another umbrella term, derived by Espen Aarseth from Norbert Wiener’s notion of *cybertext*, is *ergodic literature* – a form of representation which requires a “nontrivial effort [...] to allow the reader to traverse the text” (1997: 1). According to the definition, this category may include not only digital books, but also video games or even ancient wall inscriptions that present the religious text nonlinearly. Since the borderline between the book and other media is blurred, other concepts are sometimes used – for example, *digital text*, *literature* or *environment*.

In academic discourse, there are at least two ways to present the history of digital literature. In the first case, the history of digital literature is discussed immanently, without a strong connection to the print. By the adepts of this approach, electronic literature is “generally considered to exclude print literature that has been digitized” (Hayles 2007). Rather than media characteristics, the principles of the narrative distribution are taken into account. *Hypertext* is regarded the basic type of digital literature that requires “a reader’s interaction by clicking items of the screen” (Bazinet 2015: 88). Whereas first-generation, pre-1995 works “tended to be the blocks of text [...] with limited graphics, animation, colors and sound, later works make much fuller use of the multi-modal capabilities of the Web” and tend to deemphasize the link as such (Hayles 2006). Thus, *interactive fiction* is similar to hypertext fiction but contains stronger gaming elements (Bazinet 2015: 88). Interactivity itself can be defined as “a simple, mechanical measure of inputting controls or commands in order to influence on-screen action” (Newman 2002: 409). Embracing activities based on both interpretation and physical action,

interactivity is manifested in changing channels on the television, clicking onto different items in a video game, or opening hyperlinks on the internet.

In the second case, the digital book is seen mainly as a remediation of print – “the representation of one medium in another”, in words of R. Grusin and J. Bolter (2000: 45). Pursuing this approach, Lamb distinguishes five types of electronic reading environments: *e-books*, *interactive storybooks*, *reference databases*, *hypertext and interactive fiction*, and *transmedia storytelling* (2011:15). The similar classification is developed by Franco (2014): *e-books*, *enhanced e-books* with images and sounds, *hybrid media books*, and *gamebooks* are seen as transformations of the older media, inspired by established formats and framed by their conventions. Different formats are situated along the axis “more like print book” – “less like print book”: whereas simple products the traditional structure, more complex ones are associated with the restructuring of the original format. The typology provided by Koskimaa (2007: 174) is conceptually close: the scholar makes a distinction between the *digital publishing* (e-books developed for packaging and distribution purposes); scholarly literary *hypertext editions* (multimedia implementations of classics); and *programmed texts* based on computer code (hypertexts „programmed to behave in a more or a less dynamic way“).

In order to place the phenomenon of digital books in a wider context of cultural autocommunication, we will use the terminology derived from the tradition of cultural semiotics.

- *Text* is regarded in a specifically semiotic sense – as “the primary element (basic unit) of culture” and a carrier of integral meaning. In terms of Tartu-Moscow semiotics, the concept “text” may be applied not only to messages in a natural language, but also to “a ceremony, a work of the fine arts, or a piece of music” (“Theses” 1973: 4).
- *Artistic text* is a core type of a cultural text that exists at the intersection of various cultural codes: genres, styles, epochs, etc (Лотман 1998: 59). Artistic text may be expressed by means of various sign systems and is subject to constant alteration through perception and interpretation.
- *Literary text* is an artistic model of the world created by means of natural language (Ibid.).

- *Digital text*, or *digital literature*, is used as shorthand for various digital adaptations of literature, including digital games. This correlates to the tradition pursued by Bolter and Grusin.

In the context of digital literature, the basic processes of cultural autocommunication may be described as follows:

- *Translation*, in a wider semiotic sense, includes not only interlinguistic translation but also intralinguistic and intersemiotic translations. Translation is regarded as interpretation (including reading, understanding, communication) and as “the elementary act of thinking” (Lotman 2001: 143). Also, “translation from one system of text to another always includes a certain element of untranslatability” (“Theses” 1973: 15).
- *Adaptation* is a case of translation, which is mainly associated with the movement from “the literary to its representation”, for example, cinematic or theatrical. Also, “the term *adaptation* calls to mind an inevitable form of reduction” (Dusi 2010: 82-83).
- *Digitalization* is viewed as a digital transformation of the text, as well as of its comments. After M. Gasparov (Гаспаров 2004), we regard all types of comments – textual notes, multimedia annotations, or user-generated comments – as an extension of translation and examples of interpretation.

The main aim of our research is to explore the landscape of digital adaptations of literature and develop the semiotic framework for the analysis of their role in literary education.

Research questions:

- What place do digital books occupy in the system of cultural autocommunication?
- How digitalization of literary text is different from translation and what does it entail?
- What exactly is a “book experience” if it is not limited to reading or turning pages?
- What types of digital adaptations are present today and what are the perspectives of their development?

- How could be best practices of pedagogy, translation and design used in the modeling of educational digital books?

Methodology of the research

The transdisciplinary methodology of the research derives from semiotics, pedagogy, design and translation studies. Methodological framework refers to different tools and concepts: remediation theory (Bolter and Grusin); taxonomy of transfer operations (van Gorp, Delabastita, Popovič); multimodal analysis (Kress and van Leeuwen); literary synthesis (Popovič and Macri); principles of transmedia education (Jenkins). The theoretical part, dedicated to the place of digital literature in the system of cultural communication, is largely based on the ideas of constructivist pedagogy and Tartu-Moscow Semiotic school.

The typology of digital books is created through the analysis of media publications and search in the catalogs of online stores (*iTunes, Google Play*). The analyses of cases (*Curriculet, Shakespeare at Play, Sherlock Interactive Adventure*) require the independent exploration of products and the examination of teachers' reviews online. Each of three products is analyzed in terms of the relation between the source text and the target text; the genre of adaptation; the visual structure; the patterns of perceptions; compliance with the principles of digital pedagogy.

Structure of the work

Master thesis consists of the introduction, five chapters, the conclusion and the supplement. First chapter presents the material used in the work and provides its typology. In the second chapter, a methodology of the analysis is developed on the basis of contemporary approaches to translation, education and design. The third chapter provides a theoretical framework for the analysis of digital books and their usage. Digital literature is regarded in the context of the nature of the artistic text; the nature and evolution of comments; the usage of the new media in literary education. The fourth chapter contains descriptions of different types of digital literature and three case-studies of prominent examples. Finally, in the fifth chapter, the findings of the research are applied to the construction of digital book on the basis of Andrus Kivirätk's novel *Old Barny (Rehepapp ehk November, 2000)*.

1. MATERIAL

The analysis of digital books in literary education is conducted in several stages: firstly, the corpus of all fitting products is put together; secondly, the products are classified; thirdly, some representative examples are chosen for detailed case analyses. Table 1 (*Classification of digital adaptations of literary works*) demonstrates the results of the first two stages and includes 60 products.

1.1. Criteria

The landscape of digital adaptations is broad and presents almost all possible types of textual operations. According to van Gorp (2004: 62-28), the original text may be processed through *repetition* (copying, plagiarism, compilation); *addition* (paraphrase); *abbreviation* (shortened versions, summaries, digests); *rearrangement* (montage); and *substitution* (rewording, transformation, parody). The rapidity of contemporary communication caused the boost of granulated formats that belong to the realm of nanotextology (Hampson 2007): summaries, book trailers and other examples of compression. Leaving aside the versions that shorten or modify the source, we will concentrate on the products that include the full-length text or, at least, the full story.

To be placed on the list, a product needs to fit the following requirements:

- to be based on previously existent literary work;
- to present the whole story in a full or abridged version;
- to be released in last ten years;
- to challenge the traditional practices of reading and learning;
- to be suitable for literary education in middle or high school.

Since the research is focused on literary education and not on language or reading learning, we deliberately avoid the products targeted to pre-school and elementary school. Also, we do not regard products that mechanically duplicate the form and the content of original books without challenging them. In order for our perspectives to be realistic, we consider only up-to-date products that can potentially meet the demands of modern pedagogy and young audience; for the same reasons, we do not regard the digital adaptations of pulp fiction.

The profile of each product includes the name, website, name of the developer and description of key features. Some products contain more than one book; reading platforms like *Curriculet* or *Subtext* allow digitalizing an unlimited amount of texts.

1.2. Format types

In accordance with Bolter and Grusin's types of remediation, all the products have been distributed into four groups: duplication, enhancement, refashioning and absorption of the original media. First category – which embraces plain digital copies – is excluded from the final version of the table due to its vastness and lack of remarkable characteristics.

Other three categories include:

- Slightly enhanced versions of previous editions (25 items): illustrated storybooks (usually in the form of mobile applications); multimedia collections of story-related materials; reading platforms;
- Products that refashion the traditional reading experience (25 items): transmedia environments; AR-products; social media retellings;
- Intermedial projects (10 items): interactive fiction; video games.

The majority of products on the list may be used in the form of mobile applications. Worth noting, the distinction between various types of products is not absolute but relative; in other circumstances, the classification may be conducted differently.

1.3. Content types

At this point, the crucial research question may be formulated as followed: what are the reasons for digitalizing literature? Taking all products into account, it is possible to trace out key trends.

In a first approximation, we distinguish several clusters: of all products, 7 items are related to contemporary literature, while others are based on classic works; most projects are commercial or semi-commercial¹, while only few are specifically educational; majority of products are in English and deal with English-language literature, while some products are

¹ The focus on commercial use is relevant in the case of digital textbooks, as well. To some extent, this explains the lack of innovation in the design of digital books: the developers do not consider making use of the full potential of digital media and technology as their primary goal (Terje, Sebastian 2014: 139-140).

targeted specifically to Russian-speaking audience² – for instance, the *Akunin Book* or *Voinovich Book* do not contain any translations.

A closer look allows revealing some regularities: in most cases, books are digitalized due to aesthetic, educational or marketing reasons. Sometimes several reasons may coincide.

Aesthetics

The successful digitalization of literature is often predetermined by the immanent characteristics of the original texts. To a large extent, the same characteristics attract the authors of cinematic adaptations, as well.

Firstly, successful texts are those that provoke suspense, curiosity, or surprise: “[s]uspense is evoked by postponing the story’s outcome, curiosity is evoked by presenting the outcome before the preceding events, and surprise is evoked by an unexpected event”. (Hoeken, Vliet 2000). For these reasons, “thrillers, detectives, and spy novels are always high on best-seller lists”, since they “are not read not read for the information they contain, but for the pleasure they provide” (Ibid., 278). Unsurprisingly, classic detectives and mystery stories have a strong position on the list: digital books are inspired by A. C. Doyle (5 items), E. A. Poe (3), Mary Shelley (3), C. Dickens (2), H. P. Lovecraft (1).

Secondly, literary texts are chosen for their potential visual appeal. For this reason, *The Great Gatsby* by F. S. Fitzgerald is mentioned twice on the list: the developers of Russian application *Великий Гэтсби Интерактивная Книга* stress the possibility to immerse into the atmosphere of Roaring Twenties via spectacular animated scenes and original music. Another product – *Alice for the iPad* based on Lewis Carroll’s story – exploits the similar technique: “Throw tarts at the Queen of Hearts – they bounce off her! Witness the Cheshire Cat disappear and help the Caterpillar smoke his hookah pipe”. For sure, horrors and detectives fit into this category, as well: the users of *S. Holmes* app are invited to “be startled as the victim’s screams resonate”, “shudder as the blood spreads out on the pages”, and “shiver as the rain falls into the palm of the hand”. Obviously, augmented reality projects are also inspired by visually rich literature: these are J. K. Rowling’s texts related to *Harry Potter* universe, *The Little Prince* by A. De Saint-Exupery, epic novels *Moby Dick* and *Great Expectations*.

Education

² The presence of Russian-language products on this list is mostly explained by the subjective interests of the researcher and the peculiarities of searching mechanisms. It seems that, at a global market level, Russian products do not represent a considerable minority.

In other cases, the developers of digital products are motivated mostly by educational reasons. Some projects on the list are affiliated with universities: *Walden Project* is conducted by the State University of New York at Geneseo; *James Joyce – The Dead* is produced by University College Dublin; *Tolstoy. Live Pages* is produced by Higher School of Economics (Moscow); *The Homer Multitext* is curated by Harvard University; *Of Mice and Men Study App* and *Gamebooks: Read and Learn English* are related to Oxford University.

Within the educational domain, reasons for digitalization can also be manifold. First of all, digital products aim to facilitate the comprehension of old texts. Thus, 12 products based on Shakespeare's works offer translations into modern English, videos of word-for-word staging, thorough annotations, profiles of characters. The study guide for John Steinbeck's *Of Mice and Men* contains profiles of characters and historical locations, while *Tolstoy. Live Pages* maps the complex interrelations of real and historical events via interactive infographics.

Second explanation is related to the complex structure or genre of literary works. Thus, *The Homer Multitext* project reflects the heterogeneous structure of *Iliad* and *Odyssey*, while a digital edition of Thoreau's *Walden* explores the stages of development through a series of drafts. Many digital products deal with 20th-century texts that are not easily comprehended without a context. Thus, *A Clockwork Orange iPad App* supplements Anthony Burgess' novel with archive video and audio; mobile version of Jack Kerouac's *On the Road* includes interactive map of the story, archive photos, texts, and videos; T. S. Elliot's *The Waste Land* is enhanced with multimodal comments and scans of the original manuscript; applications on the basis of James Joyce's works contain elaborated annotations and multimedia. Digital environments are more flexible than paper-based editions, which makes them suitable for presenting the heterogeneity of modern and postmodern texts. In the case of originally interactive literature – such as Marc Saporta's *Composition No. 1* – this feature seems to be crucial.

Marketing

Third group includes the products that are developed in collaboration with contemporary writers. In this case, digitalization seems to be motivated mainly by marketing purposes: some authors (Linor Goralik, Colin Meloy, J. K. Rowling) present their new works simultaneously in digital and paper-based form; others transform their old writings into mobile applications (Viktor Pelevin, Boris Akunin, Vladimir Voinovich)

2. METHODOLOGY

Due to the lack of the specific framework that could be used for the analysis of digital books, the transdisciplinary methodology is employed. The chosen methodology covers several levels of analysis: firstly the hierarchy of the core notions is being developed; secondly, most distinct examples of digital adaptations are explored in details. A number of approaches from translation studies, pedagogy and semiotics are applied to certain cases. Namely, the nature of transfer operations between printed and digital text is explored (drawing on the ideas of van Gorp, Delabastita and Popovič); the layout of multimodal literary texts is analyzed (Kress, van Leeuwen); the digital text is analyzed as a core of literary education (Popovič, Macri) and transmedia education (Jenkins).

2.1. Remediation theory (Bolter, Grusin)

In their book *Remediation: Understanding New Media* (2000), Bolter and Grusin regard the rivalry between the older and the newer formats as a defining characteristic of the modern digital media. According to the authors, the representation of one medium in another has always been affected by the double logics of immediacy and hypermediacy. Immediacy is more concerned with the content and strives to make media transparent: for instance, virtual reality is immersive, which means that it is a medium whose purpose is to disappear (Bolter, Grusin 2000: 21). Hypermediacy, in its turn, draws attention to the medium and is characterized by fragmented layout: in the words of William J. Mitchell, cited by Bolter and Grusin, it “privileges fragmentation, indeterminacy, and heterogeneity and (. . .) emphasizes process or performance rather than the finished art object” (Ibid., 31).

Bolter and Grusin distinguished four ways “in which digital media remediate their predecessors” (2000: 45). The classification is based on the level of immediacy and hypermediacy in each case – the new medium is observed in the context of its structure and its ideological relation to the older medium. What’s important, the remediation of the form is unavoidably accompanied with the remediation of the content. By using the model proposed by Bolter and Grusin, it is possible to systematize the whole variety of digital books, as well. The approach has been already applied by Franco (2014) and resulted in the classification quite similar to the one presented in this work (*see Introduction*). The framework allows not only to

sketch out the distinctive features of each type, but also to define the place of the digital book in the transmedia universe of a literary work.

At one extreme, the older medium is *duplicated* without apparent irony or critique: “the digital medium wants to erase itself, so that the viewer stands in the same relationship to the content as she would if she were confronting the original medium“ (Bolter, Grusin 2000: 45). Digital media of this kind are strongly associated with immediacy: as an example, the authors describe CD-ROM picture galleries, the main purpose of which is to grant access to the reproductions of paintings. In the context of digital literature, this type of remediation could be exemplified by plain PDF or EPUB versions of books also known as e-books.

Remediations of the second type tend to “*emphasize the difference* rather than erase it”: electronic version is marketed as an innovation, even though it may lack considerable changes. For Bolter and Grusin, these could be encyclopedias on CD-ROM that improve their printed analogs by providing not only text and graphics, but also sound, video, searching and linking capabilities (Ibid., 46). In the case of digital literature, the bright example is an enhanced e-book that contains multimedia features, social, or research instruments.

As for *refashioning*, the digital medium is more aggressive in remediation: “It can try to refashion the older medium or media entirely, while still marking the presence of the older media and therefore maintaining a sense of multiplicity or hypermediacy” (Ibid. 46). The book may be transformed into a whole interactive environment, either on the one platform or on the several platforms (social media retellings, AR-products, transmedia products).

In the final case, new medium tends “*to absorb* the older medium entirely, so that the discontinuities between the two are minimized” (Ibid., 47). Even though the boundaries are blurred, new medium remains dependent on the older one in visible or invisible ways. For instance, video game adaptations of literary works employ the smooth first-person narration of video games and, simultaneously, convey the original story.

2.2. Types of transformations (van Gorp, Delabastita, Popović)

Whereas Bolter and Grusin’s remediation theory mainly deals with media forms, translational studies are more focused on the content. The results of transfer operations between different texts have been listed by Hendrik van Gorp in his article *Translation and comparable transfer operations* (2004). Drawing upon the ideas of Delabastita and Popović, the author

distinguishes five types of text processing: repetition, addition, abbreviation, rearrangement and substitution (van Gorp 2004: 62).

Digitalization of literary works often requires that the text is not merely duplicated within a new environment but also modified.

- *Repetition* can take place to different extents: duplication of complete texts is known as copying or plagiarism; repetition-transformation of text fragments occurs in the case of compilations, citations, collages, pastiches and allusions.
- *Addition* operation often manifests itself in a paraphrase, “the expansion of a text in the same language with the purpose of clarification” (Ibid., 62). Also, it is exemplified in different types of peritexts (forewords, dedications, footnotes, annotations, glosses, marginalia, illustrations, etc) and epitexts (sequels, reviews, advertisements).
- *Abbreviation* is present in such phenomena, as titles and subtitles, shortened versions, expurgated editions, digests and summaries.
- *Rearrangement* is related to text elements and forms the basis for montage – for instance, within audiovisual adaptations.
- *Substitution* appears in rewriting and rewordings of texts, adaptations, parodies, pastiche or translations.

According to the extended taxonomy by Dirk Delabastita (1993), all five types of the text processing – substitution, repetition, deletion, addition, permutation – occur on the level of the *linguistic, cultural* and *textual codes*. In each case, a different strategy of translation is employed: for instance, on the level of cultural code, repetition causes exoticization or historicization, while deletion results in dehistoricization or universalization (as cited in Torop 1995: 71).

Finally, the typology of metatexts by Anton Popovič describes the ways in which target text are linked to their source texts (1976: 232). According to the model, the way of linking can be affirmative or controversial, apparent or concealed; scope of linking, in its turn, can be associated with text as a whole or elements of the text.

2.3. Multimodal analysis (Kress, van Leeuwen)

The tools for analyzing the layout of multimodal literary texts can be derived from the general framework of visual analysis proposed by Kress and van Leeuwen. Drawing upon the

ideas of Roland Barthes and other semioticians, the authors regard images as a resource for representation that „display regularities, which can be made the subject of relatively formal description” (Kress, van Leeuwen 2006: 20). According to their „grammar of design“, the composition of a page – or a screen – includes three dimensions:

- *Information value*: the meaning attached to the various zones of the image – left and right, top and bottom, center and margin.
- *Salience*: the ability of different elements to attract the viewer’s attention to different degrees: via placement in the foreground or background, relative size, contrasts in tonal value (or color), differences in sharpness.
- *Framing*: connects or disconnects elements of the image through lines and frames, signifying that they belong or do not belong together.

The analysis of multimodal texts implies that the product is viewed simultaneously as a whole and as a sum of its parts. In order to define the informational value of different elements, Kress and van Leeuwen have proposed four universal categories linked to the physical position of elements (Ibid., 180-186). The notions have been originally used for visual analysis of pictures and are applicable when it is possible to reveal horizontal and vertical axes in picture space.

- *Given*. In Western tradition, the elements on the left are presented as given – these are regarded as familiar and agreed-upon points of departure for the message.
- *New*. The elements on the right are presented as new – these are either not yet known or not yet agreed upon by the viewer. The positioning of the element on the right implies that the viewer must pay special attention to it (even if that valuation may be rejected by a particular reader as a result).
- *Ideal*. The top of the page is regularly regarded as a place for the Ideal – something presented as the idealized and generalized essence of information.
- *Real*. The bottom of the page often presents more specific or more practical information related to the topic – details, maps, charts, consequences, directions for action.

The position of visual and verbal elements may indicate their role in the multimodal whole of the overall text. For instance, the images on the right often introduce new information in science textbooks. If the upper part of the page is occupied by text, then it plays,

ideologically, the lead role, while pictures in the bottom are supplementary. As an example, Kress and van Leeuwen regarded a science textbook on the CD-ROM: the upper part of the screen was occupied by theoretical materials, whereas the lower part contained tools for practical application – games and simulators (Ibid., 211). In the contrast to traditional pages that are perceived linearly, these multimodal layouts require to read different elements in mutual interaction – engage in “a ‘back-and-forth’ movement between word and image” (Kress 2010: 143).

According to Roman Jakobson (1960), elements of the language may be arranged syntagmatically or paradigmatically: in the former case, elements are arranged horizontally by combination on the syntagmatic axis; in the latter case, elements are arranged vertically, since they “belong to the same class and can be substituted for one another” (Siegel 1995: 462). The elements of multimodal environments can often be interpreted both syntagmatically and paradigmatically: for instance, “the label on an icon is both a visual sign that can be joined syntagmatically to the pictorial icon within a graphical syntagm and it is a linguistic sign that can be read as the name or function of that icon” (Lemke 2009: 286). However, the syntagms are not given but construed by interpreters (Ibid., 287).

2.4. Literary synthesis (Popovič, Macri)

The communication of literary text has the character of synthesis: “On its way to a receiver the literary text undergoes various stages of the process of literary synthesis, resulting in such syntheses as collections, anthologies, public readings and so on” (Popovič, Macri 1977: 117). In the system of literary education, the information about original texts is mediated through secondary texts of different functions and genres.

According to Popovič and Macri (1977: 120), the literary education is comprised of three main parts:

- “*Image of Original*”: interliterary and intersemiotic translation; summarizing linking (digest, annotation, title); reproductive linking (editorship, document, facsimile, collection, anthology); censorship;
- *Interpretation*: instruction for reception: literary criticism (including reader’s receptive texts); theory; history;

- *Literary Advertisement*: literary museum; flap, notice, announcement; literary myth (autostylization, biography).

Construction of the synthesis implies a conscious and ideological selection of elements by metacommunicative agents. In literary class, the communication of the original text is affected by usage of “textbooks, anthologies, histories, critical editions, course guides, curricula, and teacher viewpoints” (Ibid., 121). Thus, the receiver as a part of communication model is replaced by a network of metacommunicative links.

2.5. Principles of transmedia education (Jenkins)

In many implicit or explicit ways, modern educators and product developers inherit the ideas of constructivism by promoting social learning, educational games and active usage of various sign systems. These ideas are, as well, relevant to Henry Jenkins, who regards the interaction with complex multimodal texts as a construction of meaning through „a hunting and gathering process” (Jenkins 2010). His „seven principles of transmedia education“ (derived from the principles of transmedia entertainment) may serve as a framework for analyzing the educational role of digital literature:

- *Spreadability vs. Drillability*. Spreadability refers to a process of scanning across different media in search of meaningful bits of data, whereas drillability implies the possibility to dig into something specifically interesting. According to Jenkins, a good educational practice encompasses both, “allowing students to search out information related to their interests across the broadest possible terrain, while also allowing students to drill deep into something which matters to them” (Jenkins 2010).
- *Continuity vs. Multiplicity*. Continuity is associated with the previously established traditions: thus, the version of the story presented need to be canonic and authorized. Multiplicity, by contrast, encourages students to take multiple alternatives into account. For example, some video games, such as *Civilization*, allow students to simulate different historical scenarios.
- *Immersion vs. Extraction*. The educational value of virtual worlds may be regarded through the prism of immersion: digital technology allows replicating key aspects of the geographical or historical environment. Extraction, in its turn, implies the

possibility to borrow something from the story and use it in the classroom or everyday life: e.g. artifacts related to the storyworld.

- *World Building*. Fictional stories possess their own distinctive features: physical geography may be represented in maps; cultural geography – in a set of norms, rituals, everyday experiences. The mapping of these worlds as integrated systems allows a fuller and richer understanding of past or fictional societies.
- *Seriality*. Seriality implies that the story-related information is subdivided into meaningful pieces and dispersed. Thus, a story or lesson need “to have a satisfying and meaningful shape even if it is part of a larger flow” (Ibid.).
- *Subjectivity*. Subjectivity refers to looking at the same events from multiple points of view. Thus, each story may be retold from the perspective of different characters.
- *Performance*. Performances initiated by students may become a part of the transmedia narrative itself. In this case, the information on the page should be transformed into activities which put that information to use. The ability to participate in the narrative is the distinctive feature of open systems; closed systems, in their turn, allow the audience to act but not to interfere with the story (Gambarato 2012: 75).

Even though the principles highlighted by Henry Jenkins are not applicable to all types of digital literature, they can be of use in some cases (especially, literary video games or transmedia projects).

2.6. Developing a mixed framework of analysis

In order to provide a holistic view of digital books in education, the analysis needs to proceed on several levels. The chosen methodology allows examining each literary product in the context of translation, pedagogy and design. Thus, the Bolter and Grusin’s remediation theory helps to define how the original story is transformed in the course of digitalization; translation studies helps to describe the relation between the source text and the target text; multimodal approach facilitates the analysis of layout; insights from educational theory allow examining the functioning of the product in educational situations. On this basis, a set of analytical questions has been developed.

Digital book as adaptation

- What genre of adaptation does digital book belong to?
- What is the relation of the source text and target text?
- How is the original text transformed in the course of digitalization? What types of comments (historical/cultural/literary/linguistic...) are added?
- What place does digital book occupy in a transmedia universe of text? In what order the different versions of the same prototext can be explored?

Digital book as design

- How is the visual structure organized? What is the proportion of verbal and nonverbal elements? Do additional elements seem distracting?
- What is the informational value of different elements (Given/New, Ideal/Real), their salience and framing?
- Which patterns of reading (linear/nonlinear, social/individual,) are available?

Digital book as a pedagogical tool

- In what educational context the product can be used?
- How does the product meet specific aims of literary class?
- How the need for simultaneous education and entertainment is realized (spreadability/drillability, continuity/multiplicity, immersion/extraction...)?
- Does the product meet the requirements (independent construction of knowledge, sociality, use of multiple sign systems...) of modern pedagogy?

3. DIGITAL BOOK: AN OBJECT REDEFINED

Digital books possess an ambiguous status. On the one hand, educators feel skeptical about modern technology, since they are not totally sure what digital books are and how they can meet the demands of literary classroom. On the other hand, developers of digital products lack the unified terminology and the motivation to fit the school needs. The relation of digital books to their paper-based predecessors is not always clear (or sometimes even camouflaged by their creators). Due to its media characteristics, digital literature is sometimes positioned as innovation. However, this phenomenon is deeply rooted in cultural processes that have taken place since the very beginning of literature. The chapter provides a theoretical framework that allows regarding digital books in the wider context of the cultural autocommunication. Firstly, the nature of the artistic text is discussed; secondly, the principles of the commentary are presented; finally, the educational approaches to communication of artistic texts are analyzed.

3.1. The problem of artistic text

Prior to discussing the principles of the digitalization of literature, it is needed to define what the literary text is. As was proposed in Juri Lotman's programmatic work *On the Delimitation of Linguistic and Philological Concepts of Structure* (1963), a linguist explores the plane of expression separately from the plane of content, whereas a literary scientist attempts to reveal the link between both planes. In a relation to latter tradition, the members of Tartu-Moscow school tend to regard any literary text as an element of a wider cultural system. On the one hand, the non-semantic elements of the literary text are semanticized; on the other hand, the meaning of the text is influenced by nontextual elements – a totality of all preexistent artistic codes. (Лотман 1998: 32, 59). Despite the resulting heterogeneity and polyphony, the basic principle of the text is coherence and the existence of borders.

Every artistic text, including literary ones, exists in a relation to different sign systems. Vyacheslav Ivanov's article *The Science of Semiotics* is one of the first Tartu-Moscow writings where the topic of semiotic modelling is explicitly present. According to Ivanov, „system of the lowest level (for instance, natural language) serves to codify the signs which enter into the systems at a higher level (for instance, the semiotic systems of art and science)“ (Иванов 1962: 6). The amount and complexity of modelling systems used in society are the indicators of the culture's level of development (Ibid., 7). The opposition of primary and secondary modelling

systems is considered one of the most productive concepts elaborated within the Tartu-Moscow Semiotic School.

Even a traditional literary text is characterized by a certain correlation between word and picture, narrative and performance. Verbal-linear and iconic-spatial languages are regarded as complementary: the perception of a written narrative is inseparable from a mental construction of images – visual, audible, even olfactory and tactile. Since Antiquity, the interrelation of different sign systems in art has been an object of a vast theoretical discussion. For instance, the visual aspects of the Russian literary narrative were thoroughly explored in the collected works edited by Anderson and Debreczeny (1994). While the florescence of mixed genres took place in 20th century, the prose of some earlier writers, such as Tolstoy or Chekhov, shows a strong link between a word and an image: “We explore whole scenes by “seeing” them rather than “hearing” their explanation” (Anderson, Debreczeny 1994: 4). However, the higher iconicity of a literary work does not mean that it could be easily transformed into work of visual art. The translatability of each text is dependent on numerous factors, the most crucial of which is the specificity of the author’s style. As stated by Tynyanov, the more concrete is the language of literature, the less is it translatable into concrete language of images (1977: 311). This correlates to Ivanov’s concept of the hierarchy of sign systems which may change in the course of time (1962: 6).

At the same time, the perception of the text is influenced by the already existent structures that are based on previous experience (Лотман 1998: 270). According to Popovič, all types of processing of the original literary text, “whether it is done by other authors, readers, critics, translators, etc”, could be regarded as examples of meta-communication (Popovič 1976: 226). Thus, the prototext “is a text which serves as an object of inter-textual continuity”, whereas the “metatext is a model of the prototext; the way in which two texts are linked” (Ibid.). A prototext – the first version of the story presented – is perceived against a background of its meta-communicative interpretations: translations to other languages, cinematic adaptations, reviews, illustrations or even video games. The notions of *intertextuality*, *interdiscursivity* and *intermediality*, introduced at various stages of scientific development, provide different perspectives on the problem. In terms of Kirill Taranovsky, whose ideas were largely based on those of Tartu-Moscow Semiotic school, intertextual relations exist between a subtext, which is “an already existing text reflected in a new one”, and a context, “a group of texts containing the same or similar image” (Тарановский 2000: 31). Drawing upon Mikhail Bakhtin’s theory of polyphony, Julia Kristeva introduced the aspect of interdiscursivity: “Any text is constructed as

a mosaic of quotations; any text is the absorption and transformation of another” (Кристева 2000: 429). For Kristeva, the term “intertextuality” not only described the relation of text to other particular texts, but stood for its participation in discursive space of culture. Finally, the umbrella term “intermediality” has been widely used since 1990s to describe “the configurations which have to do with a crossing of borders between media” (Rajewsky 2005: 46).

The most recent idea of *transmediality* implies that the narrative could be distributed across different media, with each storytelling medium possessing certain communicative and representational properties (Herman 2004: 69). In the cultural semiotic perspective, transmediality is differentiated from *crossmediality* which is regarded a strategy-driven and target oriented activity. Thus, “storyworld may be regarded as a topological invariant of all the subtexts of the transmedia whole” (Saldre, Torop 2012: 27). In order to contribute to the re-creation of a transmedial whole, different versions have to share “a basic foundational story” and “only one acceptable version of an ethos, topos and mythos” (Klastrup, Tosca 2004: 10). According to Espen Aarseth (2005), the translation of the narrative across different media proved to be easier and fuller in some cases than in the others. Thus, the storyline, events, universe and characters are transferred relatively easily in the case of book-to-movie translation; however, the translation of the movie to game implies that the storyline, events and characters are transferred only partly. The transmedial whole simultaneously exists as the collection of texts in different media and forms, and as a synthesized memory – the mental blend of different versions represented in verbal-linear and iconic-spatial languages.

Individual versions of the prototext are involved into interpretative dialogue with the whole and each other: due to the media-specific differences, the full translatability is never possible, but “the attempts to produce such translations enrich culture” (Ojamaa, Torop 2015: 66). In terms of Peeter Torop, the culture itself could be described “as an infinite processes of *total translation*”, where whole texts and their parts are translated into other textual units (Torop 2000: 73). Since each sign system is based on a unique organizational principle and involves untranslatable elements, the productive combination of media results in a better outcome: subsequently, “repetition of information with variations in different sign systems or media (e.g. oral, written, audiovisual, etc.) is a central technique of acquisition and preservation of knowledge” (Ojamaa, Torop 2015: 62). Indeed, in this case, the notion of the literary text is better to be replaced with the wider notion of the artistic text.

3.2. The problem of commentary

The structural complexity of artistic texts leads to a problem of their effective communication. Very often, inexperienced readers fail to understand the whole complexity of codes involved into the construction of story – meaning of words, situations, allusions, or behavior of characters. According to Anton Popovič, the educational system is aimed to “mediate information about original texts to provide contextual information for their reception”, which results in the construction of “literary synthesis” (Popovič; Macri 1977: 119). The original text is never a sole element of literary education and, to a certain extent, is always affected by metacommunicative agents – editors, copyists, historians or educators (Ibid. 122). Literary commentary is only a part of a large model developed by Popovič: apart from interpretations, literary synthesis includes “images” of the original and literary advertisement.

The farther is the culture commented, the more explanations are required. As stated by Yuri Lotman in his introduction to the commentary of *Eugene Onegin*, literary texts may be explained in two ways: at first, *conceptual* comments provide the historical, stylistic or philosophical interpretations of the text and are usually presented in the form of articles and monographs; secondly, *textual* comments are integrated into the text (often in the form of footnotes) and refer to certain described phenomena (Лотман 1995: 427-474). Drawing on Lotman’s ideas, Mikhail Gasparov (2004: 71) distinguished three main directions for the commenting: *extratextual* background of the text (ideas and everyday issues); *literary* background (allusions to other texts and ideas); *linguistic* background (language and style in literary and nonliterary tradition). According to the author, the difference between textual and conceptual comments may be not so strict, as posited by Lotman; rather, the change is gradual and related to the scale of the commentary (to a word, an extract, a work of art, all works by the author, all literature of the epoch, etc.).

An integration of the comments of different types is not always possible, since a coherent interpretation of the whole text may interfere with a word-by-word commentary. Gasparov saw a possibility to solve the difficulty by means of electronic technology: „A user would follow the text from one passage to another and, in an important place, zoom in and move from word to word“ (Ibid., 72). However, as fairly noted by scholar, this change of scale could not be merely mechanical and requires an elaborated theoretical backing. These concerns are reasonable: even though digital tools already allow automatically commenting words or sentences, the whole picture sometimes does not make sense.

„Commentary is a translation: a translation of a foreign culture into the language of our own ideas and feelings“, supposed Gasparov (Ibid.,73). Indeed, even though in a commonsense understanding „translation“ is mainly interlinguistic, a semiotic perspective allows looking at the translational processes involved in other sign systems than natural language. Thus, Roman Jakobson made a distinction between three types of translation: *intralingual* translation as an interpretation of verbal signs by means of other signs of the same language; *interlingual* translation as an interpretation of verbal signs by means of some other language; and *intersemiotic* translation as an interpretation of verbal signs by means of signs of nonverbal sign systems (1966: 233). As stated by Juri Lotman, the transfer between linear and spatial languages cannot proceed without causing alterations in meaning (Лотман 1992b: 38).

At first sight, the main goal of most digital books is to represent the original literary text. However, digitalization of a novel requires the transformation of text on both media and discursive levels, therefore, could be considered a case of intersemiotic translation. Digital environment brings the problem of commentary to a new level, as it allows adding unlimited amount of verbal and audiovisual information in order to facilitate the comprehension. However, the opportunity to augment the reading with links to relevant contexts, glosses, analogous materials, audial and visual media, is undermined by the risk of „impoverishment, distraction, contamination“ and interferes with the linearity of perception (Toolan 2010: XVIII). The current arguments about the amount and quality of digital commentary are mirroring the old debate about “over the desirability of reading the bare text or of reading the text heavily annotated and supplemented by critical exegesis and commentary, intratextual and intertextual reference, and a record of all invariant textual forms” (Ibid.) Consequently, the matters of selection and organization of the additional information become crucial.

Obviously, there could be no universal solution to the problem of the effective communication of texts: the type of the commentary is dependent on the characteristics of the text itself and the circumstances of its perception. As stated by Gasparov (2004: 73), a comprehensive systematic commentary is mostly needed in the case of the old or exotic texts, in order to have the foreign culture translated. However, in practice, the information processed by “metacommunicative agents” often appears monotonous: literary text is deprived of its individuality and recontextualised as a part of a certain social discourse (Топон 1995: 68). The situation of underdetermination is associated with the lack of available codes and “entails the necessity for readers to supplement the text with their own interpretations” (Tymoczko 2014: 200). Overdetermination, in its turn, works for the benefit of clarity and implies that the

reader's interpretative power is shifted onto many codes. The confrontation of these two approaches is reflected, for example, in a longstanding discussion about whether the visual language is more concrete than the verbal one.

Wide-spreading digitalization of literary texts demands the beginning of the new stage in the exploration of translatability. It is exemplified not only by digital books, but also by filmic adaptations that tend to become more important in the course of the development of the computer animation. Currently, most digital editions merely copy the traditional structure of books: additional information is represented in the form of verbal notes and illustrations. Most digital adaptations of literary texts fit into the two categories distinguished by Henry Jenkins: „*multimedia* refers to the integration of multiple modes of expression with a single application“, while „*transmedia* refers to the dispersal of those same elements across multiple media platforms“ (Jenkins 2010). However, the classification is not exhaustive – for instance, the most simple e-books are hardly multimedial, whereas some literary video games could be better regarded as *intermedia*, which is „an interrelationship between or among distinct media that merge with each other“ (Spielmann 2001: 56).

Using the framework developed by Lotman and refashioned by Gasparov, it is possible to distinguish several directions in the development of digital commentary. In the case of different remediations, comments may be provided in various forms: simple digital books include verbal footnotes, illustrations and hyperlinks; complex audiovisual adaptations – for instance, literary video games – present additional information in the form of visual elements integrated in the storyworld.

- ***Historical background:*** digital comments help to make the old text more comprehensible by revealing the meaning of historical markers. For example, to explain the circumstances of the Czarist Russia to contemporary readers, the authors of the online commentary to Ivan Bunin's short story *Clean Monday* included pictures and photographs alongside with verbal explanations (Лекманов, Дзюбенко 2015). Digital edition of Lev Tolstoy's *War and Peace* allows readers to match the plot with its historical context with the help of interactive infographics.
- ***Cultural background:*** digital comments facilitate the understanding of foreign ideas and objects. In a literary video game *39 Steps*, players may explore the storyworld by reading authentic newspapers and examining objects. Mobile app *Some Stories about*

King Solomon facilitates comprehension of biblical parables via animations, illustrations and comments.

- **Literary background:** links to other literary and nonliterary texts are provided. For example, *Sherlock Interactive Adventure*, a 3D-adaptation of A. C. Doyle's short story, allows exploring objects from the other works by the same author. *The Homer Multitext* project seeks to reveal the polyphonic genesis of Homeric poems: the platform provides hundreds of texts and images to allow readers to discover and engage with the Homeric tradition.
- **Linguistic background:** digitalization aims to enhance the language learning. In order to make the Elizabethan English more comprehensible for young readers, the developers of the mobile application *Shakespeare at Play* augment original texts with instant translation, linguistic comments and videos of word-for-word staging. A *Clockwork Orange iPad App* provides instant translation from fictional Nadsat slang to English.
- **Transmedial coherence:** digital environment integrates literary text with its adaptations and metatexts. Thus, a literary environment *Pottermore* serves as a platform for all the books from *Harry Potter* series, games and new texts. Estonian online project *Kreutzwald's Century* joins literary texts with art, adaptations, illustrations and critics. In mobile application *Explore Shakespeare* by Cambridge University, each play is accompanied with scholarly annotations, plot explanations, audio adaptations, videos and photos of most famous performances.

The potential applications of digital tools are much wider than listed above, even though they are yet to be realized. Apart from improving already existent practices on the level of comprehension, new technological means allow conducting operations that were hardly impossible with printed books. For instance, in some digital environments it is possible to discuss literary texts with other readers, make exercises and even contribute to the construction of the storyworld via submitting new works of art. At the moment, these products are not widely used at schools, that is why the thorough examination of different functions is still needed. The ability to comprehend texts and create new ones according to rules appears to be even more important in the context of Lotman's understanding of culture as a system of teaching and learning (Лотман 2000: 417).

3.3. The principles of digital pedagogy

The implementation of digital literature in education is impossible without the reconsideration of current approaches to teaching. On the one hand, the principles of digital pedagogy stem from the paradigm of new media. On the other hand, they are deeply rooted in constructivism. As was stated by the prominent Russian constructivist Lev S. Vygotsky, whose ideas have been constantly reiterated by contemporary researchers, “very essence of human memory is that human beings actively remember with the help of signs” (1978: 51). This focus on meaning making has made Vygotskian ideas relevant for semioticians, as well. Drawing upon the classical works of Lev Vygotsky and more contemporary ideas, we will try to sketch out the main principles of a sign-driven pedagogy.

Learning as a social process

Behaviorist theories, which remain still popular in contemporary schools, regard learning processes atomistically and postulate “a dualism between the learner’s mind and the knowledge to be learned” (Nöth 2009: 3). In this older paradigm, knowledge is considered as stable and absolute, while learning is a “passive process of acquiring isolated skills and bits of information” (Siegel 1995: 455). The principles of modern psychology – partly developed already in the 1930s – regard “learning as a social process in which students actively construct understandings” (Ibid.)

The pedagogical understanding of knowledge as a process is related to Charles Peirce’s theory of semiosis as “an infinite progress of becoming by which signs and meanings are connected by the human mind” (Nöth 2009: 3). The development of complex mental processes is inseparable from social activities. This generation of knowledge in the course of social interactions was conceptualized by Vygotsky as internalization. According to the scholar, “every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (*interpsychological*), and then inside the child (*intrapsychological*)” (1978: 48).

The concept of the *zone of the proximal development* was introduced by Vygotsky to discuss the results of social learning. According to this idea, children can perform much more challenging tasks with the help of others rather than independently. Once these social processes are internalized, “they become part of the child's independent developmental achievement” (Ibid., 82). Play is regarded as a crucial part of education, since it creates a zone of proximal development of the child. As stated by Vygotsky, “in play a child always behaves beyond his

average age, above his daily behavior; in play it is as though he were a head taller than himself” (Ibid., 102). Allowing children to take on different roles, play encourages them to grow cognitively. Moreover, children are learning to separate thought and action thus developing abstract thinking. The importance of play in education has been also promoted by Tartu-Moscow semiotic school. According to Lotman, play not only allows modelling possible and impossible situations, but also teaches to organize behavior, adapt to the rules, and exercise practical and conventional behavior simultaneously (Лотман 2002: 277-278).

The emergence of social networking and online communities provides new opportunities for group learning. Even though reading practices are generally considered as solitary, the social dimension of reading has always been present and became even more relevant in the digital era (Spink 2014a). The classical idea of book club has been realized on a large scale with the help of online platforms – often with the participation of authors. Now it is possible to start discussion groups on social media like *Twitter* or *Facebook*; share emotions and experience on specialized platforms, such as *Goodreads*; begin conversations right in the middle of pages via educational tools *Subtext* or *SocialBook*. The sociality of reading may be extended even further – up to creating fan fiction, presenting amateur adaptations or creating advertising “book trailers”. These practices of reading, interpreting and transforming literature may be regarded as an application of a play-type model to literary experience. Thus, “the reading experience, the relationship between author and reader, and the book itself are evolving”, while readers step beyond the individual experience and create shared literary-related spaces (Valenza, Stephens 2012). Unfortunately, only few developers of digital books add social features to their products – the only widespread option is the possibility to share quotes on the social media directly from the reading application.

Learning as an integrational process

Integrative approach is the core of constructivist approach and its contemporary derivatives. Knowledge is not given but generated in the course of cognition, which „always involves an interaction between the physical world and a cognizing organism“ (Nöth 2009: 3). According to Vygotsky, both formal and informal, verbal and nonverbal activities may be regarded as part of education. Edusemioticians contribute to the list by including unconscious elements of human communication, since „a fully semiotic perspective on education is one that regards everything we do as response to signs and signals” (Stables 2009: 21).

The multimedial and often fragmented nature of contemporary reading materials brings into a question the coherence of mental experience. The verbocentric ideology promoted in schools “has led us to regard language as the sole channel for learning and to separate it from other ways of knowing” (Siegel 1995: 456). Subsequently, the increasingly larger role of the image in communication is anticipated with pessimism and distrust, especially by the representatives of the conservative educational systems. However, the problem – if there is any – did not originate recently: long before the digital books were introduced, the researchers have paid attention to the role of paratextual and nontextual factors. According to multimodal approach pursued by G. Kress, T. van Leeuwen, C. Jewitt and other contemporary scholars, “meanings are made (as well as distributed, interpreted, and remade) through many representational and communicational resources, of which language is but one” (Jewitt 2008: 246). In the domain of education, it is easy to notice a shift “from the dominance of writing as the main or at times sole carrier of meaning to an increasing reliance on image” (Kress 2010: 46). Alongside with Kress and van Leeuwen’s works on the role of images (1996), other works explore such semiotic resources as sounds, movements, gesture and spatiality. Each of the modes plays a discrete role in a communicative act and “provides specific potentials and limitations for communication” (Kress 2004: 5). The shift from the verbocentric model of education is backed up by the evidence from the realm of developmental psychology. In accordance with the ideas of Piaget and Freud, primary processes of mental development of the individual “are pre-verbal in origin and thus prefer to handle images rather than words” (Moriarty 1994: 17). Another trigger of global changes in education is the evolvement of the New Media paradigm and the resulting demand for advanced literacies. According to Lev Manovich (2001), new media are characterized by digital distribution of knowledge, software control of data, mix of the older and newer cultural conventions, faster execution of algorithms, use of metamedia, and new aesthetics.

Transmedia principles are highly important in the pedagogical sphere. The scientific data proves that the combination of different media platforms enhances the outcome of learning (Ojamaa, Torop 2015: 62). Artistic repetition bears a crucial mnemonic function: the story may be better remembered, when is conveyed by original verbal text in parallel with its verbal, audial and visual representations. What’s more, intermedial translation can be a starting point for the discussion about the narrative capacities of different media – the students may analyze the sameness and differences of various texts, thus exercising the media literacy. The interaction with translated texts requires that the reader (viewer or listener) “does not simply

correlate a content and an expression plane, but takes the interpretant arising from that correlation and maps it onto the expression plane of a new sign system” (Siegel 1995: 461). Subsequently, the invented connection between different sign systems acquires the generative power (Ibid.).

Learning as a process of design

The dominating pedagogical practices have been for a long time influenced by a paradigm based on the notions of conventions and competence, rather than on that of design. The dual frame of representation and communication serves as a foundation of multimodal analysis. *Representation* takes place in a social environment and is focused on the interests of the author; *communication* constructs a social environment and is focused on the interest of the author in its relation to others. Subsequently, representation could be aligned to the notion of *rhetoric*, which is oriented to the social and political dimensions of communication – ideology of the message. Communication, in its turn, is related to the *design* – “the translation of rhetorical intent into semiotic implementation” (Kress 2010: 49).

From a multimodal perspective, “design can be used to refer both to teachers’ pedagogic designs of learning processes and students’ designed constructions of meaning” (Jewitt 2008: 252-253). The shift of the focus from the acquisition to transformation makes the learner agentive: “The reader is involved in the task of finding and creating reading paths through the multimodal, multidirectional texts” (Jewitt 2008: 259). This openness and fluidity of structure, made explicit by digital technologies, is no least relevant in the case of modern printed books. “‘Older’ pages of writing embodied notions of authority and authorship”, while contemporary page “is shaped generically with assumption that engagement takes place on terms of the (child) reader’s interest”, states Kress (2010: 38-38). The distinction, rather relative than absolute, is based on the change in pedagogical practice in last several decades. For instance, the image in 1930s textbooks was schematic and aimed to illustrate the curricular entities mentioned in the written text; in 2000s, image often not merely illustrates the verbal text but shows the curricular materials which are best represented visually (Ibid., 47). The role of visual and verbal elements is dependent on the situation: thus, in “school English writing on screen represents the concepts of the curriculum”, sometimes with audiovisual alternatives, whereas “in mathematics and science writing appears to be primarily used to name the canonical curriculum entities within the specialized language of the subject” (Jewitt 2006: 318). While the rhetorical dimension linked to the goals of the author still remains relevant, the tools for the effective communication have changed, and design became more important than ever. The

sequence in which the elements are read and ordered is now dependent on the interests of the reader. The organization of text is configured “as a site of display, a site of appearance, a semiotic/layout unit that did not exist and could not have been imagined in the 1930s” (Kress 2010: 141). The multimodal design often offers different points of entry into a text, some alternative paths to go through it, a possibility to remake a text via reading of it (Jewitt 2008: 259).

The design of literary texts is generally seen as a part of an older tradition: a large amount of writing on page references to the values of specialist knowledge, authority, and authenticity (Jewitt 2006: 323). Thus, as claimed by Kress, traditional pages will continue to exist, since “the elites will continue to use writing as their preferred mode, and hence, the page in its traditional form” (Kress 2004: 18). However, the visual shift in the design of literary texts seems to be already happening – and in the course of it, the very foundations of literature are challenged. New forms of literary texts not only give comparable rights to word and image, but also grant readers with the authority. In this case, not only the medium of the book is reconsidered, but the very idea of literary experience and literature as such.

In contrast to most paper-based versions, some digital books provide a choice and encourage active learning. While in a traditional lecture-based classroom learners take a passive role of the audience, new pedagogy grants students with the agency in the meaning-making process and multiplies channels of information, therefore destroying the “fourth wall” (Teske; Horstman 2012: 5). While using digital reading materials, students may not only choose the mode of representation, but also consult the background information and come up with their own interpretations. Digital adaptation is a qualitatively new kind of text that integrates the prototext with metatexts: the coherent whole is often comprised of a full-length original text, its interpretations and intersemiotic translations. On the one hand, the heavy usage of additional materials, to some extent, predetermines the meaning; on the other hand, the reader is granted with a greater interpretational freedom, when compared to learning in an often authoritarian literary class. The adoption of student-centered pedagogy requires the switch in power relations: attention is not imposed superiorly but shaped as a result of student’s attention. In this case, the process of internalization takes place as follows: “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”. (2010: 42)

The role of technology in literary class is, at least, twofold: on the one hand, it serves the aims of the literary advertisement; on the other hand, provides a deeper experience of literary work. Sometimes these two functions coincide: media elements may “support struggling readers, cue readers to important events, contribute to the mood of the story, clarify difficult concepts, or reinforce key ideas activate thinking and promote comprehension” (Lamb 2011: 17). The digital enhancement of literary narrative not only expands the storyworld, but also changes the readers’ interaction with the story. According to Unsworth, “these expanded dimensions of the experience of story are a significant part of what encourages many young readers to maintain their engagement with extended and intensive reading of books in multimedia world” (2009: 37). However, media additions often lead away from the original: “over-reliance on audio, bells-and-whistles features that distract readers, and “eye candy” unrelated to the story can divert attention, cause readers to lose focus, and adversely affect learning” (Lamb 2011: 17). The same was stated by Tynyanov about illustrations in printed books: „A picture book is a poor educational tool. The more luxuriously and pretentiously it is illustrated, the worse“ (1977: 318). Moreover, digital books are often more associated with leisure by students themselves, therefore, cannot always support the academic reading.

Conclusion: a digital book redefined

In order to define the place of digital books in literary education, it is necessary to reconsider its very foundations – the notions of text, book, literature, and literacy. By acquiring the semiotic perspective, we regard literature as one of the elements in the system of self-descriptive languages of culture. The literary text is perceived against a background of already existent cultural codes and its own metatexts, including adaptations, translations, retellings and interpretations in different languages and media. The text exists as a transmedial whole, which implies that the interaction with the story may require the acquisition of multiple literacies. In the times of omnipresent multimodal communication, the literary experience is extended from the simple reading of the book to exploring different media versions of the text and building up a coherent whole. In the context of literary education, this means that readers have to be aware of differences between modelling capacities of various media; the ways of interlingual and intermedial translation; the generative nature of these translations.

The medium of the book loses its distinctive characteristics and is redefined as a multimodal environment, whether that be a printed edition, interactive e-book or literary video game. The modern technology opens up wide opportunities for reflecting the fluid and heterogeneous nature of the literary text, which has not been truly possible in the era of print. On the one hand,

digital environments give space for unlimited commenting and integration of prototexts with its metatexts; on the other hand, these possibilities are undermined by dangers of overdetermination and losing the coherence of the text.

The new digital pedagogy is, to a large extent, based on the ideas of constructivism: it promotes the student-centered approach; the integration of formal and informal, verbal and nonverbal activities; the importance of social communication in learning. These principles are already reflected in some new literary products that celebrate the social and multimodal aspects of reading.

3. DIGITAL BOOK: APPROACHES TO ANALYSIS

Different media possess different modelling capacity. In order to explore the implications of digitalization for literary education, we have developed a typology of digital adaptations and defined the features of each type using Bolter and Grusin's ideas on remediation. Profiles of each type (duplication, enhancement, refashioning, and absorption) provide information about core media characteristics and educational use. After that, three examples of digital books – *Curriculet*, *Shakespeare at Play*, *Sherlock Interactive Adventure* – are thoroughly analyzed. In each case, the genre of adaptation is defined; the relation of the source text and target text is discussed; special attention is paid to the layout of the product, patterns of perception and possible educational use. The emphasis is made on the exploration of experiences, ways of perceiving the content and ways of knowledge production offered by different projects.

3.1. Type overviews

3.1.1. Duplication

The strategy of duplication implies that the new medium tends to erase itself and become transparent. The lower levels of taxonomy are occupied by books in PDF, DOC, DOCX, RTF, HTML and EPUB formats (Kapaniaris, Gasouka et al 2013: 318). These products are created by free or commercial software and are characterized by limited interaction.

Media characteristics. The developers of the simplest digital books often emphasize the similarity between their products and paper-based editions. Thus, the advertisement on the official *Apple* website promises: "Reading on your iPad, iPhone, iPod touch, or Mac is just like reading a book". Immediacy is considered dominant: the focus on the content makes the media itself almost invisible, whereas the verbal text remains more important than non-verbal elements. In order to achieve the goal, the developers pay attention to minor details that have been traditionally praised by paper-book lovers: sounds, texture and color of the paper. For instance, the newest feature in a *Google Play Books* filters out blue light from the screen and adds the warm colors as the evening goes on (Welch 2015). The possibility to develop digital books with flipping pages is provided by software – for example, online tool *FlipSnack* allows transforming PDF files into interactive flipbooks.

The visual structure of literary e-books is motivated by their relation to paper-based editions. Original text usually occupies almost the whole page, while additional information is limited to footnotes under the pages or after the text. Some contemporary e-readers, such as *iBooks* for the iPad, allow viewing the comments in pop-up windows within the core text. In most cases, all graphics have to be anchored into the text, while intensive layouts like sidebars and image callouts are not preferable (Swanson 2011). Since the possibilities to use nonverbal elements are limited, the meaning is conveyed mostly via words. This may create the situation of underdetermination (Tymoczko 2014: 200): meaning is not fixed in multiple sign systems, like in movies or video games, but needs to be supplemented with readers' own interpretations.

All-in-all, simple digital books fulfil the same functions as paper-based ones, but in sometimes faster and more convenient manner: for instance, EPUB format provides an opportunity to look up definitions of words when clicked, search for certain words within the text, access links to websites, make bookmarks, annotations and highlight fragments in multiple colors. Most of these functions have been already relevant to printed editions but required the usage of additional tools (libraries, dictionaries, reference books, etc).

Educational use. Due to the low cost and ease of use, simple digital books are most commonly employed in schools. Traditional framework is preserved: books are used for reading at home and discussion in class. According to the teachers' insights collected by *Getting Smart*, e-books provide "dynamic, interactive learning experience" and allow personalizing this experience "from changing font size, to choosing how to make notes" (James 2012). Even though the functionality of e-books is limited, teachers come up with their own creative adjustments. For instance, *iBooks* allows readers to view on one page all the annotations and bookmarks made by them during the reading – teachers may use this opportunity to monitor students' progress. However, the structure of the plain digital book remains closed: the interactivity is reduced to reading the comments, creating bookmarks and private annotations.

Most pitfalls of using literary e-books are general to all kinds of digital texts. By using the eye movement tracking, the researchers from James Madison University have revealed that students tend to skim digital pages rather than read the whole text through (Jakobsen, Daniel et al 2012). More recent studies support the argument that digital reading may interfere with remembering and comprehension: for instance, the need to scroll on the computer screen makes remembering more difficult than in the case of touching paper and turning physical pages (Myrberg, Wiberg 2015). While the findings of different studies related to digital reading

remain contradictory, some researchers suppose that the current drawbacks may be explained by poor design. Most e-books are “made to be read like a linear text, so the possibilities of digital medium are not being utilized” (Ibid., 50). Subsequently, the e-book turns into a mere copy of the printed version that does not have many advantages over traditional editions and, besides that, feels less familiar to readers: indeed, even the most advanced technologies still cannot reproduce the sounds or physical texture of the paper.

3.1.2. Enhancement

Digital books of the second kind provide more possibilities to readers, even though the older medium is only slightly improved. The most common examples are enhanced e-books that contain multimedia features, social, or research instruments. Despite all additions, the structure of the original book and the trajectory of its perception are not challenged.

Media characteristics. Enhanced e-books may differ from their print predecessors in different ways. Firstly, they are exemplified by illustrated storybooks – multimedia versions of the old stories, often in the form of mobile applications. Like in children books, the colorful pages of these products include a lot of images, sometimes animated. The difference from simpler editions is emphasized by the developers as well as by the audience. Here are some excerpts from the descriptions of products in the *iTunes Store*: “It reinvents reading“ (*Alice for the iPad*); “Warning: This is not a book, but an Interactive Reading where stories are brought to life” (*iClassics*); “Byook is a new reading experience” (*S. Holmes*)³; “Experience “The Raven”, as it comes to life, like you've never seen it before” (*The Raven*); “With the help of multimedia features of this interactive book, the world-known classics gains the original sounding and acquires new context” (*Великий Гэтсби Интерактивная книга*).

Secondly, digital books may present multimedia collections of story-related materials. In this case, the difference from the older media consists not in the abundance of the visual additions, but in the offering of contextual materials: drafts, archive photos and videos, explanatory articles, etc. To some extent, these digital products resemble textbooks dedicated to one or several texts. Developers also stress these features in advertisements: “The radically different way to experience the iconic novel” (*Чаная и Пустота*); “A *Clockwork Orange* for *iPad* is the definitive and fully interactive edition of one of the most influential books of the

³ Worth noticing, the developers of *S. Holmes* do acknowledge the relation of their product to paper-based edition. “An intuitive usage similar to paper books” is emphasized just below in the advertisement.

twentieth century”; “The legendary novel from the postwar prophet of American literature is now brought to life with exclusive content for an absorbing and transformative experience” (*Jack Kerouac’s On the road*). As may be seen from two sets of quotes, the creators of the abovementioned products tend to stress the difference from paper-based editions with the help of pretentious language and appellation to emotions. Like in the examples of Bolter and Grusin (2000: 46), the buyers are invited to understand that they are purchasing not digital copies but improved versions of the original.

Thirdly, a remediation may add social features to the older medium. For instance, such reading platforms as *Curriculet* or *Subtext* allow embedding a layer of questions, quizzes, and rich media annotations into any reading assignments – or starting a conversation right on pages of the book. With the exception of the mentioned products, the structure of enhanced digital books is mostly closed and does not allow making considerable contributions to the story.

In all three cases, the medium itself becomes visible but remains faithful to the older one; the verbal text is still dominant and perceived linearly. Even though the audiovisual additions are positioned by creators as an essential part of the reading experience, they are not obligatory. Such products mostly fall into the type of multimedia – “integration of multiple modes of expression within a single application” (Jenkins 2010).

Educational use. Enhanced digital books are usually used for literary advertisement or facilitation of the close reading. While multimedia elements make literature more attractive for readers, social and research tools provide aids for attentive and reflective reading. The form of the medium becomes more open, but the meaning is often overdetermined, especially when the reader is overwhelmed with concrete images and interpretations. Thus, the extensive use of audiovisual material may result in a deep emotional engagement, but can immobilize the imagination.

The findings related to the usage of enhanced books in literary education are also contradictory. On the one hand, the presentation of multimodal materials proved to be engaging for readers; on the other hand, more thorough information about the strategies of perception is still lacking. The controversy is intensified by the bias against the digital books. Nevertheless, even the slight enhancement of the printed materials may result in a better comprehension. As was shown by the comparison of the paper-based textbook and its digital adaptation (Stoop, Kreutzer, Kircz 2013), the simple transferal of dictionary and study questions from the back of the book to the body of the text helped the students to understand the material better. In this

case, enhancing the text appeared to be more effective than just turning it into a copy of the printed version.

3.1.3. Refashioning

Refashioning consists in the developing of the new medium while marking the presence of the older media. The distinctive feature is a shift in reading patterns: the story is often not perceived linearly, but has several points of entry.

Media characteristics. Remediations of this type involve nonlinear reading practices that could also be described as world-based reading: storyworld may be constructed via interactive maps, augmented reality projections, or live stream in social media. New medium may refashion the older one in the form of transmedia: in this case, the verbal text makes the part of the wider transmedial whole. The enjoyment of reading arises not only from following a plot, but also from complementing the story with an expanded experience of the narrative world it takes place. For instance, the users of *Pottermore* can go through the chapters of J. K. Rowling's series and take part in adventures: collect potion ingredients, practice spells or gain points. Literary experience is no longer limited to reading, but requires creative selection and organization of the elements of the storyworld, sometimes paired with the independent introduction of new elements⁴. The implicit ability of literary work to transcend the borders of its medium becomes obvious: the book is transformed into something much more fluid and vast.

The traditional practices of reading may be challenged by the explicit juxtaposition of verbal and nonverbal elements. This is often relevant for old or obscure works, when the original text, taken individually, is considered as hardly comprehensible for the inexperienced audience. Thus, the perception of literary works in *Shakespeare at Play*, *Shakespeare in Bits*, *The Waste Land* requires that the reading is inseparable from viewing the audiovisual adaptations (video of performances and animations). The same may be said about the projects that pair original texts with different versions: thus, *SwipeSpeare* provides an instant "translation" of Shakespeare's language into modern English; *The Homer Multitext* allows reading ancient poems alongside with related manuscripts; the fluid edition of *Walden* presents different versions of Thoreau's drafts. In all cases, the creators' decision to supply the original text with

⁴ The latter possibility is fully realized in fan fiction. Some projects listed in this paper – for example, literary environments by *Weekly Reader* – also provide an opportunity to create new stories on the basis of well-known texts.

additional material is mostly ideological – it is thought to provide the fullest experience of the literary work.

Sometimes, the story is distributed not only between several media, but also between several platforms. The evolving genre of social media retellings harnesses the power of modern technology to create more engaging narratives⁵. The famous storylines are being recreated in the dynamic environments of Twitter, Facebook, Tumblr and other social media, as if the fictional characters were our contemporaries. Paradoxically, this hypermedial approach to literary narrative also creates a strong sense of immediacy: the fragmented environment of the web has already become a natural and transparent habitat of modern people. In this regard, social media adaptations could be also considered as absorption of literary narratives by the structures of online communication. As was stated in *Mashable*'s article dedicated to the adaptation of Shakespeare's *Much Ado About Nothing*, "people have long modernized Shakespeare by dressing actors in current clothing and trying to adapt the sometimes dense, complicated language. This project marks a quantum leap in format, as well, updating not only the characters but the way in which they interact" (Sniderman 2011). For sure, the inherent characteristics of social media make an impact on the nature of artistic texts – literary stories are abbreviated, stylized and extensively illustrated.

Lastly, the story may take place simultaneously in different places. Augmented reality books make use of the both virtual and physical world: it is possible to perceive the original text in a written form and augment the experience with games and entertaining activities in virtual environment.

Refashioning implies that the verbal text loses its dominance and is put side by side with non-verbal elements. Older medium becomes a part of a mosaic whole – transmedia or hypermedia environment. This opens up a possibility to establish a balance between overdetermination and underdetermination: even though the meaning is conveyed through multiple channels, it is may be not imposed authoritatively.

Educational use. The effectiveness of transmedia storytelling in education is widely discussed in media and academic literature. In terms of Henry Jenkins, "in a transmedia presentation, students need to actively seek out content through a hunting and gathering process which leads them across multiple media platforms" (Jenkins 2010). Transmedia environments

⁵ Despite the popularity of the genre, we are aware of only abbreviated adaptations, such as represented in Penguin's *Twitterature*. More often, social media retellings are used in the case of archive chronicles (e.g. *Titanic Voyage*) or diaries (e.g. feeds of Leo Tolstoy, Feodor Dostoevsky and other historical figures).

allow exploring the storyworld and making additions: users are invited to remix, search and synthesize different elements. Also, they can develop transmedia literacy through defining the media specific-differences.

At first sight, the techniques requiring the refashioning of literary works do not seem to be easily integrated into the system of school education. For many conservative educators, the possibility to construct and modify the fictional universe interferes with the need of conveying the authorial discourse. However, the transmedia practices have been for a long time explored in literary classes worldwide: for instance, any theatrical or cinematic adaptation developed by students requires the creative reconstruction of a storyworld. Informational technologies only bring this process to the next level: thus, the participators of Griffith and Bower' school experiment (2013) created their own transmedia versions of English classics with the help of different web platforms.

3.1.4. Absorption

The situation of absorption implies that the newer medium is almost inseparable from the older one. Interactive fiction, including its newest subgenre – literary video game, may be regarded as a remarkable representative of this type.

Media characteristics. Significant amount of literary-based products employs game mechanics to provide a deeper engagement with the story. Readers, or users, become characters in the narrative and gain some control over the development of the plot. Reconceptualization of the printed text as a game-space allows transcending the temporal and spatial limitations of the medium. According to Saklofske, this perspective has been already theorized and anticipated by Mikhail Bakhtin's "notion of carnivalesque spaces and functions", Jacques Derrida's "acknowledgement of the ideological and ontological tensions and disruptions associated with interpretative freeplay", and Roland Barthes' "pre-digital experimentations with playtexts" (Saklofske 2010: 132). After having been explored by the authors of experimental fiction (such as Julio Cortázar's novel *Hopscotch*), the idea of interactive literature was fully realized with the development of design and information technology.

While refashioning is associated with a fragmented layout, absorption allows combining the traits of several media within new format. The production of interactive fiction requires the simultaneous employment of play-type and artistic modelling. According to Juri Lotman, a play combines random and regular processes, provides a "richer" description of life, and could be

regarded as a more/less deterministic model of life (Лотман 2002). Whereas games are considered “school of activity” that teaches to organize behavior, artistic models help to organize the intellect, as well. Mixed genres combine the traits of books and games, intensifying the inherent playfulness of literature. Interactive fiction may correlate to different genres of games: whereas some game-books may be compared to board games, the newest ones derive from video games.

The genre of interactive fiction implies that the reader makes choices to determine the outcome of the narrative. In the case of literary education, the choices should be rather limited, in order for the adaptation to stay more or less faithful to the original. However, this requirement is fulfilled to a different extent: thus, *Inkle*’s interactive adaptation of Jules Verne’s *Around the World in Eighty Days* allows modifying the route of Phileas Fogg’s journey, whereas *Versu* models dialogues with literary characters with the help of artificial intelligence.

Literary video games make the process of choice-making even more natural. In contrast to more logocentric examples of interactive fiction, video games provide a cinematic representation of the story. The user may acquire a first-person perspective of the scene, which creates an effect of immersion: being able to direct control the point of view, “the player is often both actor and director” (Bolter, Grusin 2000: 47). The extensive use of nonverbal sign systems makes the presence of the original text unnecessary; nevertheless, it is sometimes included. In terms of Yvonne Spielmann, video game adaptations can be described as intermedia – „an interrelationship between or among distinct media that merge with each other”, provided that “the processes of transformation are reflected in the form of the images” (Spielmann 2001: 56-57). For instance, *The Story Mechanics* aspires to reconstruct the whole storyworld of classic novels in the audiovisual form of a quest. Developers describe their digital adaptations as “multi-sensory experiences, where a combination of words, art, audio and story mechanics are used to transform the best of books into living entities” (The Story Mechanics 2013).

In the case of audiovisual adaptations, such as interactive fiction or video games, nonverbal modelling becomes extremely important. The original text dissolves into the cinematic narration, sometimes being fully translated into nonverbal signs. Even though the reader seems to participate in the development of the plot, the form is more or less closed and the meaning is already determined.

Educational use. According to Saklofske, “computer-based interactive narratives marry literary and theatrical modes of representation and participation” (2010: 136). The students are involved not only in comprehension and interpretation activities from a distanced point, but participate in the story from inside. The usage of interactive fiction in the classroom may sharpen close reading and logical thinking, reinforce systems thinking and design thinking skills (Farber 2015). When several students play the same game, they can “converse about a shared experience, continue earlier dialogues, and reflect on the narrative as well as the experience of acting within that narrative” (Saklofske 2010: 137). Several products already offer some options for social interaction: for instance, the users of *80 Days* can share their journeys with friends, explore other’s routes and even race head-to-head with others. Even though the effectiveness of video games in literary education is yet to be explored, numerous works study the impact of different games on liberal arts in general: *SimCity* (Friedman 1995); *Civilization* (Friedman 1998); *Second Life* (Han 2011); *World of Warcraft* (Larsen 2012). Other revised titles include *Global Conflict: Palestine*, *Peacemaker*, *Wolfquest*, *Darfur is Dying*, *Harpooned*, and *September 12th*. (Saklofske 2010: 138).

Due to their relative independence from the original narrative, digital games need to be integrated in tandem with more traditional classroom practices and assignments: presentations, seminars and formal essays (Ibid.,135-137). Also, gaming experiences should be not simply “fun”, but “interesting, serious, memorable, accurate and thought-provoking rather than escapist” (Ibid., 138). The creators face a challenge: on the one hand, they have to keep faith with the original literary work; on the other hand, the users should have a possibility to creatively modify content rather than just play through pre-rendered environments. The task proved to be uneasy: thus, the costly online adaptation of William Shakespeare’s *Neverwinter Nights* failed to entertain the general audience in the same way as commercial titles do (Ibid., 139). Indeed, many adaptations “conceivably fail to appeal to any by including multiple elements that please one audience and actively antagonize another, such that no audience is wholly satisfied” (Elkington 2009: 214). In this regard, the strategies of implementation of literary video games in each educational situation seem to be even more important than their functionality.

Conclusion: typology of digital books

Bolter and Grusin’ approach to remediation appears to be a productive framework for the classification of digital books. Due to the underdevelopment of the market and the lack of generally accepted terminology, the self-description of projects is vague and contradictory.

Developers tend to overemphasize the novelty of their products and adhere to rhetoric rather than to the objective description. In order to reveal the real nature of the object, a researcher has to filter out loud claims about „interactiveness“ or „innovation“ and concentrate on the structure of the product, its relation to more traditional media and its contribution to current practices or reading. The idea of the consistency between printed media and digital adaptations – so reluctantly acknowledged by developers – seems to be effective, as well. It allows not only revealing certain heredity, but also discovering global trends, instead of thinking in terms of specific genres.

Even if primitive duplications are left aside, the simpler digital adaptations still make the majority of the selection. Of 60 digital adaptations, 25 may be described as slightly enhanced e-books, in contrast to only 4 literary video games. This correlates to the fact that most products are commercial or semi-commercial: indeed, the disruption of conventions is not the primary aim of the developers driven by economic concerns. In the case of simpler projects, main reasons of digitalization are related to aesthetics: source texts are chosen for their potential visual appeal or the capability to win the attention of the audience. More complex products, including interactive reading platforms and transmedia, tend to fulfill educational needs: for example, to facilitate the comprehension of the old or obscure texts and explain the complex structure of literary works. Some of them are developed by top universities like Harvard or Oxford.

For sure, there cannot be any universal technological solution to the problems of literary education. The possibilities provided by each product can be creatively adopted and integrated by teachers in different situations. However, there are some characteristics that may be regarded more or less inherent to different types of remediations.

In the case of duplication, the strategies of perception are very similar to traditional ones, even though not always as effective. Since duplicated copies are characterized by limited interactivity and lack of meaningful additions, the reasons to prefer them over printed copies are usually pragmatic and not related to the content – for example, the cost, availability or weight of the books.

Enhanced versions, in their turn, provide more opportunities to literary education, but may contain distractive features. The most effective ones seem to be those that contain collections of literary-related materials or offer students a possibility to interact with peers and teachers. In the latter case, the digital book may become a core element in a “flipped classroom”.

Refashioning shifts the reading patterns, causing that the story is not necessarily perceived linearly and solely from words. The borders between formats are blurred: literary experience is no longer limited to reading, but implies an interaction with digital environments. These products reconsider the limits of literature, undermine the linearity and the authority of literary texts, and, subsequently, are not easily adopted by conservative teachers.

Absorption often implies the reconstruction of the whole storyworld via nonverbal means and may be extremely costly. Ethos, mythos and topos are the only elements left from the book – in all other respects, these products could be rather described as games or other media. Users acquire the control over the development of the plot and act within the immersive audiovisual environments. The implementation of such products requires the development of the new multidisciplinary pedagogy that will reconcile literary education with the needs of contemporary media communication.

3.2. Case analyses

3.2.1. Case analysis: *Curriculet (Frankenstein)*

Curriculet is a reading web-platform that allows embedding a layer of questions, quizzes and rich media annotations into reading assignments, which are called “curriculets”. The material that would normally be placed in worksheets pops out of the text as students are reading it. This freemium product has been developed by the team from the USA and currently is used by 1.2 million of teachers and students in more than 10,000 schools. In this case study, the digitalization of Mary Shelley’s *Frankenstein; or, The Modern Prometheus* (1818) is analyzed.

Digital book as adaptation

Curriculet is positioned as an improved version of the traditional textbook, which, at the same time, does not significantly change the perception of the text. As stated on its official site, “Curriculet is revolutionizing the way kids read, and how teachers create, share, and teach with a simple yet dynamic digital reading platform”. In contrast to most digital adaptations of literature, the projects on the platform are developed by teachers themselves⁶ and may be customized in the course of implementation. In the context of Bolter and Grusin’s remediation theory, this product may be regarded as an enhancement of the older medium – a paper based book. On the one hand, *Curriculet* allows augmenting original texts with multimedia features (videos, images, pop-up quizzes) and social tools (teacher-student interactions, instant questions). On the other hand, the new medium remains faithful to the older one: the verbal text is still dominant and perceived linearly. In terms of Henry Jenkins, *Curriculet* would fall into the type of multimedia – “integration of multiple modes of expression within a single application” (Jenkins 2010). Worth mentioning, the project remediates not only printed editions, but also a simple digital book, since it is based on the EPUB e-book released under a Creative Commons license⁷.

Source text. According to The Open Syllabus Project (2015), Mary Shelley’s *Frankenstein; or, The Modern Prometheus*, generally known as *Frankenstein*, makes the top five of texts assigned in higher education institutions. Indeed, the high status of the book in the world

⁶ Unfortunately, teachers are going to lose the possibility to build their own assignments from April, 2016. Since then, only pre-made curriculets are available on the platform. According to *Curriculet*’s press release, roughly 10 percent of teachers have created their own curriculets (Wan 2016).

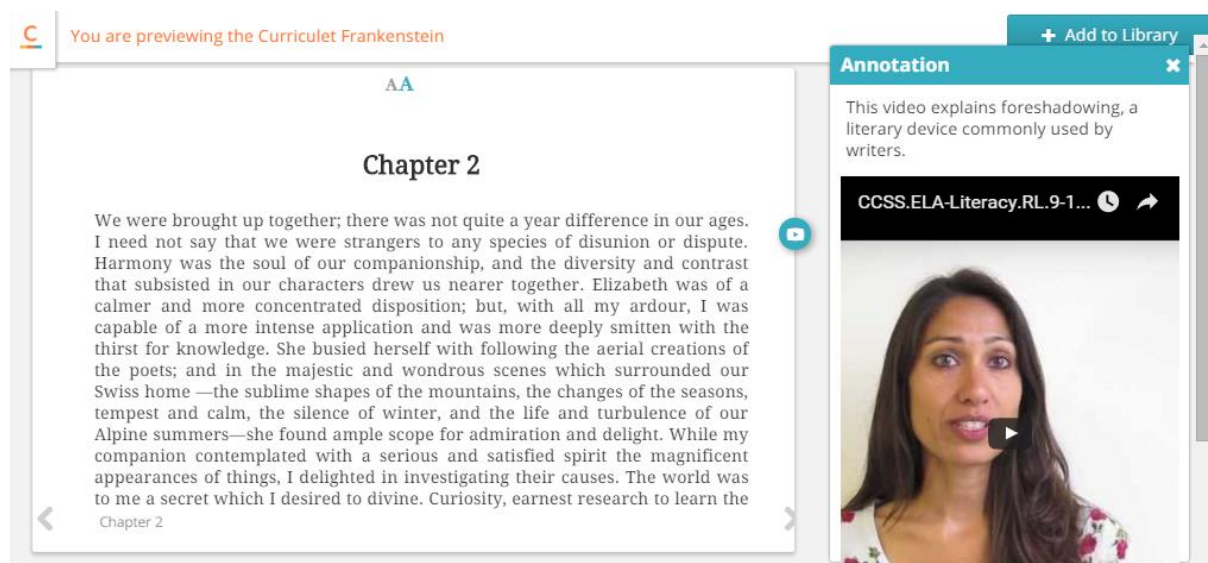
⁷ Digital books of this simpler type are being analyzed in the previous subchapter dedicated to duplication.

history, culture and education is indisputable. Bearing the traits of the Gothic style and Romantic Movement, the text is considered as one of the first fully realized science fiction novels. Apart from being popular among common readers, *Frankenstein* has had a strong influence across literature and popular culture, resulting in an outburst of horror stories and films. The difficulties connected to the integration of *Frankenstein* in school curriculum are explained by the peculiarities of its style, language and complex cultural existence.

Target text. The curriculet dedicated to Mary Shelley's masterpiece has been one of the most popular projects on the platform. This project was developed for use in Reading Literature grades 9-10 and, at the moment, has been assigned by 929 teachers. Apart from the full-length original text, the assignment includes 110 questions, 79 annotations and 19 quizzes.

Most additions to the original text of *Frankenstein* may be regarded as an example of intralingual translation: sophisticated words, concepts and situations are explained in the form of paraphrase, either in written or in audial form (*Fig. 1*). Development of some questions and annotations required the usage of non-verbal semiotic systems: for instance, images convey factual information about kinds of ice formations, construction of sledge and geographical locations. Frequently, the fragments of cinematic adaptations are used to provide the intersemiotic translation of different scenes. Other possible types of visual materials, which are not used in this particular curriculet, include PDF files, timelines and presentations.

Figure 1. Visual structure of Curriculet



The digital adaptation of *Frankenstein* does not show many considerable deviations from the traditional printed editions. First of all, the whole curriculet should be regarded as a *repetition*

of the original text. Other clear transfer operations (Hendrik van Gorp 2004) are exemplified by *additions* (introduction, annotations, questions, quizzes, illustrations) and *substitutions* (audiovisual adaptations). In terms of Anton Popovič (1976), *Curriculet's* edition presents some examples of affirmative and apparent linking on the level of the whole text and its elements.

The unit includes additional materials that facilitate comprehension of the text and give cause for reflection. Firstly, the historical, cultural and literary context of the novel is explained: students are provided with images of the setting, iconic renderings of Victor Frankenstein's monster, links to poems and writers referenced in the book, definitions of literary devices. Also, the definition of any word can be accessed by clicking the word on the screen and holding until the new window pops up. Secondly, the questions motivate students to think about setting, narration, complexities of morality, responsibility, family and other values. The additional materials are provided both in written and audiovisual form (illustrations, short video lectures, fragments of movies). In a large measure, the structure of the unit is based on the traditional lecture-based lesson, but with a focus on different modes and a larger amount of background material involved. According to Dirk Delabastita (1993), this way of presenting the source text may be regarded as an example of *addition* at all levels (source text is reconceptualized as a more typical specimen of a target-text type) and *permutation* (compensation through intersemiotic translation).

Curriculet's strategy of commenting is explained by the editor Marika Ismail (2014): "We can support students from afar (...) by including annotations that answer questions and address confusing moments before students become confused". The annotations may include relevant biographical information, artistic rendering of characters, links to songs and poems referenced in a text, verbal or video note describing a narrative element or artistic device. Different texts call for different annotations: while developing the comments for *Frankenstein*, Ismail paid special attention to the images of the setting.

Alternatives. Mary Shelley's *Frankenstein* has not only achieved a wide readership, but became a prototext for numerous adaptations and allusions. Apart from cinematic adaptations, theatrical performances and TV-series, the story has been also retold in digital and blended formats.

In 2009, the French studio *Anuman* released a hidden objects game for the iOS and Android. This mobile application, inspired by Mary Shelley's novel, invites users to solve puzzles and

play mini-games: find hidden objects, explore scenes and collect clues. Even though the narrative is very loosely based on the original plot, developers tended to preserve the historical accuracy of scenes and depicted the manor house rooms in details.

Frankenstein, for iPad and iPhone (2012) by *Inkle* is more faithful to the original. The interactive storytelling app allows the reader “visit Frankenstein's workshop, help him make his monster, and guide him through the disastrous events that follow”. Within the mobile application, it is possible to make choices that influence the development of the plot, explore illustrations (including 16th-century anatomical engravings) and read the full text of the novel, as published in 1818.

In 2014, Mary Shelley's book has become an inspiration for *Frankenstein MD*, American Gothic horror webseries with transmedia elements. The modernized story of Frankenstein was presented as an educational webseries presented by medical students. The streaming of episodes was supplemented with development of main characters' accounts on social media, where viewers could interact with them.

The celebration of the bicentennial of the writing and publication of Frankenstein will be supported by Arizona State University's large-scale project (2016-2018). The initiative encompasses a wide variety of physical and digital exhibits, research projects, meetings, projects and other opportunities. The virtual museum, which is a core part of the project, will combine online discussions on the ethics of science with the hands-on STEM experiences in museums and other partnering institutions (Hackett 2015).

In contrast to abovementioned projects, *Curriculet*'s version of Mary Shelley's masterpiece is seemingly less spectacular. However, it has been created by educators and is tightly aligned with educational standards. Instead of exploring the performative aspects of the story, the developers remain faithful to the original text and promote close reading. At the same time, the most important examples of audiovisual adaptations are present in the form of annotations.

Digital book as design

All projects on the *Curriculet* platform possess the same visual structure: full-length text is supplemented with additional in-line materials in the right margins. This tight coexistence of text and comments seems to be the key distinguishing feature of curriculets. In contrast to more traditional editions, when notes are placed at the bottom of the page or in the end of the book, digital adaptations allow perceiving the additional information side by side with the core text.

- *Information value.* Verbal elements are definitely dominant: original text occupies almost the whole page and writing is used as main means of commenting. Additions to the text may be presented in two modes – either openly, or in a hidden form as icons. The screen is structured horizontally: the left side is occupied by the text of the novel, while comments are placed on the right. This corresponds to the categories of Given and New distinguished by Kress and van Leeuwen (2006: 180-186): original text is considered as agreed-upon point of departure, whereas additional elements contain background information, explanations and points to consider.
- *Salience.* When the comments are hidden, the written text of the novel is the most salient element of the screen. However, in a full mode, additional elements do attract the readers' attention, since they often contain bold fonts, color highlighting, images and video.
- *Framing.* While the main text is printed in black on the white page, additional elements are placed outside the frame on the gray canvas. The distinction between original text and its complements is evident: comments are not regarded as inherent to the text but rather belong to the separate layer.

To a large extent, reading of digital *Frankenstein* duplicates the traditional experience. Like in paper-based editions, the pages should be turned over but not simply scrolled down. This correlates to the idea that reading digital text via scrolling may cause the lack of comprehension and remembering (Wastlund, Norlander, Archer 2008). However, the perception of the text is not completely linear: the interaction with additional elements is not only possible but considered obligatory. In order to complete the assignment, the student needs to read the text and pay attention to questions (which can be multiple choice or open-ended), quizzes (which include text, images, and videos) and annotations. Moreover, the readers are offered to make their own contributions to the text: as teachers' comments, their annotations appear as icons in the margins but in a different color. The full information about reading progress is reflected in teachers' statistics panel, while students receive a short overview of their work immediately after finishing.

Digital book as a pedagogical tool

Most literature-related products do not allow teachers and students to use their own texts or make adjustments to the material. The developers of *Curriculet* adhere to another philosophy:

“One of our most deeply held beliefs is that teachers make the best curriculum because they understand their students’ needs best”. The site does not only include hundreds of pre-made curriculets but also provides a possibility to develop new assignments by following the guide. As stated by Nicole Mirra (2014), the teacher and user of *Curriculet*, the key is that “the process of modifying and remixing existing resources ensured that the curriculum was always *my own*”.

Curriculet is supposed to be used in a “flipped classroom” – the instructional model that reverses the traditional educational arrangement: students are getting familiar with new information at home, whereas the classroom activities are dedicated to thorough discussions and analysis. According to *Curriculet*’s team, the construction of each curriculet requires a digital modelling of teaching literature in class: „we model our reading process for students by stopping to ask ourselves questions about character motives; we pause to reflect on a previous moment (...); we pause to analyze a symbol, a metaphor, a theme“ (Ismail 2014).

Main functions of the product are related to the communication of literary materials and control of reading completion. The developers promise to teachers: “You will know how your students performed on a reading quiz *before* they come to class, rather than after they *leave* your class”. The possibility of getting the instant feedback is considered crucial by reviewers as well as the *Curriculet*’s team: digital assignments serve as an alternative to paper-based assessment tests. Teachers admit that instant feedback “helps students assess their progress and adjust individual goals” (Rook 2014).

The product aims to solve the problem of motivation in reading: teachers are invited to boost comprehension via multiple checkpoints – annotations, questions or quizzes. As noted by Kievlan (2014), “carefully crafted checkpoints within texts have the potential to alter kids’ reading experience in a positive way, calling attention to key text features and helping students develop close reading skills”. Thus, in order to proceed to the next page, the readers are required to consider all checkpoints. According to observation by Mirra (2014), this method of controlling the reading process could interfere with students’ comprehension and interest in reading: for instance, readers may not understand a point until they see how the story develops further, or they may be frustrated by the need to answer multiple choice questions while being deeply engaged in a story.

Curriculet tends to support independent learning: instead of struggling with difficult texts on their own, students can attend to teachers’ explanations any time they need. Even though

Curriculet augments the reading experience via multimodal features, it does not provide many options for better personalization or interaction with peers. At the same time, students are encouraged to contribute their own annotations, which is quite rarely possible within digital books. Unfortunately, it is not possible for students to share annotations with classmates.

3.2.2. Case analysis: *Shakespeare at Play (Romeo and Juliet)*

Shakespeare at Play is a mobile application that contains a collection of digitalized plays by William Shakespeare. This educational project has been curated by the team of developers and researchers from Canada. Each play in the collection is augmented with videos of word-for-word performances, commentary and some other features. The following analysis is focused on the characteristics of one play – *Romeo and Juliet*.

Digital book as adaptation

At a first sight, *Shakespeare at Play* may not resemble typical transmedia projects that involve the redistribution of the story across several media. Main elements of the product – original text, commentary and videos – are integrated within one platform and smoothly supplement each other. However, the chosen format does challenge the traditional perception of literary text: written part is not undoubtedly dominant but runs as a script below the video of performance. As in Henry Jenkins' definition, each element of the product makes „a distinctive and valuable contribution to the whole“, therefore it could be regarded as transmedia (Jenkins 2006: 97–98). The latter assertion needs to be elaborated: indeed, it may be not clear why videos of performances serve as independent bearers of information and as not mere illustrations. The key lies in the ideology of the project as formulated by its authors: “Shakespeare wasn't meant to be read, which is why reading his work can be so difficult and intimidating. His words were meant to be brought to life in performance” (*Shakespeare at Play*, official website). The app refashions a printed book by emphasizing the performative aspects of the original text: audiovisual part is dominant, since it translates the original text in what it was meant to be – a play on stage.

Source text. The plentitude of Shakespearean adaptations may be partly explained by immanent features of writings. Firstly, the style and vocabulary of the 16th-century author seem to be already incomprehensible for many inexperienced readers. Secondly, “whatever Shakespeare wrote, was intended as the script for staged performance, not for study in a printed book“ (Bristol, McLuskie 2005: 2). Apart from being one of Shakespeare's most performed plays, *Romeo and Juliet* possesses some peculiar traits that make the situation even more complicated. The play was written supposedly in early 1590-s and belongs to the phase of Shakespeare's transition from more traditional to freer style (Clemen 2005: 63). *Romeo and Juliet*'s plot is heavily based on a medieval Italian tale, but with considerable additions of

minor sub-plots; the style is also characterized by some innovations, such as switching between comedy and tragedy or mixing different poetic forms. All these peculiarities have to be treated carefully by publishers and educators in order that readers will get the initial point.

Target text. The digitalization of Shakespeare's play required translations of all three types described by Roman Jakobson: intralingual, interlingual, and intersemiotic (1966: 233). Commentary on Shakespeare's work, in-line annotations, scene and character descriptions, glossary – all these elements may be regarded as examples of intralingual and, simultaneously, interlingual translation, since they paraphrase the original text in contemporary English. The transformation of the written script into the video (text augmented by gestures, costumes, decorations, montage, etc.) and audio (augmentation by paralinguistic features) seems to be a case of intersemiotic translation. In contrast to the first two, the translation of the third type is concerned mainly not with the plane of expression, but with that of content. However, it is important to remember that the original text was not supposed to be read-only, so the video performances actually “translate” the script into what it was intended to be. In this case, performances can be regarded as interpretations rather than translations.

The taxonomy of transfer operations by Hendrik van Gorp (2004) allows taking a closer look to the structure of translation. Different parts of *Shakespeare at Play* possess an isomorphic structure: not only the application itself serves as a translation of the original, but also its elements – for example, scene descriptions or audial introductions – retell a story in a shorter form. In contrast to some other audiovisual adaptations that usually tend to abbreviate or augment the original, the word-for-word staging in *Shakespeare at Play* may also be considered a *repetition*. *Additions* to the source text are exemplified by peritexts: annotations, line numbers, locations, and notes on Shakespeare's work. At the same time, some added elements are also *abbreviations*, for instance, audial introductions to scenes and verbal descriptions. Since the app does not copy the linear logic of a written book, but allows moving freely to different scenes and sections, the *rearrangement* may take place during the reading. *Substitution* takes place on the level of word-to-performance translation: albeit almost literal, it is an adaptation that allows some modernization in intonations, costumes and decorations. All in all, *Shakespeare at Play* provides affirmative and apparent linking to the source text on the level of the whole text and its elements (Popovič 1976).

The video in *Shakespeare at Play* inherits its minimalism from the early modernist performances: “The governing impulse in these artistic initiatives is frankly and very boldly experimental, rejecting the lavishly overblown style of the Victorian stage with its lumbering

machinery in favor of the stripped-down immediacy of the actor reading ‘the words Shakespeare had written for them to speak’” (Bristol; McLuskie 2005: 2-3). In contrast to the authors of costly spectacles of the Restoration and Victorian age, directors and designers of the 20th century began to focus on the formal qualities of Shakespearean works – “space, structure, language, and above all visual style” (Ibid.). The authors of *Shakespeare at Play* explain their choice in this way: “We put the focus on character and story, making sure that the action is clear and the progression of the plot is understandable. We use simple, modern dress, but do not relocate the plays to a contemporary setting”. In accordance with the purposes of the project – to focus on the story – the staging reduces possible distractions to a minimum. However, some historicism is still preserved: for example, the producers deliberately employ the traditional technique of cast-doubling, which “was in use during Shakespeare’s time, as his company, The Lord Chamberlain’s Men (later the King’s Men), had only 12 original members” (Shakespeare at Play, the comments section). In terms of Dirk Delabastita (1993), this strategy could be described either as *universalization* or as *modernization*, which in fact does not make much difference, since Shakespeare’s plays are generally considered as modern and universal. In accordance with the purposes of the project – to focus on the story – the staging reduces possible distractions to a minimum.

On the level of content, comments to *Romeo and Juliet* could be generally described as points to consider (open questions) and description of difficult passages (remarks about the intentions and emotional state of characters). The textual part was edited by Noam Lior, the professor from the University of Toronto. As stated on the official website of the project, the editor “challenges viewers and readers to make interpretational choices when a play demands it”, rather than attempts to offer a definitive reading. All the additional elements – including audiovisual comments – fulfil the following roles: elaborate on the historical, cultural and stylistic context of the play; describe the structure of the play; provide the linguistic explanation of Elizabethan vocabulary; facilitate the comprehension of the story via different sign systems.

Alternatives. In order to make Shakespearean plays more comprehensible for inexperienced readers, the adaptors have been choosing different strategies. The trending approach consists in providing a full translation of plays from Elizabethan to contemporary English. Thus, in *No Fear Shakespeare* book series by SparkNotes the original text is put side-by-side with the modern translation; mobile application *SwipeSpeare* that allows looking up a translation of any phrase by swiping. The similar trend can be observed also in the theater: for instance, recently the Oregon Shakespeare Festival announced that “in the next three years, it will commission 36

playwrights to translate all of Shakespeare's play into modern English" (Shapiro 2015). Despite being popular among schoolers, these adaptations are not favored by experienced critics. James S. Shapiro, Professor of Columbia University, highlights: "Shakespeare borrowed almost all his plots and wrote for a theater that required only a handful of props, no scenery and no artificial lighting. The only thing Shakespearean about his plays *is* the language" (Ibid.) Therefore, to provide modern people with tools for better understanding seems to be a more intelligent strategy than to make an overall rewrite of his plays. What's more, not only readers and listeners, but actors as well are often not fully aware of what they are performing, which makes the understanding even more difficult.

The key aspect of *Shakespeare at Play* is that any performance is delivered with word-for-word accuracy, which cannot be said about most theatrical and filmed versions. Thus, the acquaintance with the Bard of Avon's works through this digital book could be deeper than in the case of simplified versions. Since the project aims to bring clarity to the text, the authors strive to preserve every word of the original and make it more comprehensible. Extensive supplementary materials allow keeping faith to the original while making the piece accessible to the modern audience. According to the study of transmedia by Maarja Ojamaa and Peeter Torop, „translation in its essence is repetition with variation, and the same can be said about the recursivity of a literary text as a cinematic adaptation" (2015: 63). In this sense, *Shakespeare at Play* also embodies the practice of transmedial adaptation: "Every new segment of the whole essentially repeats a certain invariant of the whole and – in accordance with the specificity of a given medium – creatively varies the rest" (Ibid. 62).

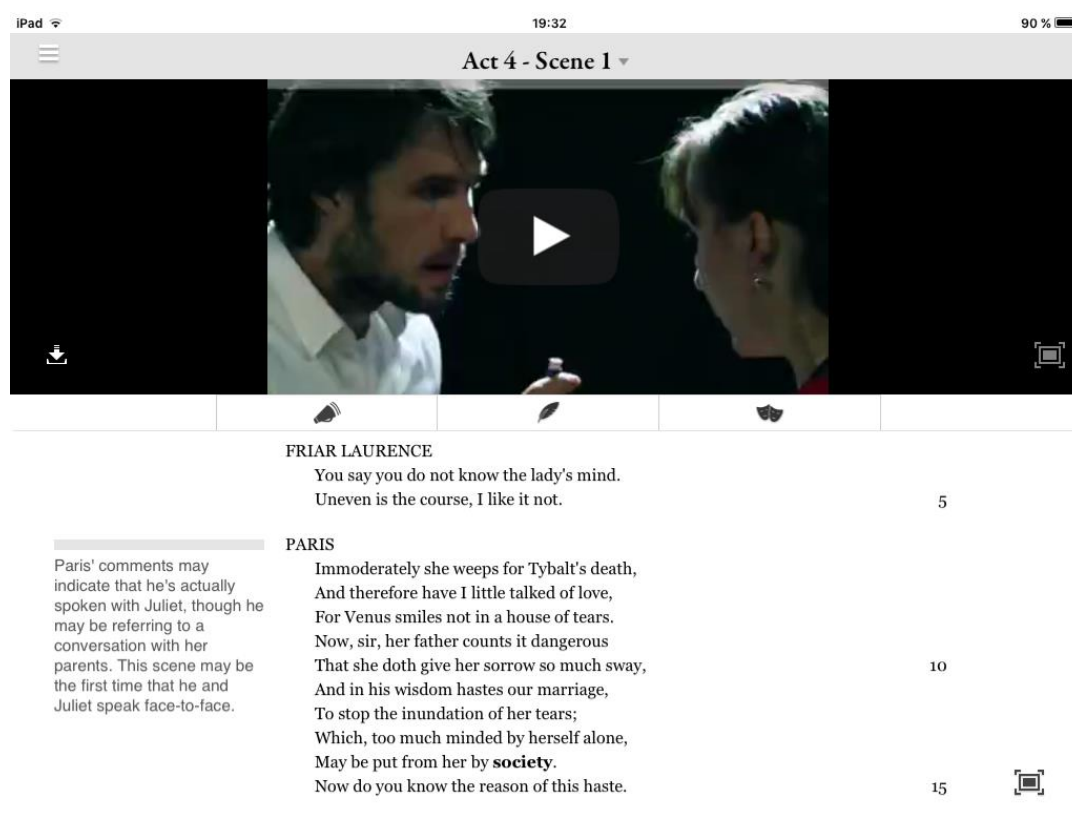
Shakespeare at Play is not the only product that provides a full-length performance synchronized with the text. The same strategy is used in such applications, as *WorldPlay Shakespeare* (videos of performances); *Explore Shakespeare* (audio performances); *The Shakespearience* (audio and video recordings of famous performances); *Shakespeare in Bits* (synchronized animated reenactment); *MIT Global Shakespeare Project* (excerpts from films and performances).

Digital book as design

Digital text of *Shakespeare at Play* may be approached in multiple ways. The screen is divided into three parts: the top is occupied by the high-quality video; below runs the text of the play enhanced by contextual annotations and built-in vocabulary (it also contains line numbers and locations added by editors); video and text are separated by a bar that gives access to an

audial introduction, a written summary of the scene and a list of characters (Fig. 2). Supplementary sections of the application include a glossary of outdated words, some notes about Shakespeare's work ("Why do some editions of Shakespeare differ from one another?", "What do we mean by 'verse' and 'prose'?" etc.) and a manual for the app.

Figure 2. Visual structure of Shakespeare at Play's main screen



- *Information value.* To some extent, the structure of the screen fits the universal model developed by Kress. The left side is occupied by explanatory comments that provide the simplified retelling of the plot: these serve as point of departure for future reading and interpretation (Given). The full-length text of the play is placed on the right and, as in Kress and van Leeuwen's model, requires that the user pays special attention to it (New). The top of the page is occupied by the video which represents the written play in its idealized form – as a performance (Ideal). The bottom of the page, indeed, contains more specific and practical information (Real): full-length text, explanations, scaffolding questions and definitions.
- *Salience.* The video occupies almost a half of the screen and is at least as important as verbal part. If needed, the video could be played in a full-screen mode; however,

there is no possibility to view the verbal part without video. While reading the play, users may attend to explanatory notes that are published in a lighter font in the left margins. Also, they can learn the meaning of difficult words by highlighting them – the definition appears in a popup window right in front of the text. The explanations and definitions are neither long, nor salient, so they do not interrupt the reading and could be not used at all. The supplementary materials – descriptions of characters and scenes – are hidden in the middle bar and could be consulted at any point.

- *Framing*. The division of the screen into visual and verbal parts is distinctive. Whereas the upper part may be regarded as the realm of edutainment (since audiovisual adaptations are generally considered more “fun” and “simple” than the original text), the bottom is the place for close reading. The middle bar with short descriptions serves as a buffer zone between these two realms: on the one hand, these short texts resemble summaries often used by students to escape full reading; on the other hand, they bear important information that can facilitate the process of close reading.

The unusual structure of digital text challenges the conventional patterns of reading. Firstly, the full text of the play is divided into acts and scenes, which are published on the separate pages. It means that, after having finished a scene, the users cannot simply proceed further but unavoidably need to choose another fragment from the menu. What’s important, the scenes could be reached in a free order.

Secondly, each screen has different scenarios of interacting with the text. On the one hand, it is possible to view the video at first and then proceed to reading (or vice versa): this strategy resembles the traditional classroom practices. On the other hand, the format encourages users to perceive the visual and verbal parts simultaneously. In this case, a running line of script under the video plays the role of the subtitles. When approached as a whole, different parts of the book merge with each other: paratextual features (intonations, gestures, mimics) allow experiencing the words more fully.

Digital book as a pedagogical tool

Adapting the language of the original to the needs of modern readers and listeners is one of the most crucial aims of many recent Shakespearean adaptations, including *Shakespeare at Play*. For sure, dealing with Shakespeare has always been a challenge for schoolers, especially for those who, as native speakers, have a burden of reading the original texts. Alix Long, *Huffington Post*'s teenage writer, confesses: "I was thrown into the deep end; baffled with sentences that didn't make sense, characters who moaned endlessly at an empty, starless nights, and story lines that concluded with every character dying at the end" (Long 2014). For many readers, Shakespeare's name has become synonymous with "being forced to read something I really don't want to read nor have the time for" (Amrhein 2013). Since Shakespearean writings are frequently considered as boring, heavy or unrelated to daily life, students often end up using novelized versions of plays or their "translations" into modern English.

While using *Shakespeare at Play*, students may not only choose the mode of representation, but also consult the background information and come up with their own interpretations. The mobile application is constructed as a small Internet – or, semiotically speaking, a semiosphere – that contains the original text as well as its multimodal versions and contextual information provided by scholars. The application could be used at class or during independent learning at home. Target audience includes students of middle and high schools.

The learning practices similar to those offered by *Shakespeare at Play* have been adopted at schools even before the launch of the project. According to the *iPad Insight*'s reviewer James Potter (2014), members of English department in his school used to look for a "YouTube video with a clip of the scene, and then describe the scene". Needless to say that the chance to find a precise adaptation is extremely small, since most performances provide abridged versions of the original. Not surprisingly, the reaction to the project that allows having everything in one place was "overwhelmingly positive".

Effective mixture of different translation types, operations and strategies allow producing the product that perfectly meets the demands of the school audience. The digital application provides a wide historical and theoretical context through intralingual, interlingual and intersemiotic translation; allows multimodal interacting with paratexts and different versions of the original; introduces Elizabethan text to a contemporary audience via commentaries and a slightly modernized staging. All these features help students to understand Shakespeare's texts on their own, which allows class time to be spent discussing character, theme and motivations.

Even though the format of *Shakespeare at Play* does not allow listing it among complex transmedia projects, the application challenges the traditional patterns of reading and learning.

- *Spreadability vs. Drillability.* In contrast to print-based books, *Shakespeare at Play* allow perceiving the story via different media – verbal script and annotations, videos of performances, audial summaries. The transmedial whole is formed only as a result of interaction with different elements – each part plays a distinct role and their sum makes the experience complete. At the same time, it is possible to dig into separate sections of the application, in order to gain more thorough knowledge of some problems.
- *Continuity vs. Multiplicity.* On the one hand, the authors of *Shakespeare at Play* tended to remain faithful to the original play. Despite the unusual format, the result of their work seems to be far closer to Shakespeare's text than other numerous adaptations. On the other hand, the application allows treating the original text from different standpoints: isomorphic parts of the book create a sense of multiplicity. However, the lack of variety may cause the overdetermination of meaning: indeed, the application presents only one way to perform Shakespeare's plays.
- *Immersion vs. Extraction.* The educational value of virtual worlds may be regarded through prism of immersion: digital technology allows replicating key aspects of geographical or historical environment. Extraction, in its turn, implies the possibility to borrow something from the story and use it in everyday life: in the case of digital books, this could be an interesting historical comment.
- *World Building.* Shakespeare's text is surrounded by background information: notes about literary, cultural and historical context of the play. Elizabethan theatrical norms are partly reflected in scenography.
- *Seriality.* In the application, the division between scenes and acts is more distinct than in a paper book – they are all placed on separate screens and could be regarded as independent modules. While being separated by design, different fragments of the text are connected via annotations – notes in the margins often contain links to other scenes.
- *Subjectivity.* As the performances for *Shakespeare at Play* have been staged according to the conventions, the possibility to acquire the perspectives of different

characters is not explicitly present. At the same time, this option is offered by the in-line annotations: the editor encourages students to think about the motivation of this or that character.

- *Performance.* The evident effect of the *Shakespeare at Play* is to promote the creation of new performances by students themselves. The simplicity of the setting may convince potential adaptors that such undertaking does not demand too many resources.

3.2.3. Case analysis: *Sherlock. Interactive Adventure (The Red-headed League)*

Sherlock Interactive Adventure, a mobile application by HAAB studio from Ekaterinburg, mixes elements of game, movie, illustrated encyclopedia, historic research and classic book. The application is based on *The Red-headed League* (1891), the second story in series dedicated to Sherlock Holmes. In first five days after release, the app has been downloaded 200,000 times (“Интерактивный Холмс...” 2014).

Digital book as adaptation

Apart from original text and its interlingual translations, *Sherlock Interactive Adventure* provides audio versions, 20 original musical themes, 30 plot-based animated scenes, an interactive map of 19th-century London, dossiers on the key characters and a collection of historic articles. Although the application is thought to provide a first-person experience (from John Watson’s point of view), the player cannot really change anything but the pace of storytelling. However, the user may spend more than three hours on searching for clues, reading the comments or exploring the map, which transforms the linear logic of the story and enhances the engagement. “Our task was to create a context without changing the text. The reader is given a choice, but the format is not imposed”, – claim the creators (Градобоева 2014). The genre of *Sherlock Interactive Adventure* is hard to define: the application is placed in the book section of *iTunes* store but is also regarded as a video game by its creators and some users. Even though the product possesses some features of transmedia (indeed, “reading” requires the interaction with several windows), the sense of multiplicity is not deliberate. Rather, the application should be considered as an example of absorption, since this intermedial genre clearly makes use of video game mechanics but also succeeds in conveying the original story. The borderline between media forms become even more blurred, if the user switches on the function that allows replacing written text by the audial narrative.

Source text. The detective stories by Arthur Conan Doyle fall into a group of texts that are considered as especially successful by publishers and adaptors. As a detective story, *The Red-headed League* contains the core triggers of readers’ attention: suspense, curiosity, and surprise. However, the potential success of the text may be not the only reason for digitalization. Indeed, the short story refers to certain historical, cultural, literary and linguistic traditions, therefore, requires some elaboration for contemporary readers. The visualization of the story has an educational aspect, since it clarifies the meaning of some words and situations

that may otherwise remain obscure. While following a twisted plot, the readers can learn meanwhile a lot about the city of late 19th century, its dwellers, and the objects used at that time. Interestingly, the same idea of the latent acquiring of knowledge is relevant to *The Red-headed League* itself. For instance, when Holmes' client loses his job, where he was paid to copy the *Encyclopædia Britannica*, the detective mentions: "You are, as I understand, richer by some thirty pounds, to say nothing of the minute knowledge which you have gained on every subject which comes under the letter A".

Target text. *Sherlock Interactive Adventure* simultaneously offers three types of translation defined by Roman Jakobson (1966: 233). Intralingual translation is exemplified by notes to obsolete and difficult words; interlingual translation is represented by five parallel versions of one text – English, Russian, German, Italian and Spanish; animated scenes and mini games result from intersemiotic translation. However, verbal signs are not fully replaced by nonverbal ones, but productively coexist with them. Among 30 plot-based animated scenes, several types of intersemiotic translation are present: short cartoon-like animations; still 3D-depictions of spaces; sequences of images that are turned over by the user. What's important, the visual and verbal parts are not synchronized, so the interaction with the animated scene does not affect the course of audial or written narration.

Figure 3. Additional sections of *Sherlock Interactive Adventure*: dossiers and collection



As in the previous case study, different parts of *Sherlock Interactive Adventure* possess an isomorphic structure. Within the main screen, the same story is told via verbal text, animated

scenes and audial narration; in the additional sections, new events appear as points on the interactive map and cards in the dossiers (*see Fig. 3*). Verbal part of the main screen fully duplicates the original text by Arthur Conan Doyle (in written or audial form) and refers to *repetition* in van Gorp's model. The source text is expanded by different *additions*: the application includes animated introduction, music, sounds, illustrations, translations, and comments in a verbal and visual form. Some of the elements may be also regarded as *abbreviations*: for instance, several animated scenes depict the plot in a shortened form. *Rearrangement*, in a direct sense, does not take place, since the application follows the linear logic of a written book – it is only possible to move to the next or previous scene. However, the developers provided their own division of the original text into small scene-related fragments. *Substitution* takes place on the level of audiovisual adaptation: for example, some objects in the animated scenes do not belong to the original story but have been added by the adaptors. In terms of Dirk Delabastita (1993), *Sherlock Interactive Adventure* contains *addition* (source text is reconceptualized as a more typical specimen of a target-text type) and *permutation* (difficulty of the original text is compensated through intersemiotic translation). The linking of the digital adaptation to its source text may be described as affirmative and apparent (Popović 1976).

The development of *Sherlock Interactive Adventure* required the attentive reconstruction of interiors, street scenes and other details. The expansion of the original text occurs on different levels: a user is invited to pay attention to case-relevant details (main hero's tattoo, breastpin, snuff box) as well as to markers of Doyle's artistic space (Sherlock's pipe and violin, objects from other stories) and Victorian England (tools and apparatuses used in the end of 19th century). The air of the epoch is recreated with help of original soundtrack that includes sounds of omnibuses, creaks, knocks and city voices. The additional elements may be regarded as comments on the historical, cultural and literary background of the play. For instance, the notes on the map convey interesting facts about the history of some London buildings and their role in Doyle's artistic environment. According to the developers, the visual presentation of the story is based on the original paintings, photographs and archive documents (HAAB Entertainment 2013). For instance, the newspaper from the third scene refers to the issue of *Morning Chronicle* from April 21, 1890. User may enjoy the items from the real newspaper – advertisements of new Kodak, tomato frames, wedding presents and travelling bags.

Alternatives. According to Guinness World Records, Sherlock Holmes is listed among the most portrayed movie characters (Fox 2009). The tales of the famous detective are not only

retold in various media – such as literature, theatre, cinema or the Internet – but also created anew by different authors (including vast amount of fan fiction).

Since 2002, the character has appeared in *Adventures of Sherlock Holmes*, a series of video games by Ukrainian developer *Frogwares*. Each game in the series allows playing for Holmes or Dr. Watson in either first-person or third-person perspective. Like in a classic adventure game, users have to solve puzzles, search for clues and explore the scenes. Most products are loosely based on the original plot; however, additional elements are introduced.

Some recent items, including mobile applications *Sherlock Holmes for the iPad* by *Gutenbergz* and *S. Holmes* by *Byook*, fall into a category of illustrated storybooks. Within these products, Arthur Conan Doyle's stories are supplemented with animations and sounds. However, the audiovisual elements serve as mere illustrations and do not challenge the linearity of the text.

As the abovementioned products, *Sherlock Interactive Adventure* also makes use of the forensic metaphors and the spectacular setting of the story. However, the application is associated with edutainment, rather than with simple entertainment: the developers not only paid special attention to the historical accuracy of the details, but also provided an opportunity for the players to learn more about Victorian London, Sherlock Holmes' world and Arthur Conan Doyle's artistic space.

Digital book as design

The interaction with a digital text of *Sherlock Interactive Adventure* may take place in a vertical or horizontal mode. In the former case, the upper half of the screen is occupied with the animated scene and the written text could be strolled downwards. In the latter case, animation takes up the whole screen, whereas the written text is replaced with an audial narration that may be switched on and off in a bottom bar. In both cases, three additional sections (collection of objects, dossiers of characters, map) can be approached via a hidden bar in an upper half. Under some animations one may find an icon of a magnifying glass that allows user to scrutinize the details.

Figure 4. Structure of the main screen



- *Information value.* The main screen in *Sherlock Interactive Adventure* is vertically structured and does not have a clear division into left and right parts. However, the composition is different in additional screens: for instance, the images of the objects in the collection are placed on the left, whereas their elaborated description is in the right. This fits the model proposed by Kress and van Leeuwen: before becoming a part of the collection, all objects have to be discovered by users within animated scenes; therefore, their images are Given, while the interpretations are New. The top of the main screen (see Fig. 4) is occupied by a visualization of the story (Ideal), while the bottom presents it in an original written form (Real).
- *Salience.* In a few seconds after opening a new page, the animation is toneless and gains color and motion only afterwards. When it has happened, the animated scene becomes the most salient part of the main screen, as it not only occupies a half of the page, but is also much more visible than written text. To some extent, this may interfere with the perception of the original text, since the colorful moving objects on the top distract the reader from the words on the bottom. The size of the font, as well as the volume of the audial narration, is customizable.

- *Framing.* Two distinct parts of the main screen – visual and verbal – are separated with a small vignette. Few other ornaments frame the animation and the page number. All the elements are placed against the yellowish background that resembles old pages. The overall style of different screens – including the cover – straightforwardly refers to the images of vintage books and documents.

Even though *Sherlock Interactive Adventure* does not allow going beyond the programmed limits, it creates an engaging environment. Developers put interactivity at the stake: “Wouldn’t it be interesting to find yourself standing right next to your favorite character, and to be able to explore their world? To touch all the objects in the room, and have a good look at them?” The user may read or listen to the original text, search for clues, put together objects in the collection and profiles in the dossier, keep the track on the map and learn the history of England. Animated scenes not only illustrate the narrative, but also provide a feel of control: for example, user may push things on via touching the screen – events will follow each other faster. Also, animation helps to create a memorable image: to feel the atmosphere of monotonous work at the bureau, one can infinitely repeat the episode – the sun goes up and down, the stack of paper grows.

The atmosphere of crime fiction penetrates all levels of reading: a user searches for clues in 3D-modelled office on Baker Street and reconstructs the circumstances of crime, Sherlock Holmes’ life and the epoch itself. New locations on the map, as well as new cards in the dossier or objects in the collection, are being added by user in the course of reading, which supports the metaphor of the reader as a detective. The possibility to collect items extends the reading experience and allows readers to feel to feel their own contribution to the text. The development of the story proceeds mostly linearly from scene to scene; however, sometimes the linear order is interrupted by the interaction with additional sections – when new elements are added to the dossier, collection or map, the corresponding buttons on the bar are highlighted, which aims to guide the user.

Digital book as a pedagogical tool

Even though the purpose of *Sherlock Interactive Adventure* is not strictly educational, the application meets some of the important requirements of modern pedagogy, such as the need to use multiple channels of information or engage students in the process of meaning-making.

First of all, the mobile application may be used to develop cognitive skills: “As students interact with the story they are required to think critically and develop their own inquiry”

(Spink 2014). *Sherlock Interactive Adventure* promotes close and reflective reading: users are invited to correlate events with real locations on the map and enjoy their historical background. Since the authentic text is fully reproduced, the only visible problem lies in the amount of context and its technical implementation: it is possible that readers will engage the medium at the expense of the message (Ohler 2006: 45).

Secondly, the work with *Sherlock Interactive Adventure* may help to raise the awareness about the specificity of the certain historical period and artistic genre. Students take advantage of links between fictional and nonfictional texts, experience a new way of perceiving the classics. According to creators, the virtual world of *Sherlock Interactive Adventure* was constructed in accordance with real drawings, photographs and other historical evidence, which increases its value for education. For example, the fictional announcement about the Red-Headed League in *Morning Chronicle* was supplemented by authentic advertisements from old British newspapers (new Kodak, frames for growing tomatoes, fitted travelling bags and wedding presents).

Another educational strategy proposed by teachers implies that *Sherlock Interactive Adventure* is used in language learning (Spink 2014). The availability of the written text and audial narration in different languages – English, German, French, Spanish and Russian – allows extending the learning experience.

The product correlates well with the some of the principles of transmedia education listed by Jenkins (2010):

- *Spreadability vs. Drillability*. The developers make use of different media to convey the original story: the world of Sherlock Holmes is presented via written text, audial narration, animated scenes, interactive map, profiles of characters and objects. The coherence of the text is gained in the course of reading experience, as students attend to multimodal elements and come up with their own interpretations. At the same time, the players are invited to drill into something specifically interesting for them – for example, the destination of forensic tools or the plan of Victorian London.
- *Continuity vs. Multiplicity*. The application contains the full-length version of the original story and may be regarded as more or less accurate adaptation. However, it does not only inherit the previously established traditions, but also makes novel contributions to the canon. Thus, the storyworld is expanded with the additional elements that have not been present in the original text. Some of the additions even

introduce the metatextual dimension: for instance, the several objects in 3D-animation of Holmes' office belong to other stories about the detective or relate to Arthur Conan Doyle himself.

- *Immersion vs. Extraction.* The possibility to experience the story in a first-person perspective, alongside with the detailed depiction of scenes, creates an effect of immersion. At the same time, the knowledge acquired in the course of playing may be used in everyday life and educational situations – for example, in the History or Literature classroom.
- *World Building.* The fictional storyworld of Arthur Conan Doyle's texts is interestingly intertwined with the real history of London. The original text is supplemented with the background information relevant to the story. These additions naturally fit the already existent foundational story, creating the advanced version of the transmedia world.
- *Seriality.* The presence of additional sections allows distributing the story-related information across separate media. Indeed, each small piece – a historical note on the map, a profile of the character, a culturological comment in the collection of objects – has “a satisfying and meaningful shape even it is part of a larger flow” (Jenkins 2010). The effect of seriality is supported by the gradualness of the development: new objects appear in supplementary sections only in the course of reading. Moreover, the division between text fragments is more distinct than in a printed book: the whole story is presented in a series of animated scenes.
- *Subjectivity.* As in most original texts about Sherlock Holmes, the story is told from the perspective of John Watson. However, the possibility to control the point of view extends the experience. The agency of the player is larger than that of a literary character: users are allowed to sneak into different corners of the room and conduct investigations with a magnifying glass.
- *Performance.* Unfortunately, the application does not offer any options for the independent contribution by players. At the same time, the performative activities of students may be organized by teachers: for example, students could be encouraged to create the visualized commentary for the other literary works.

Conclusion: semiotics of digital books

Even though our selection includes more than fifty digital adaptations, only few of them are actually used in literary education. The reason is not only the lack of certain features, but also teachers' low awareness about the opportunities of digital education. However, these products already make part of a wider system of teaching and learning – the culture itself. To some extent, these adaptations provide a synthesis of some textual functions distinguished by Lotman: communication between the addressant and addressee; communication between the audience and the cultural tradition; communication of the reader with himself; communication of the reader with the text; communication between a text and the cultural context (Лотман 1992a: 129-132). The detailed analyses of three remarkable cases aim to demonstrate the possible implications of electronic tools in literary classroom. All of them – *Curriculet*, *Shakespeare at Play*, and *Sherlock Interactive Adventure* – have been reviewed by teachers, whose insights were taken into account during the analysis.

In all three cases, the reasons for digitalization could have been manifold: *Frankenstein*, *Romeo and Juliet*, *The Red-Headed League* are not only extremely popular texts, but also spectacular, quite old and sometimes difficult. Not surprisingly, Mary Shelley, William Shakespeare, and Arthur Conan Doyle belong to the top-list of most digitalized authors.

The developers of chosen products have different approaches to the transformation of literary experience. In the first case, digital book could be regarded as a reconstruction of offline lesson in the online environment; the second product pairs the original text with its audiovisual translations; lastly, the whole storyworld is reconstructed in a form of video game. Intralinguistic commentary appears to be main addition to the original text in *Curriculet*; *Shakespeare at Play* provides the audiovisual commentary in the form of intersemiotic translation; while *Sherlock Interactive Adventure* as a whole could be regarded as an example of intersemiotic translation. In first two cases, comments mainly concern the poetics and language of literary works, whereas in the final case, the historical and cultural commentary is provided.

The design of three digital adaptations is also different. In the first case, the verbal language is dominant both in the presentation of the text and comments; in the second case, nonverbal elements are as important as verbal ones; lastly, nonverbal elements obtain priority, while the written text can be simply omitted. The visual layout of screens corresponds to the categories described by Kress and van Leeuwen: the elements on the left are generally presented as given, while the new information is placed on the right; top of the page is occupied by an idealized version, while the bottom contains the details and more practical information. In *Curriculet*, the

patterns of reading are mostly linear (the linearity is only interrupted by the need to attend to the comments); the structure of *Shakespeare at Play* implies that the written text and the video of performance are perceived simultaneously; in *Sherlock Interactive Adventure*, the plot develops linearly, but on the several screens.

Paradoxically, the more different is the remediation from the printed book, the less open is the structure. In contrast to two other projects, *Curriculet* – the enhanced digital book – allows teachers not only to use pre-rendered environments, but also to make their own adjustments. The same product is supposedly more popular among teachers than other two: according to *Curriculet*'s website, the unit about Frankenstein has been assigned more than 900 times, whereas there is no open statistics about the usage of *Shakespeare at Play* and *Sherlock Interactive Adventure* in the classroom. While first two products have been developed with an active participation of teachers and academics, *Sherlock Interactive Adventure* does not seem to be an explicitly educational product (and neither do the other products referred to as absorptions).

All three products may be used for different educational purposes: *Curriculet* allows conveying text-related information online and controlling the process of reading; *Shakespeare at Play* facilitates close and independent reading; *Sherlock Interactive Adventure* provides an opportunity to explore the storyworld from inside. However, the integration of projects into the learning process requires different levels of teachers' creativity and professionalism. For sure, it also demands that teachers use digital texts for solving specific problems – for instance, those related to perceiving the text of the play in written form.

4. FROM THEORY TO PRACTICE: E-REHEPAPP

E-Rehepapp is a research project curated by students and staff of Department of Semiotics, University of Tartu. The team is involved into development of the digital learning environment on the basis of Andrus Kivirähk's novel *Old Barny* (original title: *Rehepapp ehk November*, 2000). The aim of the project is to make the literary text more comprehensible for inexperienced readers by augmenting it with multimedia comments, illustrations and games. The launch of the site is scheduled for the late 2017. Since the work on the project is still in progress, the chapter summarizes current experience of developers and places *E-Rehepapp* into semiotic framework⁸. Theoretical findings of the thesis are applied to the problems associated with the construction of the digital environment.

Digital book as adaptation

Digitalization of Andrus Kivirähk's famous novel aims to deepen the cultural and linguistic experience of readers, in particular, of students belonging to Russian minority in Estonia. Another purpose is associated with the self-representation and visualization of Estonian culture for Estonian readers. In the context of cultural autocommunication, digital books serve to support the cultural identity, to augment the multimodal experience of culture and enforce its coherence. On the one hand, the aim of the project is to present the literary text "as it is": the environment provides full-length original text in Estonian, as well as its Russian translation. On the other hand, *E-Rehepapp* challenges the traditional linear practices of reading and expands the artistic world of the novel with multimedia additions. In the context of Bolter and Grusin's remediation theory, the future product may be regarded as a case of refashioning, since literary text becomes a part of a mosaic whole. As a transmedia project, *E-Rehepapp* requires that users actively construct the storyworld by melting together heterogeneous elements. The expected outcome of this interaction is a deeper understanding of Estonian culture and language, which correlates to the integrational aims of the project.

Source text. The book is recommended by Ministry of Education and Research for reading in Estonian and Russian schools. The problems of perception that stop some teachers from using the novel in the literary classroom are mostly linked to the book's merits. In a context of

⁸ The main ideas of the chapter have been developed in collaboration with *E-Rehepapp* team members and presented at the conferences in St. Petersburg State University and University of Tartu. Team: Alexandra Milyakina, Tatjana Pilipoveca, Merit Rickberg, Liina Sieberk; supervisors: Maarja Ojamaa, Peeter Torop.

Tartu-Moscow semiotics, the novel could be regarded as a model of Estonian culture (Lotman 2005). Indeed, *Od Barny* reflects the dynamic relationship between the cultural center and periphery. On the one hand, it is a multilayered postmodern text deeply rooted in Finno-Ugric folklore and Estonian literary classics. On the other hand, the novel challenges the traditional images of the Self and the Other that have evolved under the influence of National Romantic Movement. The novel has been repeatedly labeled as untranslatable due to its specific humor, the complexity of the cultural context and explicit “Estonianness” (Dickens 2002). Even though the interlingual translation proved to be difficult, the text is being actively translated into nonverbal languages of culture: *Old Barny* has been adapted into a board game, opera and film (due in late 2016).

According to the interviews with Russian-speaking teachers and students conducted in 2015-2016, the difficulties associated with using *Old Barny* in literary class are mainly cultural and linguistic. In compliance with state requirements, all students have to read literary texts in Estonian. Due to the complexity and length of the novel, teachers prefer to abandon this possibility in favor of simpler, shorter and more modernity-related texts. What’s more, even Russian translation appeared to be difficult for perception. As test readings showed, students had problems with understanding the words that had been borrowed from Estonian to Russian; words related to the everyday rural life (for example, names of premises, sicknesses, magic creatures); the fragments associated a low or fantastic style. Moreover, the students tended to ignore the complex cultural background of the text – for instance, its folklore roots – and concentrated mainly on the plot.

Target text. The choice of remediation strategy is predetermined by the needs of literary course: the online environment provides a full-length original text enhanced by interpretational and explanatory comments, multimedia and games. In addition to this, the digital version of *Old Barny* offers the objective of encouraging students to mediate their own interpretations of the text in different sign systems: e.g., submitting drawings or videos. Target audience of the product includes Russian- and Estonian-speaking students in Estonia, as well any other interested readers.

Digital book as design

The site will be available in at least two languages (Estonian and Russian) and include several main parts: texts in Estonian and Russian that can be placed side by side; pop-up comments (including textual notes, images, videos, questions and tasks); map of the storyworld;

gallery of characters; calendar; supplementary articles and lesson plans. The comments may be filtered by users in accordance with their needs: for example, one can open only linguistic comments or just tasks. Map, gallery and calendar are interactive: new locations on the map and profiles in the gallery appear in the course of reading; calendar serves as a table of contents – each chapter of the novel depicts one day of November. Thus, the integration of metatextual information into the prototext results into a creation of the qualitatively new kind of semiotic text.

In accordance with the ideas of M. Gasparov (2004), all additions to the original text are regarded as an interpretation and expansion of the artistic world. The project attempts to materialize Gasparov's concept of the adaptive commentary that allows user to „follow the text from one passage to another and, in an important place, zoom in and move from word to word“ (Ibid., 72). The textual *commentary* is presented in the form of pop-up notes and refers to certain vocabulary or described phenomena. Interactive map and gallery, in their turn, play the role of the *conceptual commentary* and provide the historical, stylistic or philosophical interpretations of the text. For example, the 3D-depiction of sauna – an important locus of the story – will be supplemented with a short note about the semiotic meaning of this place in Estonian culture.

Digital technology allows creating the *multidimensional*, *multimedial* and *interactive* metatexts. Firstly, the digital commentary synthesizes different types of comments referring to *extratextual* background of the text (ideas and everyday issues); *literary* background (allusions to other texts and ideas); *linguistic* background (language and style in literary and nonliterary tradition). Secondly, the comments may be multimedial and include images, videos and sounds, as well as the texts. Thirdly, the project takes into consideration nonlinear reading practices that could be described as gamified world-based reading. Whereas pop-up comments in the text are aimed to facilitate the process of reading, additional sections – multimodal profiles of the characters, interactive map of the location etc. – are crucial for the construction of storyworld. In this case, the enjoyment of reading arises not only from following a story from the beginning to the end, but from complementing it with an expanded experience of the narrative world it takes place in.

Digital environment brings the problem of commentary to a new level, as it allows adding unlimited amount of verbal and audiovisual information in order to facilitate the comprehension. Consequently, the matters of selection and organization of the additional information become crucial. The expansion of the storyworld should help to reach a particular

understanding of the text but not overdetermine the meaning. In order to avoid the authoritarian interpretation, the interactivity will be put at stake. The transmedial version of the text will be created by each reader as a result of the voluntary interaction with the digital environment. In their journey through artistic time and space, users will be guided by scaffolding questions that allow different answers.

Digital book as a pedagogical tool

The practices of digital multimedial storytelling are not only tools for telling new kinds of stories, but could simultaneously serve as devices for a deeper understanding of old texts in culture. On the one hand, it is clear that the usage of technologies renders any material more attractive to young learners and thus facilitates making texts more relevant to pupils' everyday cultural environment. On the other, research (e.g. of Gorski 2005) has also shown how networked digital resources can strengthen inclusive and collaborative learning in multicultural classrooms, which concurrently supports the argument for their fruitfulness for the integrational goals set for the project.

In accordance with the ideas of Henry Jenkins (2010), the project is constructed as an educational transmedia environment and follows the corresponding principles:

- *Spreadability vs. Drillability.* The storyworld of Kivirähk's novel is reconstructed and expanded by means of several media: textual comments, images, games, interactive map and profiles of characters. The coherent version of the text is created in the course of reading experience and requires the active involvement of the reader. The possibility to study certain problems in-depth is provided by explanatory articles and links to supplementary sources.
- *Continuity vs. Multiplicity.* The digital version of *Old Barny* not only shares the mythos, ethos and pathos of the original story, but also includes the full-length text of the novel. All additional elements are created in consistency with the original text and derive from it (for example, multimodal profiles of characters include quotes from the novel). At the same time, the project allows users to acquire different perspectives on the story through browsing the supplementary materials. Thus, it will be possible to get acquainted with the transmedia history of the text: watch the fragments of the movie and theatrical performance, look at the book covers and illustrations of different authors.

- *Immersion vs. Extraction.* Game mechanics supports the deeper immersion in reading: a reader not only follows the plot, but acts as a co-creator of the artistic world. The usage of different sign systems (words, images, movement, sounds) allows students to augment the book experience. In addition, the results of the interaction are extractable and shareable: for instance, users will be able to create their own virtual artifacts (texts, images) and post them on social media.
- *World Building.* Physical geography of the novel is represented in a map; cultural geography – in a description of norms, rituals and everyday experiences. At the same time, the exploration of *Old Barney's* world allows users to learn more about the history and culture of Estonia and surrounding countries. The fictional geography is imposed on the real one: for instance, it is possible to read a note on the relationship of Estonian peasants to German feudals.
- *Seriality.* Luckily, seriality is already inherent to the novel itself: each of 30 chapters describes one day of October and may be approached separately. In accordance with the needs of the literary classroom, every chapter can serve as a basis for an independent lesson. For example, if it is impossible to devote school hours to reading the whole novel, the students may explore one or several parts. If the story, nonetheless, is perceived from beginning to end, the effect of seriality is supported by the gradualness of the development: new locations on the map and profiles in the gallery appear only in the course of reading.
- *Subjectivity.* Even though some characters of the novel may be regarded as principal, each chapter tells the story of different people and creatures. The gallery of characters allows paying special attention even to peripheral characters and exploring their role in the fictional and real world. For instance, even magical creatures like werewolves or hobgoblins will have their own profiles.
- *Performance.* Performances initiated by students will become a part of the transmedia narrative itself. *E-Rehepapp* environment is created as an open system that encourages active participation of users. For instance, it will be possible for students to submit and rate their own interpretations of the text. The independent expansion of the storyworld may start online and continue offline under the guidance of teachers. In order to boost the creativity, the developers plan to include detailed lesson plans and tips for educators and students.

As a research project, *E-Rehepapp* is supposed to serve as a platform for solving various scientific problems and testing the solutions. Main tasks are: to analyze the practices of digital reading; to compare story-based and world-based reading; to explore the role of multimodal elements in literary education; to analyze the transmedia existence of literary texts; to find the balance between efficient knowledge and promoting creativity; to collect classroom practices and monitor the digitalization of literary education.

CONCLUSION

At the moment, it is difficult to define the borders of the academic field dedicated specifically to study of digital literature. The current research on the topic is scarce, heterogeneous and disintegrated. The thesis aimed to provide a unifying framework for this transdisciplinary area. First chapter offered the brief examination of the material; some suitable methodological tools have been listed in the second chapter, and followed by the proposition of theoretical framework in the third part. In the fourth chapter, several representative examples have been viewed from the prism of previously discussed ideas. Final chapter described the project that had been developed in accordance with the framework of this thesis.

Even though the corpus of digital adaptations is still shaping, it is already possible to reveal some regularities and put them into a general context of the cultural autocommunication. The development of the universal framework for the analysis of digital books in literary education proved to be difficult: indeed, the successful implementation of the product in the classroom depends on numerous factors and its evaluation requires more precise methods. However, our synthetic framework allowed revealing the place of digital adaptations in a wider educational system – the whole culture.

As was proposed in the introduction, the paper covers different questions related to the nature and status of digital books:

- typology of digital adaptations;
- their place in the system of cultural autocommunication;
- differences between translation and digitalization;
- transformation of reading experience in the course of digitalization;
- methodology of the analysis of digital books.

Typology of digital adaptations requires a thorough examination of their features, since the self-description of projects is often obscure and pretentious. Despite the overemphasized novelty of “interactive books”, only few developers of digital adaptations really take advantage of the possibilities opened up by digital technology. Simpler products still make the majority of the market. The reasons of digitalization are often superficial and related to potential commercial success. Not surprisingly, the most complex projects – providing the possibility to

recreate the literary experience through active participation – are usually intentionally developed as educational.

The multimodal nature of digital books mirrors the processes of *cultural autocommunication* that have been taking place for a long time. Very often, digital literature is created on the intersection of different sign systems, discourses and media, which implies that the interaction with the story may require the acquisition of multiple literacies. For sure, the same may be said about the metatexts of any artistic text, even though not yet digitalized.

Theoretically, *digitalization* of literary work may be regarded as a special case of *translation*: it entails much more than a mere transformation of printed pages into digital screens. Digitalization changes our understanding of literary experience and gives a new actualization to long familiar problems: the blurred borders of artistic text, the quality and quantity of comments, the role of illustrations, the methods of interpretation, discussion and teaching. On the one hand, digital environments give space for unlimited commenting and integration of prototexts with its metatexts; on the other hand, these possibilities are undermined by dangers of overdetermination and losing the coherence.

Literary experience is extended from a simple reading of the book to exploring different media versions of the text and building up a coherent whole. On the physical level, it is changed from a mere turning of pages to the interaction with multiple screens and objects. The medium of the book loses its distinctive characteristics and is redefined as an environment of a new kind, whether that be an e-book, mobile application or video game.

Methodology required for the analysis and construction of digital books needs to be applicable to the whole variety of different forms. New formats become outmoded too quickly and so does the research. Even the fruitful academic paper on the CD-ROM-literature can be discredited because the loss of its relevance. The tools emerged in the tradition of cultural semiotics seem to provide a solid basis for such framework. Indeed, a thorough examination of digital adaptations through the prism of translation, media, design and pedagogy helps to define the status of innovations and reveal the real problems of literary education. The main one is related to ambiguous status of literary education: on the one hand, it tends to protect the specificity and authority of literary discourse; on the one hand, still makes a part of the whole system of education that lean towards multimodality and multiperspectivity.

The efficient introduction of digital books into school education is impossible without the revision of its very foundations. What is the best way to incorporate intersemiotic translations

in the reality of literary class? When will be the world systems of literary education ready to reconsider the specific status of the book and give space to multimodality, digitality and creative participation? Indeed, the answers are still to be found and the perfect digital book is still to be developed.

The elaboration of the current research can take different directions. Firstly, the theoretical findings could be supported by practice in real-life literary classrooms. Indeed, this will require a more thorough examination of the modern pedagogical principles. At the same time, the ideas may be tested in a collaborative work with the developers of digital books. Secondly, the research may embrace a wider range of objects, including not only full-text adaptations, but also compact retellings, comic strips, book trailers and other media forms. Thirdly, this paper depicts only the humanitarian dimension of the problem, while further work will inevitably require the use of hard scientific methods, e.g. neuroscience.

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ANNEX

Table 1. Classification of digital adaptations of literary works

		Name	URL	Developer	Features
Enhancement	Illustrated storybooks	Alice for the iPad	https://itunes.apple.com/ru/app/alice-for-the-ipad/id354537426?mt=8	<i>Atomic Antelope</i>	Abridged text of Lewis Carroll's <i>Alice in Wonderland</i> ; animated scenes; interactive illustrations.
		iDickens: Ghost Stories	https://itunes.apple.com/us/app/idickens-ghost-stories.-illustrated/id1012435580?mt=8	<i>Museum of London</i>	Extracts from Charles Dickens' novels in the form of graphic novels; 1866 and contemporary maps of London.
		iLovecraft Collection	https://itunes.apple.com/app/id992098515	<i>iClassics Productions, S.L.</i>	Full-length texts of three stories by H.P. Lovecraft; illustrations, animations and interactive pages; original soundtrack; Lovecraft's biography.
		iPoe	https://itunes.apple.com/ru/app/ipoe-interactive-illustrated/id507407813?mt=8	<i>iClassics Productions, S.L.</i>	Full-length texts of four stories by Edgar Allan Poe; illustrations, animations and interactive pages; original soundtrack; Poe's biography.
		Sherlock Holmes for the iPad	http://getapp.cc/app/579589766	<i>Gutenbergz, Inc</i>	Abridged texts of five stories by Arthur Conan Doyle; artwork, original music and sound.
		S. Holmes	http://itunes.apple.com/us/app/s-holmes/id415504589	<i>Byook</i>	Full-length text of Arthur Conan Doyle's <i>The Speckled Mystery</i> ; illustrations; animations; sounds.
		The Raven (HD)	https://itunes.apple.com/us/app/the-raven-hd/id415818349?mt=8	<i>vNovel Interactive</i>	Full-length text of Edgar Allan Poe's <i>The Raven</i> ; artwork; music; sounds; audiobook; animations.
		True Legends	https://itunes.apple.com/us/app/true-legends/id922253485?mt=8	<i>Electric Literature</i>	Full-length text of Alex Epstein's; <i>True Legends</i> ; music; illustrations.
		Великий Гэтсби Интерактивная книга	https://itunes.apple.com/RU/app/id904157144?mt=8	<i>Underpage</i>	Full-length text of F. Scott Fitzgerald's <i>The Great Gatsby</i> in Russian translation; illustrations; animations; original music.

Multimedia collections		Несколько историй про царя Соломона	https://itunes.apple.com/ru/app/neskol-ko-istorij-pro-cara/id796861317?mt=8	<i>SKCG</i>	Full-length text of Linor Goralik's book about King Solomon; illustrations; animations.
		Чапаев и Пустота	https://itunes.apple.com/ru/app/capaev-i-pustota/id663349437?mt=8	<i>Underpage</i>	Full-length text of Viktor Pelevin's novel <i>Buddha's Little Finger</i> ; illustrations; music; archive photos and videos.
		A Clockwork Orange iPad App	https://itunes.apple.com/gb/app/a-clockwork-orange/id562227691?mt=8	<i>Random House</i>	Full-length text of Anthony Burgess' <i>A Clockwork Orange</i> ; archive video and audio; audiobook; annotations; musical scores; related texts (articles, interviews, essays); discussions.
		Jack Kerouac's On the Road	https://itunes.apple.com/us/app/jack-kerouacs-on-road-a-penguin/id439776360?mt=8	<i>Penguin Group USA</i>	Full-length text of Jack Kerouac's <i>On the Road</i> ; archive photos, audios, videos, texts; reproductions of manuscripts; artwork; reviews; musical tributes; expert notes; interactive map; biographies of Beats.
		James Joyce – The Dead	https://itunes.apple.com/gb/app/james-joyce-the-dead/id786833893?mt=8	<i>University College Dublin</i>	Full-length text of James Joyce's story <i>The Dead</i> ; audiobook; archive images and drawings; podcast commentaries, videos.
		Joyce's Ulysses: A Guide	https://itunes.apple.com/gb/app/joyces-ulysses-a-guide/id878428490?mt=8	<i>Naxos Digital Services Ltd.</i>	Full-length text of James Joyce's <i>Ulysses</i> ; annotations; audiobook; biography of Joyce; music; photographs; related articles.
		Poems by Heart	https://itunes.apple.com/us/app/poems-by-heart-from-penguin/id577789325?mt=8	<i>Penguin Group USA</i>	Full-length texts of poems by different authors; biographies; illustrations; quizzes and games.
		Starting Shakespeare	https://itunes.apple.com/us/app/starting-shakespeare/id763440089?mt=8	<i>Deeper Richer</i>	Retellings of William Shakespeare's plays; videos of performances; characters profiles; historical information; teacher handbook.
		The Hitchhiker's Guide to the Galaxy	http://theliteraryplatform.com/2010/04/hitchhikers-guide-to-the-gallery/	<i>Missing Inc Studios</i>	Full-length text of Douglas Adams' <i>The Hitchhiker's Guide to Galaxy</i> ; interactive cover; YouTube videos; Twitter feed; audio samples and excerpts from radio scripts.

		Tolstoy. Live Pages	http://time2read.ru/	<i>Articul Media</i>	Full-length text of Lev Tolstoy's <i>War and Peace</i> ; vocabulary quizzes; character profiles; interactive timeline; comments; map.
		Акунин Book	http://akuninbook.ru/	<i>eBook Applications</i>	Full-length texts of Boris Akunin's novels; Facebook and Twitter feed by Boris Akunin; illustrations; sounds; dictionary.
		Войнович Book	https://itunes.apple.com/us/app/voinovich-book/id1028294868?mt=8	<i>eBook Applications</i>	Full-length texts of Vladimir Voinovich's writings; Facebook feed by Vladimir Voinovich; illustrations; sounds; dictionary; extras.
	Reading platforms	Actively Learn	http://www.activelylearn.com/	<i>Actively Learn</i>	Customizable full-length texts; questions; annotations; videos; discussions; peer and teacher interactions; dictionary; text to speech; translation.
		Babeleo	http://babeleo.com/	<i>Babeleo Books</i>	Full-length texts; translations; audio versions; dictionary.
		Curriculet	https://www.curriculet.com/	<i>Curriculet</i>	Customizable full-length texts; pop-up questions; annotations; videos; quizzes.
		Subtext	https://www.renaissance.com/products/subtext	<i>Renaissance Learning</i>	Customizable full-length texts; questions; annotations; quizzes; instant peers and teachers interactions.
	Refashioning	Canterbury Tales	http://www.weeklyreader.com/canterbury/	<i>Weekly Reader</i>	Adapted version of <i>The Canterbury Tales</i> by Geoffrey Chaucer (currently closed); video; music; sound effects; rap renditions; flash animation.
		Folger Luminary Shakespeare	https://itunes.apple.com/us/app/macbeth-folger-luminary-shakespeare/id758508889?mt=8	<i>Luminary Digital Media LLC</i>	Full-length texts of Shakespeare's plays; synchronized full-length audio performances; summaries and annotations; archive images; glossary; highlighting and note-taking features.
		Gamebooks: Read and Learn English	https://itunes.apple.com/us/app/gamebooks/id983355572?ls=1&mt=8	<i>Oxford University Press</i>	Full-length texts of famous books (<i>Sherlock Holmes</i> , <i>Frankenstein</i>); audiobooks; language learning games; puzzles.

	Mark Twain	http://www.literaryworlderland.com/wp-content/Websites/mark-twain/	<i>Weekly Reader</i>	Adapted version of Mark Twain's <i>The Celebrated Jumping Frog of Calaveras County</i> ; biographical timeline; animation; sounds; writing games.
	MIT Global Shakespeare Project	http://shakespeareproject.mit.edu/	<i>Massachusetts Institute of Technology</i>	Electronic environments based on digital copies of Shakespeare's primary documents in all media, including texts, high resolution page images of early editions, digital collections of art, illustration and stage photographs, and film and performance videos.
	Of Mice and Men Study App	https://itunes.apple.com/gb/app/of-mice-and-men-study-app/id847582643?mt=8	<i>Mammoth Graphics Ltd</i>	Excerpts from John Steinbeck's <i>Of Mice and Men</i> ; artwork; annotations; profiles of locations and characters; glossary; related articles.
	Poe Web Site	http://www.literaryworlderland.com/wp-content/Websites/poe/	<i>Weekly Reader</i>	Full-length versions of Edgar Allan Poe's <i>The Raven</i> and <i>The Masque of the Red Death</i> ; hip-hop adaptation; short film; writing games; articles; interactive map.
	Pottermore	https://www.pottermore.com/	<i>TH_NK</i>	New texts by J. K. Rowling and excerpts from <i>Harry Potter</i> series; Profiles of characters, objects and locations; games.
	Shakespeare at Play	http://www.shakespeareatplay.ca/	<i>Tim Chisholm</i>	Full-length texts of Shakespeare's plays; synchronized videos of performances; in-line annotations; plot summaries; glossary; related articles.
	Shakespeare in Bits	https://itunes.apple.com/EE/app/id407223613?mt=8	<i>Mindconnex Learning Ltd.</i>	Full-length texts of Shakespeare's plays; synchronized animated re-enactment; audio soundtrack; in-line annotations; plot summaries; profiles of characters and relationships; analyses.

		The Shakespearience	http://www.itunes.com/shakesperience#sthash.QR3PFAdw.dpuf	Sourcebooks	Full-length versions of Shakespeare's plays; audio and video versions of famous performances; glossary; galleries of the performances, costume trials, archive materials; exercises; note-taking and highlighting features.
		The Waste Land	https://itunes.apple.com/gb/app/the-waste-land/id427434046?mt=8	Touchpress Limited	Full-length text of T. S. Elliot's <i>The Waste Land</i> ; video of performance and audio readings synchronized with the text; interactive notes; expert video perspectives; original manuscript pages.
		Wildwood Storymap	https://itunes.apple.com/ca/app/wildwood-storymap/id510378840?l=fr&mt=8	Canongate Books Ltd	Excerpts from Colin Meloy's <i>Wildwood</i> ; illustrations; music; interactive map; game.
		Explore Shakespeare	https://itunes.apple.com/gb/app/macbeth-explore-shakespeare/id562189027?mt=8	Cambridge University Press	Full-length texts of Shakespeare's plays; synchronized audio performances; photos of productions; glossary; annotations; articles; study activities.
		WorldPlay Shakespeare	http://thenewbookpress.com/TNBP/WordPlay/Shakespeare.html	The New Book Press	Full-length texts of Shakespeare's plays; synchronized videos of performances; full modern translations; synopses; pop-up descriptions; dictionary; flash-card; note-taking and highlighting features.
	Multitext editions	SwipeSpeare	http://www.swipespeare.com/	Golgotha Press, Inc	Full-length texts of Shakespeare's plays; adapted texts reached via swipe.
		The Homer Multitext	http://www.homermultitext.org/	Harvard University	Full-length text of Homer's <i>Iliad</i> and <i>Odyssey</i> ; manuscripts related to Homeric tradition.
		Walden: A Fluid Text Edition	http://www.digitalthoreau.org/fluid-text/toc/	Digital Thoreau	Full-length text of Henry David Thoreau's <i>Walden</i> ; synchronized versions of the manuscript.
	AR	Book of Spells	https://www.playstation.com/en-gb/games/wonderbook-book-of-spells-ps3/	Wonderbook (SONY)	Full-length text of J. K. Rowling's <i>Book of Spells</i> ; AR-animations.
		The Little Prince for iPad	http://www.itu.dk/people/lisb/storyboard.pdf	Lisbeth Bomberg, Jos van Es, Christian Olin	Full-length text of Antoine de Saint-Exupéry's <i>The Little Prince</i> (paper-based); mini-games reached via QR-codes.

		Moby Dick, Great Expectations	http://www.zappar.com/zaps/moby-dick/	<i>Penguin, Zappar</i>	Full-length texts (paper based); AR-animations.
	Social media retellings	Лицо. Рука. Книга	http://w-o-s.ru/article/2580	<i>W-O-S</i>	Social media retelling of famous Russian novels (<i>Crime and Punishment, Eugene Onegin, Anna Karenina, Dead Souls</i>).
		Much Ado About Nothing	http://mashable.com/2011/04/25/shakespeare-facebook-cyber-bullying/#yXKo2YXc4Pqk	<i>Ophelia Project, Weekly Reader</i>	Social media retelling of <i>Shakespeare's Much Ado About Nothing</i> : pictures, in-character bios, modernized dialogues.
		O Brave New World	http://www.retz.co.uk/index1.html	<i>RETZ</i>	Modernized performance of <i>Shakespeare's The Tempest</i> presented through physical installations and online videos (2012).
		Twitterature	http://www.twitterature.us/us/index.htm	<i>Penguin</i>	Social media retelling of famous novels by Virgil, Voltaire, Dante, Dickens, Kafka, Tolstoy, Kerouac and others.
Absorption	Interactive fiction	80 Days	https://itunes.apple.com/us/app/80-days/id892812659?mt=8	<i>Inkle</i>	Retelling of Jules Verne's <i>Around the World in Eighty Days</i> ; detailed locations; interactive choices; music; illustrations.
		Composition No. 1	https://itunes.apple.com/gb/app/composition-no.1/id449507414	<i>Visual Editions Ltd</i>	Full-length text of Marc Saporta's <i>Composition No. 1</i> ; interactive cover; randomizer of pages.
		Frankenstein	https://itunes.apple.com/us/app/frankenstein-for-ipad-iphone/id516047066?mt=8	<i>Inkle</i>	Retelling of Mary Shelley's <i>Frankenstein</i> ; full-length version; illustrations; interactive choices.
		Sherlock: Interactive Adventure	https://itunes.apple.com/ru/app/sherlock-interactive-adventure/id820860824?mt=8	<i>HAAB</i>	Full-length text of Arthur Conan Doyle's <i>The Red Headed League</i> ; animated scenes; interactive map; object and character profiles; soundtrack; audiobook; game mechanics.
		To Be or Not to Be	https://itunes.apple.com/us/app/ryan-norths-to-be-or-not-to-be/id962986396	<i>Tin Man Games</i>	Retelling of William Shakespeare's <i>Hamlet</i> ; illustrations; annotations; character profiles; soundtrack; interactive choices.
		Versu	http://versu.com/	<i>Linden Lab</i>	Retelling of famous literary texts; illustrations; interactive choices.

Video games	39 Steps	http://thestorymechanics.com/digital-adaptations/the-thirty-nine-steps/	<i>The Story Mechanics</i>	Excerpts from John Buchan's <i>The 39 Steps</i> transformed to a video game; animation; soundtrack; authentic items and locations.
	Frankenstein HD	https://play.google.com/store/apps/details?id=com.microids.HdOv25.HdOFrankenstein.full&hl=ru	<i>Anuman</i>	Audiovisual retelling of Mary Shelley's <i>Frankenstein</i> ; animated scenes; puzzles; mini-games (search of objects).
	The Great Gatsby: Classic Adventures Full	https://itunes.apple.com/us/app/great-gatsby-classic-adventures/id608608028?mt=8&ign-mpt=uo%3D4	<i>Hullabu, Inc</i>	Audiovisual retelling of F. Scott Fitzgerald's <i>The Great Gatsby</i> ; illustrations; games; interactive choices.
	Sherlock Holmes: Crimes and Punishments	http://www.sherlockholmes-thegame.com/en/crimes.html	<i>Frogwares</i>	Retelling of several short stories by Arthur Conan Doyle in the form of video game; interactive choices.

KOKKUVÕTE

Digitaalsed raamatud kirjandusõpetuses: semiootiline analüüs

Käesoleva magistritöö peamine eesmärk on uurida kirjanduse digitaalsete adaptatsioonide maastikku ja töötada välja semiootiline raamistik nende analüüsiks. Vaatamata digiraamatute valdkonna kiirele arengule, on paljude riikide haridussüsteemid säilitanud konservatiivse hoiaku ning suhtuvad uute materjalide ja praktikate rakendamisse tõrksalt. Antud töös tulevad vaatluse alla erinevad teemad, mis on seotud digitaalsete raamatute olemuse ja ühiskondliku positsiooniga: digitaalsete adaptatsioonide tüpoloogia; nende koht kultuurilise autokommunikatsiooni süsteemis; digitaliseerimisprotsessi käigus asetleidvad muutused lugemiskogemuses; digiraamatute analüüsi metodoloogia.

Magistritöö koosneb sissejuhatausest, viiest peatükist, kokkuvõttest ja lisadest. Esimene peatükk annab ülevaate töös kasutatavast materjalist ning esitab selle tüpoloogia. Digitaalsete adaptatsioonide nimestik põhineb meediaväljaannete ning e-poodide kataloogide analüüsil. Täielik nimekiri, mis koosneb 60. tootest, on esitatud töö lisas ning sisaldab: täiustatud versioone (illustreeritud juturaamatud, multimeedia kogud, lugemisplatvormid); ümberkujundatud versioone (transmeedia, multitekstilised väljaanded, augmenteeritud reaalsuse projektid, ümberjutustused sotsiaalmeedias); intermeedialised versioonid (interaktiivne ilukirjandus, kirjanduslikud videomängud). Valiku tegemisel on lähtutud järgmistest kriteeriumidest: toode on kirjandusteose adaptatsioon; sisaldab originaalteksti täis- või lühendatud versiooni; toodet on võimalik kasutada kirjanduse õpetamisel (põhi- ja keskkoolis); on traditsiooniliste õppepraktikate seisukohast innovatiivne; on ilmunud viimase 10. aasta sees.

Teine peatükk on suunatud digiraamatute analüüsiks vajaliku metodoloogia väljatöötamisele. Loodud multidistsiplinaarses raamistikus kasutatakse analüüsivahendeid ja kontseptsioone nii semiootikast, pedagoogikast, kujundusvaldkonnast kui ka tõlketeadusest: remediatsiooni-teooria (Bolter ja Grusin); ülekande operatsioonide taksonoomia (van Gorp, Delabastita, Popovič); multimodaalne analüüs (Kress ja van Leeuwen); kirjanduslik süntees (Popovič ja Macri); transmeediaõppe põhitõed (Jenkins).

Kolmandas peatükis esitatakse teoreetiline raamistik digiraamatute ja nende kasutamise analüüsimiseks. Lähtudes Tartu-Moskva semiootika traditsioonist, toimub kirjandusliku teksti vastuvõtt juba eksisteerivate kultuuriliste koodide taustsüsteemi kontekstis, mille hulka kuuluvad ka metatekstid nagu adaptatsioonid, tõlked, ümberjutustused ja tõlgendused

erinevates keeltes ning erinevate meediate vahendusel. Seega võib öelda, et digiraamatu multimodaalne olemus peegeldab kultuurilise autokommunikatsiooni universaalset protsessi. Digitaalset kirjandust luuakse erinevate märgisüsteemide, diskursuste ja meediate lõikepunktis, mistõttu võib interaktsioon digilooga nõuda erinevate kirjaoskuste omandamist.

Neljas peatükk sisaldab digitaalse kirjanduse erinevate tüüpide kirjeldusi ning kolme juhtumi analüüsi („*Curriculet*“, „*Shakespeare at Play*“, „*Sherlock Interactive Adventure*“). Iga toote puhul tulevad vaatluse alla järgnevad aspektid: sihtteksti suhe algtekstiga; adaptatsiooni žanr; visuaalne struktuur; retseptsiooni mustrid; vastavus digitaalse pedagoogika põhimõtetele. Viiendas peatükis rakendatakse eelneva uurimistöö tulemused Andrus Kivirähki romaanil „Rehepapp ehk November“ (2000) põhineva digitaalse raamatu konstrueerimiseks.

Kirjanduse digitaliseerimist võib vaadelda tõlkeprotsessi erijuhuna. See muudab meie arusaama kirjanduslikust kogemusest ja aktualiseerib juba ammutunud probleemid: kunstiteksti ähmased piirid, kommentaaride kvaliteedi ja kvantiteedi küsimus, illustratsioonide roll, interpretatsiooni meetodid, tõlgendamine ja õpetamine. Ühest küljest pakub digitaalne ruum piiramatuid võimalusi kommenteerimiseks ja prototeksti ühendamiseks metatekstidega; teisest küljest seab see aga ohtu teksti koherentsuse ning võib viia üledetermineerimisele.

Suurema osa digiraamatute turust moodustavad endiselt lihtsamad adaptatsioonid. Kahtekümmend viit adaptatsiooni kuuekümnest võib kirjeldada kui kergelt täiendatud e-raamatut ning ainult 4 toodet paigutuvad kirjandusliku videomängu kategooriasse. Selline tulemus on seotud tõsiasjaga, et enamik neist on toodetud kas kommertslikel või poolkommertslikel eesmärkidel, mistõttu valitakse algtekste eelkõige nende visuaalse ligitõmbavuse järgi või lähtudes nende potentsiaalist äratada publiku tähelepanu. Keerulisemad tooted nagu interaktiivsed lugemisplatvormid ja transmeedia on enamasti suunatud hariduslike eesmärkide täitmiseks: näiteks hõlbustamaks vanade või obskuursete tekstide mõistmist ja selgitamaks kirjandusteoste keerukat struktuuri.

Digitaalsete adaptatsioonide põhjalik uurimine tõlke, meedia, disaini ja pedagoogika vaatepunktist võimaldab defineerida taoliste innovatsioonide positsiooni ja paljastada kirjandusõpetuse tõelisi probleeme. Peamine neist on seotud kirjandushariduse kahetise olukorraga: ühest küljest on see suunatud kaitsma kirjandusliku diskursuse spetsiifikat ja autoriteeti, teisest küljest on see siiski ka osa kaasaegsest haridussüsteemist, mida iseloomustab multimodaalsus ja mitmeperspektiivilisus.

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