

E-TEXTBOOK DEVELOPMENT CAPACITIES WITHIN THE CURRENT CONTEXT IN THE REPUBLIC OF SERBIA

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Contribution to the state of the art

DOI: 10.7251/JIT1402062S

UDC: 004.738:655.427

Abstract: The study is a short sublimation of the e-book and e-textbook development. In digital age and with the adoption of new technologies, new educational digital platform has become an integral part of our everyday life and education which requires adjustments and changes in the educational system structure. In order to make the students be equal and functional members of the society and to prepare them for contemporary digital era, it is the entire society's most important responsibility to enable educational system to provide, in most optimal and proficient way, equal opportunities for each and every student to gain knowledge. Expensive process of a book digitalization will, in time, become economically acceptable for all in the broader community.

Key words: traditional book / textbook, e-book, digital textbook.

INTRODUCTION

The invention of Guttenberg's movable letters enabled book publishing to create a new era in the development of humanity and propagating the written word. The first book in print was the Bible. Contemporary printing development followed. In the state of Serbia, the first publishing house was in the Monastery of Rujan. The only book that was printed there was Rujan's gospel by monk Teodosije. Since founding of Guttenberg's print house in 1440 up to nowadays more than 100 million books were printed. One part of this huge production was digitalized, i.e. converted into electronic form. The technical part of the digitalization process is based on the scanning of the pages and generating the text search engine. Given that the book scanning is a convenient way of introducing advances into the work of public libraries – institutions which stimulate knowledge development, Guttenberg project launched in the year 1971, the avangarde of digital literal heritage development, stands out as the oldest [6].

In 1970s Michael Hart who had access to the network of the University of Illinois computer center (which had data processing for its primary purpose) invented data distribution through network. He had the Declaration of Independence in his hands and offered it for the users to download and this became the first e-book in the world. However, such a noble idea was not original: first efforts of recording text in a digital way had already occurred during the 1940s. Based on the project Guttenberg, the oldest digital library in the world, other projects sprung out.

Million Book Project was launched in 2002. It is an exemplary model of the international cooperation of the University of Carnegie Mellon and Internet Archive along with the institutions from India, China and Egypt [2]. The biggest and certainly most famous project is the Google Books Project. Not only did it allow digitalization of all kinds of literature (bibliography entries) but it also raised funds for digitalization.

ELECTRONIC/DIGITAL VS. TRADITIONAL BOOK/ PUBLICATION

Allocating funds is the key problem in book digitalization. Moving it to the massive level would be a capital project that employs contemporary technologies and requires huge economic investments. The goal of the mass digitalization project is to enhance the accessibility to literature as well as to information for greater number of users. Digital materials allow easy access and user-friendly file management: lower quality recordings can be enhanced, graphics can be scaled, document can be merged, rearranged, etc. Through generating such a database the search in different languages has been made possible and it also contributes to spreading of education, learning, scientific work and research; it prompts update to existing technology and developing of tech innovation. According to Borgman [1], we can discern between two ways of generating digital document: digital - made in digital form, and digitized - retyped or converted from some other medium such as paper, celluloid, etc. The final product of the digitalization process is a book in digital or electronic form (e-book). The e-book can be defined as a digital equivalent of the printed publication (contents of which can be reached through the network) or as „a file stored in solid medium (CD/DVD)“ [3]. When compared to a publication in print, an e-book is more adaptable and accessible to the reader. It also enables editors during its production to employ a variety of formatting options whereby each has good and back sides. Some of the advantages which an e-book has include: the text is searchable except when pictorial, it does not occupy much of the memory space (one CD can compile 500 average e-books), it can be read with no additional source of light, easy to reproduce, the distribution price is low, it is affordable and ecologically acceptable (reduces the use of paper). Advantages of traditional publication compile: it can be read anywhere, even if damaged, it requires no power supply, has a vintage value (first editions). It is important to stress out that there are some downsides of both formats. The biggest fallacy of the e-book is its incompatibility with newer hardware and software, application can block the reading, careful management and storing of documents is needed in order to avoid data loss, battery can run out of power. Printing publication need a light source for reading, they are heavy

to transport and harm environment by using paper and a copy production is more time consuming. Traditional publication can be owned by purchase, lent, borrowed, sold or given away while e-book cannot be sold or borrowed but we have to pay a lease for it as it belongs to the publishing house. Kindle allows readers to move it to another reading device for 14 days but we can no longer read it on our own gadget. E-book's quality, as well as traditional book's quality has to respond to specific norms. Those norms refer to individuals who are a part of the team in the production of a piece of work. Just like the traditional publication, a team of cooperatives except for the author includes an editor, proof-reader (whose task is to eliminate any spelling or grammar errors), art and graphic editor. It is important to stress that even the very format is an important reference: different e-book formats can impact the price depending on a device (e-reader) that is used.

E-readers are portable devices for reading books and other publications in digital form. Unlike standard screen which has a display based on backlight, the screen of the reader reflects the light in the same manner as it is reflected on the standard paper. That facilitates lengthy readings. There are some features that are in common for different readers: they are all easy to use, they are small in size (approximately 6 inches), they provide basic functioning options during reading (contrast, zoom, font alteration), and they do not display multimedia contents. Most famous are Kindle, Nook, Kobo; Most often used gratis applications are Adobe Digital Edition, Calibre, Radium as well as applications for specific mobile device platforms (Android and iOS) where the display is adjusted through font size alteration, screen orientation/rotation, different animated indicators of browsing, possibility of choice among 14 different languages. There is a huge variety of reading applications on the market. Among themselves they differ by functionality, file formats they support and sources of e-book retrieval. Free eBooks Apple application is opened for possibility of purchase form Apple Book Store as well as sharing marked excerpts by email, Facebook [7].

The outreach and development of digital publishing is closely related to the count of the e-gadgets sold

on a single market. In Serbia, we are facing the problem of lacking distributors of e-reader devices which are sold in the world for \$69 and more. American Corner in Dom Omladine, Belgrade offers the possibility of renting e-readers but the offer is restricted to English titles exclusively. In Serbia, e-books can be purchased per single piece or consumed on year basis membership principle. E-book stores allow for local authors to publish their e-books and achieve global accessibility and success through presence in greatest global book stores. Digital markets of huge companies such as Apple, Google, Amazon, Samsung,... facilitate e-book distribution. Around 70% of traditional publication publishers cooperate with e-book stores which is very indicative when it comes to huge potential of sale and gain for the publishers and authors; simpler and cheaper production; distribution and accessibility for broad literary audience.

DIGITAL TEXTBOOKS

E-book market development is infinite so a digital book breakthrough in the field of elementary education came as expected. E-book market has found its separate branch in classrooms. Textbook revolution/digital text books offer one click solutions to complex problems in specific teaching modules. Multimedia contents, enriched with animations, quizzes and games, add value to traditional textbooks. Embedded multimedia presentation can last 30 seconds to 3 minutes. Through visual and audio illustration which traditional textbook is unfortunately lacking, it enables children's active participation in the class; it does not distract but rather enriches and enhances the process of adopting knowledge, research and apprehension. Everything is possible in digital world. New schooling possibilities: one click on shortcut on PC, tablet or smart phone reveals exclusive, safe and informative multimedia content. A digital textbook is always with a pupil. Wherever they are they can easily access it thanks to development of new technology. It also allows constant accessibility of all the contents, notes, bookmarks, interventions introduced for more productive learning, to be updated and adjusted to all the devices on which the e-textbook is installed. Digital textbooks are based on methodic rule which is familiarly organized and makes easy browsing and navigating through contents and it allows a student to use it

along with material in hard copy. Pages can be browsed linearly same way as with traditional textbook but also chapters can be skipped through browsing, contents can be searched through key words that are found on each page where occurring. Every digital textbook can comprise audio and video files, quizzes and interactive objects, images and photo galleries, as well as documents like ppt presentation, URL, links to referential contents elsewhere in the text. Student is also free to highlight the text in different colors, to draw and paint, to store it all in one particular place, to erase or to export into a separate document saved on his/her personal computer. One can also take notes, add contents retrieved from Internet, save together in one folder or export into a separate one. With digital textbook everything is accessible to everyone. Conditions of learning are equal for all. Equipped lab or classroom can add value to the integration of good digital textbook. It is important to discern digital textbooks that solely compile PDF pages identical to ones found in hard copy textbook (traditional textbook scanned) from digital textbooks which, except for that text, are also enriched with visual and multimedia illustrations.

Digital textbook has additional contents in the form of video recordings, animations, pictures, interactive quizzes. Therefore an interactive digital textbook that is yet to be introduced into the curriculum can open new possibilities for its users. By using multimedia, the digital age allows for the curriculum to be presented to learners in a well-organized, comprehensive and inspiring way. It also enables them to gain higher degree of intellectual development and autonomy; it boosts their self-esteem due to the fact that in a short period of time the required information is found. It also inspires curiosity and explorative spirit which are essential nature of the learning process. 3D technology allows elevated apprehension in presenting chemistry, physics, geography related learning units. Successful educational platforms and process management system that are employed in the contemporary school system are, for example, Desire2Learn, Learning Hub, and Blackboard. We need to keep in mind the fact that the world around us as well as the future of our children are in their nature digital. Thus new learning environment and pedagogic paradigm shift are imposed. The new concept requires cooperation within multidisciplinary teams

that are to adopt components of technologic innovation relevant for the educational system. Such a process also alters the role of the teacher from primary information provider towards someone who facilitates students' understanding of complex processes and discerning information by priority within huge amount of data brought by digital era.

DIGITAL SCHOOLING IN THE WORLD AND IN THE NEIGHBORING COUNTRIES

The educational system of one country is based on the knowledge which is the basis for technological development enabling us to find necessary information. Therefore, in the new tech age the educational system requires a new model of passing the knowledge from a teacher to a student. E-textbooks, e-schooling and e-education are exemplary models of education and technology interaction. Digital technology enables new and relevant social dimension in the process of education. It strives towards accentuating the individual approach and technical literacy necessary for independent use of available sources of knowledge and information. Higher flexibility degree and students' interactive approach to digital contents are only one among numerous features of digital technology that can be appropriately incorporated in the process of education. The importance of digital age in education was first recognized by South Korea. In 2006 the Smart Education Programme was launched with the mission to fully replace traditional elementary, high school and college textbooks with the digital ones by year 2015. Based on prior experience, they have found an optimal model which combines traditional and digital textbooks for lower grades of elementary school. In 2012 The Playbook manual was published in USA. It compiles suggestions for the steps toward digital textbooks implementation. Backed up by those guidelines, some of the states, 40 of them, have enacted regulations and issued recommendations for ways to organize digital schooling (Florida set 2015 as its goal to have all the textbooks produced in digital form; for every pupil in higher grades of elementary school and high school the state of Alabama provides tablets with digital textbooks...). Digital educational revolution is an Australian project launched in 2011. In 2010 Japan launched the project School of the Future which has

the aim to provide a free tablet for each pupil and Smart Boards in Classrooms for every school. It is also worth mentioning that China, India and Israel have launched similar projects. Such a trend is also followed by the majority of the EU countries. In the neighboring countries the situation is as follows: in Croatia, Školska knjiga and Profil stand out in the field of digital textbook production; [5].

Macedonia has launched a portal with e-textbooks in 2010. [8]. In Serbia, supplementing material for textbooks for elementary and high school education is released in the interactive form on CDs by Serbian state publisher of textbooks.

E-textbook as an equivalent of traditional book and comprising multimedia contents, adds to the quality of education and marks the trend of overall social development. On the other side, a complex process of layout design and production in printing traditional textbooks slows down the process of curriculum modernization. The modernization is also in need of investments from the part of state and society. Laptop for every child was a developing project launched in 2002 as a part of aid that USA and western countries provide for developing countries. The project, initiated by professors from famous MIT, has for its mission easier access to learning and to information for all the children. By producing a simple and cheap laptop that could be given away, all students in developing countries would have had better access to education. The statistics shows that around two billion kids in the world cannot afford access to appropriate education and that there are countries with education budgets which do not allocate more than \$20 per pupil. So, such an initiative would not only be humane, but would also produce a positive long lasting impact on social and economic development of those countries. In United States, the educational system in one part operates online only and also offers free educational material. The fact which cannot be ignored is that \$7500 is allocated per child from the budget for education.

At this moment, the development of digital textbook platform in Serbia demands high investments in education as well as enacting legislation which would define the status of digital electronic textbooks. The

platform development would imply logging in by using personal username (password) which would be unique for each student and teacher and also valid for e-textbooks and e-worksheets purchase in e-book stores. A textbook in electronic form identical to the hard copy would be a transition towards next digital textbook development phase and it would be followed by adding multimedia contents. Expanded reality, as virtual and our surrounding realities brought together, is a novelty. It is technology which on e-book or smart phone screen displays real world information and computer generated images and contents combined together. This technology operates through software which uses camera to identify an object (*tracker*) which is replaced with some virtual object or set of information [9]. By means of special application installed on a mobile phone and scrolling over tacker additional information is opened as well as video records in a traditional textbook. Digital textbook has to respond to the needs of the educational process (text highlighting, inserting/adding notes, writing homework, etc.) everything that would otherwise be done on the paper in the school and at the same time it has to be enriched with multimedia and hyperlinks. Development of such a platform (for tablets for example) not only that complies with the current technological trends but it also decreases textbook purchase expenses by 50% and it also reduces the weight of a schoolbag. That way, the publishers would decrease production expenses for textbooks because layout design, printing, storage and distribution costs drain the budget. By introducing e-textbooks into educational system the earnings of authors and publishers would not decrease in value. As World Health Organization recommends schoolbag should not exceed 10% of the weight of the child who carries it. By using tablets instead of traditional textbooks the weight of the schoolbag would reduce to couple of hundreds of grams. To the contrast, nowadays schoolbags carry few kilograms of load. The practice shows that change is slowed down since compulsory and not so important textbooks (which children carry in their schoolbags on daily basis) are still being published. Besides becoming an integral part of our everyday lives and heading toward digital textbook field expansion, the development of digital technology is on its good way to change basic educational system concept, too. The development

of digital textbooks is one of the steps in the educational system modernization which depends on the state legislative. The assistance of the state is necessary through the modernization of regulative, financial support for parents when purchasing tablets, modernization of classrooms so that students would take part in contemporary tech progress and become members of a quick and simple learning community.

LEGAL REGULATIVE/REGULATIONS

One of the issues arising when it comes to e-book is protecting copyright from unauthorized download of electronic content as well as charging the fee for using it. In the beginning, the nonprofit publishers were thrilled with the Google Books projects' possibility to allow access to numerous rare and desired books. But from the fear of copyright infringement as well as losses in publishers' profit, many questions which were not regulated have arisen. The length of snippet, a number of copies which Google can make, ways of the distribution, influence on the work of libraries and bookstores, monopolization of access to information were all the issues needed to be resolved. As the majority of criticism referred to a case of copyright infringement (which ended up in the judicial procedure), in 2008 Google paid 125 million of dollars as a compensation for the digitalized books protected by the copyright laws [10].

In its base of digitalized books with expired copyrights (which are, in the case of USA, all titles published before 1923) Google has provided free access to entire contents, while books protected by the copyright laws can be accessed for a limited period of time. Over time, the European countries like Austria, Belgium, France, Germany and Italy have also joined the Google project. The first Serbian author whose books were published in the electronic form was Milorad Pavić. He was also among pioneers advocating the online and electronic models of book publishing.

In Serbia, the number of titles that are available in electronic form is rather modest. The crucial problem is the copyright but also lack of professional e-book publishers and the fact that only some scientific literature and magazines are accessible in their full form. KOBSON – the system with more than 38.000

foreign magazines and over 50.000 titles allows access to e-documents for scientists, researchers and all that are interested. The National Public Library, in an e-format, mostly has the titles with the expired copyright which means that the modern titles are outnumbered by far. According to the Compulsory Provision of Publication Copy Act [4] each publication meant for release is delivered to the Library in its digital form. The primary motive is to have all the titles that are printed accessible in electronic form too. E-book is revolutionary achievement in publishing business/trade. Its development is almost incalculable. By summing all the expenses of hard copy book production in Serbia, we may come to conclusion that the scene is beyond profitable: the high expenses of printing and distribution have made traditional books inaccessible for numerous readers. Alternative to that is development of e-book because expenses of its productions are around €1. In this manner, the production expenses problem is resolved, a book becomes more accessible to a reader, titles and authors are more easily promoted, the knowledge basis expanded and the intellectual capital of a society is enlarged as well as the profit. What statistics shows is that Amazon, the world largest bookstore, annually sells more books in the electronic format than paper ones.

CONCLUSION

The arrival of an e-book in Serbia is belated. Nevertheless, it is the reality which will soon, just as any

other world trend, become a part of our culture. The climate in Serbia suggests that e-books will soon assume position dominant to traditional publications. Research analyses indicate that excellent, bestselling e-book titles also have found their audience among traditional book readers. At this moment, the cultural mission of e-books mostly depends on the speed and quality of finding solutions to problems which comprise copyright, distribution and others. The Tribunal for High-Tech Crime of Serbia is disbanded; the digital piracy issues are resolved through execution of the contracts with huge systems, distributors and publishers which take care of the piracy problem. Over the past years Serbia has been facing the problem of illegal copying of certain titles through Xeroxing. Through e-publishing development a book becomes more accessible and cheaper so the need for Xeroxing declines.

Over the past years e-books dominate in developed countries while in Serbia, due to economic limitations and lacking popular literacy in informatics, the progress is staggering. Even though we live in the age of high tech development the impression that we are still at the beginning persists. It is backed up by the fact that we have numerous unresolved issues when it comes to the legal and economic aspects of the new technologies' employment. In order to gain status of an equal member within the technology age community which we live in, we have to be ready to conform to benefits offered by the future of informatics.

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Submitted: November 11, 2014.

Accepted: December 5, 2014.