

The Form of Scientific Papers in Online Historical Journals

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Abstract

The purpose of this research is design of an online form for publication allowing reading, editing and distributing publications in scientific and educational journals suitable for historian scientists. Strengths and weaknesses of different formats and editing tools are considered in the context of availability of online change of publications and usage of historical researchers without any special training. Based on the received information we developed a complex approach, which unlike traditional format is dynamic and allows online editing in WYSIWYG editor. Compared to wiki format the presented form allows browsing by paragraphs and is easier to use by researchers without special technical skills. The suggested approach is implemented in online scientific journal «Istorya». The research contains survey results among «Istorya» journal authors and subscribers. The authors identified and addressed specific problems of online publication in history.

Keywords: Electronic Publishing, Historical Journal, Online Editor.Pdf, Wiki

1. Introduction

In the recent paper¹ we suggested that several factors contribute to the changes in the information and knowledge distribution. The first factor is the storage medium to which information is recorded. The second factor is the technology for information recording to a certain storage medium. For centuries the mankind has been trying to improve information storage mediums, to cut down price and time of production, copying and editing of accumulated information. Papyrus replaced stone and clay tables (used up to 8 AD), then Parchment was invented (massive use of up to 15-16 AD) only to be later forced out by paper. However, by the end of the 20th century paper and printing technologies had outreached its potential¹. Also notes that the development of technologies and methods of information distribution is connected with the change of communication between people². 20th century technological breakthrough and the emergence of the Internet made available new types of information storage mediums and methods of its presentation (including storage and distribution), new ways of communication and interaction.

2. Materials and Methods

Electronic forms of publication and distribution of knowledge have gradually begun to compete with printed materials. The Internet emerged and penetrated in every aspect of our life. New options of information technologies challenged the modern society. Such issues as copyrights, open access, forms and methods of review, static and dynamic character of online information, the methods of storage and distribution of information are often the subject for a heated discussion. These new trends were discussed on recent scientific forums and conferences³.

In articles dedicated to the research of the new scientific publications culture in the humanities⁴ it is noted that the current culture of scientific publications is still based on the traditions of printing. There are two main reasons. Firstly, quite a large number of researchers still present the results of their work on paper. It is not unusual that since the presentation of the research results on paper till the publication passes a significant amount of time, sometimes even years. Consequently the information has become out of date. Secondly, there are a lot of printed archives for scientific and academic papers. While

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adapting the paper version of a journal to online format publishers have to digitize the journal archive accumulated for a couple of decades⁵. The simplest way to solve this problem is to digitize printed articles and publish them in Portable Document File format (PDF).

Due to these reasons it is not possible to dynamically manage scientific content. It is common practice that the leading scientific works are republished some years later with additions and amendments by the author or editor. In electronic (online) format this task is much easier: the new version can be published bypassing the numerous obstacles which are not known to the contemporary information technologies. For example, an author can update the article with the case studies and background, shift the focus of the publication or even modify the results. Thematic issues in online historical journals are published quite often; it is possible in online journals to add new articles to the already published issues. All these new features are available in online journals supporting content dynamic nature⁶.

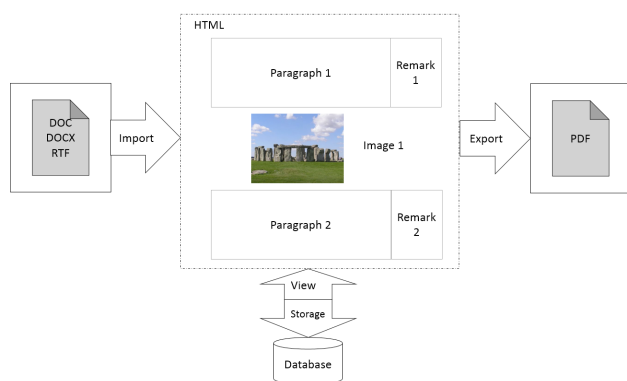


Figure 1. The presentation of an online publication.

Speaking about online journals and publications we assume that all the work with the article is done online⁷ notes that «online» means anything digital, from any source, at any time. All manipulations with online articles (creation of a text, editing, reading and searching) should be done without any special software. Here we come across yet another problem which is addressed in the research. It is not uncommon that publishers, editors and authors (especially in the humanities) do not have enough skills to work online. This issue is mentioned by⁸ and by⁹ in the context of academic papers and libraries for scientific and educational literature. Modern tools for online writing and editing require training and experience. This research is aimed to address this problem.

An online scientific publication is a complex information object requiring relevant development of online journals technological platform and sufficient experience of the users of this platform¹⁻¹⁹. The aim of this article is to analyze the existing forms of online scientific publications and design of the effective form of an online publication supporting dynamic content and suitable for historical scientists.

3. Results

3.1 Exploring the Forms of Online Publications

Now we'll discuss the forms of information presentation in web systems. By the presentation we shall mean not only display of information uploaded to the site but also the process of its distribution on electronic mediums, creation and editing. All electronic formats will be considered by ease of use by scientists in the history and eligibility to be used online. The search for the best form of online publication started when the group of 8 historians from the Institute of World History of the Russian Academy of Sciences and the State Academic University for the Humanities has been formed. It should be noted that all participants of the initial focus group have either PhD degree or are doing a post graduation studies; they are under 35 and have different level of technical skills. They were offered to test the tools generally used for the creation, editing and reading of articles.

In the majority of available systems the main form of publication is a file, usually in Portable Document Format (PDF) format. It is not surprising as PDF was originally designed as a universal format for display and distribution of printed documents¹⁰. The file is downloaded without changes or displayed in a browser. In order to use this format a user has to install special software. The format supports references, interlinear, links, animation and sound. As it was noted during our research, two major drawbacks of the PDF are the difficulty of text editing with the use of proprietary software and the lack of customization for mobile devices. Other formats used for storage and upload of publications have the same downsides. The DOC, DOCX formats are not protected against modifications, while the Latex format popular in technical sciences requires special software and is quite complex by itself¹¹. Currently a file is the main form of

storage and distribution of publications. Such approach is no different from storage and spread of publications on paper. However, it should be noted that initially the article is written in one of the popular text processors (Microsoft Word, TeXstudio) which is appreciated by authors of our experiment. The advantage of such approach is in its simple implementation. There's no need to analyze the publication structure, to enable data export and import modules and their display in browsers.

Consider another publication format - HTML. It does not require any special software; a browser is a default program in any operating system, including mobile devices. Web technologies (Ajax, Silverlight, HTML 5, JavaScript) allow to display any multimedia information. In web systems HTML documents are designed with the use of online editing programs.

These days researchers successfully use wiki documents format in data storage and management systems. Wiki documents are easy to create and edit, which is the main advantage of this format. Peer-review tools are suitable for academic publishing and envisage dynamism of online publications. In the opinion of¹², Wikipedia has the potential to become the main distribution mechanism for academic papers. But in order to be able to make an scientific paper in this format the author has to be familiar

with wiki documents and have basic knowledge about internet markup language (HTML, XML). In order to enable editing wiki articles markdown format was developed which is easier than wiki, but has some constraints¹³. Our experiment has proven that for historians and other scientists studying the humanities it is rather difficult to create an eligible academic paper in wiki and markdown formats. Even young researchers (up to 35 years) rarely manage that task. Thus, the easiest format for online editing is WYSIWYG editing tool, which allows working with a text as in popular text processors.

But the creation of lengthy texts with strict formatting requirements has some constraints in this tool. The experiment showed that there are no fast save, preview and notes options in this tool. The difficulty of distribution is yet another downside of articles in HTML format. The formats comparison results are demonstrated in the Table1.

The comparison of different formats shows that there is no a unified approach for scientific publications. The best format for distribution of papers is PDF, while HTML is better for reading and display of publications. Editing is the easiest in WYSIWYG editing tool. In the next section we'll present our approach to scientific publications in the history and introduce special tools enabling to deal with the abovementioned problems.

Table 1. Comparison of file formats and editing tools

Display format + editing tool	Distribution	Reading	Editing / creating
PDF	Easy to distribute, protected against modifications	Requires special software, reading from mobile devices is difficult	Requires proprietary software and training
DOC, DOCX, RTF	Easy to distribute, does not protected against modifications	Requires special software, customized to reading from mobile devices	Does not require proprietary software and training
Latex	Easy to distribute, does not protected against modifications	Requires special software, reading from mobile devices is difficult	Requires proprietary software and training
HTML + wiki editing tool	Easy to distribute, not protected against modifications	Customization to reading from mobile devices is possible	Requires training, no preview and save options
HTML + markdown editing tool	Easy to distribute, not protected against modifications	Customization to reading from mobile devices is possible	Requires training, no notes, preview and save options
HTML + WYSIWYG editing tool	Easy to distribute, not protected against modifications	Customization to reading from mobile devices is possible	Does not require training, no preview and save options

3.2. The Presentation of a Scientific Publication in «Istorya» Journal

The authors developed the following approach to publications in online journals. The main idea of our method is co-use of different formats. We believe that this approach is more user-friendly for unexperienced users.

- Primarily the text is created in DOC, DOCX or RTF format. This way is convenient and familiar to the authors.
- When the article is uploaded to the site the text is parsed. Notes, headings, links and images are marked out.
- The text is automatically paragraphed and is uploaded as HTML document [Figure 1]. Notes and remarks are displayed next to paragraphs. Images are displayed as a separate paragraph. The links are saved. The index is automatically generated from headings in the file.
- An author can modify or edit the article on any stage right on the site even after the publication. For online editing visual WYSIWYG tool and preview option are used. After modification and editing a new version is automatically created, which is then sent for review and appraisal. Previous versions are not deleted.
- If necessary a reader can download the article in PDF for further distribution. The file contains imprint, images, links, text paragraphs and all notes.

Thus, the main reading format for an article is HTML. With the current level of the Internet and mobile devices penetration the distribution of HTML documents is not a problem for most readers; however, export to PDF, which is needed for distribution of articles, is supported. Developing the project of online scientific journal «Istorya»¹⁴, which was originally designed as online journal, we raised and described above-mentioned problems and offered an innovative approach to publications. The first important feature of the approach is elimination of pagination in all articles of the journal. The text is divided to paragraphs and notes, remarks to them. The paragraph consist of text or image. Notes contain formatted text and links and are the integral part of the article. We noted that in many scientific publications and educational materials in history the volume of explanatory illustrative text can be higher than the main text of the publication. Under explanatory illustrative text we mean footnotes, editor's remarks and references.

In printed versions due to text limitations important notes and remarks may be excluded from publication or taken out to appendices. To bypass this limitation it was suggested to divide the text into two columns. The first column contains the main text; the second column contains explanatory text. The size of these columns depends on the browser size and is displayed in Figure 2.

Each note is automatically collapsed in order to avoid main text “break” and keep the same space between paragraphs. Text perception and display of paragraphs may be affected by long links in the explanatory text. This problem is solved with the use of JavaScript features enabling to automatically hide all hyperlinks in notes. The “hide link” feature is also available at the export of the article into PDF.

Christianity in the History of Russia. Civilizational Types of Christianity
Alexander Golev, Anna Vankova

Text size
A A A

Преподобный Антоний с двумя преподобными, фреска. Монастырь Баумт. VI—VII вв.

10 В V в. церковное законодательство окончательно ставит монастырь под контроль епископа, государство со своей стороны также подробно регламентирует те аспекты деятельности монахов, которые находились в его ведении. Вскоре после появления монастыща, быстро завоевавшего авторитет, оно стало играть важную роль в византийском обществе. При монастырях открывались больницы, приюты для странников, богадельни, монастыри помогли окрестному населению во время голода или стихийных бедствий. К помощи и заступничеству монахов, известных своей праведной жизнью, прибегали в разнообразных жизненных ситуациях, начиная от болезней и заканчивая конфликтами с местными властями. Во время как внутрисредовых споров, так и социальных конфликтов, нередко вмешательство монахов играло решающую роль.

11 **Формирование богословия. Понимание в христианстве личности Иисуса Христа**
Богословие — это способ не только изложения христианского учения, но также, а может быть, и в первую очередь — и поклонения Богу. Его замысла в отношении человека и всего мира, так на основе личного, молитвенного и аскетического опыта, так и путем рациональных построений. Именно поэтому христианская Церковь называет автора четвертого Евангелия Богословом. Особым временем для христианского богословия стали IV и V века — эпоха великих богословов, названных впоследствии отцами и учителями Церкви. Они творили в эпоху триадологических (привадология — учение о Святой Троице) (IV

Павел Великий (ок. 282 — ок. 348 г.) родился в Египте в знатной семье, и с христианством познакомился только в возрасте 20 лет, когда он ненадолго был призван в армию. Христиане претерпели небывалые заперья на корабле, еду и воду. Это событие с...

Figure 2. The publication presentation in «Istorya» journal.

In traditional approach paginating often does not allow to indicate the exact place in the cited article. To facilitate citation in the article we developed continuous numbering by paragraphs (and images) and direct link to a particular paragraph. These options make it easier to search in the cited scientific text. For details see Figure 3.

In addition, we introduced special HTML tools for reading, i.e. automatic generation of index, interactive navigation panel, text resizing option, customization to mobile devices, scale up and scale down image viewing in the text. All these improvements were suggested by the scientists participating in our research.

In order to add dynamism to scientific publications online editing option was developed. The author can amend the document at any time, even the already published article. The new version is created automatically. After that the author can send the new version to editor

and when the amendments are accepted the new version is published instead of the previous version.

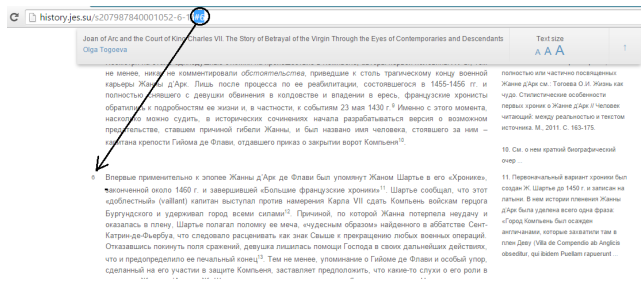


Figure 3. The link to a particular paragraph in the URL of «Istorya» journal.

The text is available to online editing in WYSIWYG tool, which supports features, specific for academic texts:

- Creation of links to references;
- Creation of external hyperlinks;
- Creation of editor’s notes, remarks.

The implementation of paragraphs editor in “Istorya” journal is presented in Figure 4.

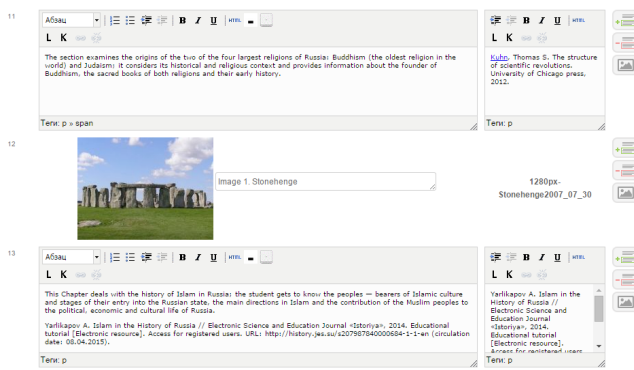


Figure 4. Online editing of a publication in «Istorya» journal.

The analysis of the use of the offered online editing tool among historians showed that this tool is necessary only along with fast preview and draft save options.

4. Discussion

There’s number of projects allowing automatizing the process of publishing, reviewing and assessment of the article by editors. Practically all of them work with scientific and educational texts in a traditional way using PDF files. The most popular open access system is Open Journal Systems¹⁵. Despite the continuous improvements¹⁶ this system allows only file editing, viewing and storage. Generally speaking, HTML is used only for the

display of articles. However, there are projects where the basic format of reading is HTML document. Site of publishing house Wiley (<http://onlinelibrary.wiley.com>), of «Science» journal (<http://www.sciencemag.org/>) are the examples of such projects, where articles are available in both HTML and PDF formats. However, online editing and update of the published articles are not supported and HTML format is not a «default» format.

These problems are solved in wiki-based projects. They make online editing easier and have some special features characteristic to academic publications. For example, well-known engine MediaWiki, described by¹⁷, enables education and knowledge sharing inside a community but even given the integration of peer-review tools¹² it is not suitable for historical researchers due to necessity of training to use it.

It should be noted that our approach was tested on articles and papers in history and will unlikely suit natural and applied sciences as it does not address the problems of math formulas editing for which special software is used¹⁸.

In this work we discussed the issues of display, distribution and editing. However, related recent works are devoted to the issues of automatic extraction of information from scientific publications. We suggest the integration of our approach with Named Graph/RDF serialization engine, which will allow to present publications as nanopublication¹⁹.

5. Conclusion

792 articles in 37 issues of scientific publications and educational materials have been published in online scientific journal «Istorya» since 2009. As at the beginning of 2015, the number of authors is 621, the number of subscribers - 915.

With the help of Google Analytics we studied authors’ and constant readers’ audience by age. The majority of «Istorya» audience is up to 35 years. With the purpose of assessment of the presented approach we offered the authors to participate in a survey on the usability of the new tool. Over 78% of 44 respondents gave positive assessment. Subscribers were offered to choose the preferable display format – online reading on the site or downloading a PDF file. 62.96% preferred the new approach allowing to read form the site over traditional PDF file. The survey results are published on the journal site (<http://history.jes.su/page-25.html>)¹².

The authors identified the main challenges for online scientific and educational publications in history which lie in the lack of modern web technologies skills among historians and other scholars in the humanities. The authors analyzed modern formats and ways of online display, editing and distribution. None of them seems to be able to address all the challenges, so was offered a new complex approach for the presentation of online scientific publications.

The practical value of this work is that the offered approach was implemented in online scientific journal «Istorya». At the development of the journal we took into account features specific to papers in the history, for example, a lot of explanatory text. We suggested to work with publications without pagination and implemented direct links to paragraphs on the URL of the article. We were first to examine the possibility to use WYSIWYG editor for scientific publications. The main advantage of our approach is that it is easy to use by unexperienced scientists in history, which is confirmed by positive feedback from users.

In the future we intend to focus on improving the perception of the information in journals. First priority steps include the implementation of video, audio and other types of multimedia content within WYSIWYG tool and HTML format. As we mentioned above under the term of presentation we don't mean the automatic extraction of scientific information from online publications. There is a need of additional research in the field of Semantic Web. We consider the integration of the described approach to online publications with the idea of nonpublication¹¹ as a very promising research line.

Another important line of research is a more detailed investigation of the social behavior of authors, editors, readers not only in history but also in other humanities. For that purpose we plan to make a range of surveys, indicate focus groups of authors and editors and analyze their social behavior while using the offered tools.

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