

Network Communication Technologies in the Activity of Children's Libraries of Ukraine

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Abstract. The article investigates the trends of development of digital information and communication space of children's libraries of Ukraine. Nowadays librarian communities are undergoing a transformation and digitization phase and are working to create a new architecture for an integrated library system based on universal access. Modern life requires from libraries to transfer a significant communicative part of their work to the Internet space and to activate their activity in the direction of mastering modern web services and applications, digitizing documents, expanding the information presence in the electronic communication environment. The article deals with the integration of libraries in the web space, shows the role of social networks and the blogosphere to correct the nature and quality providing of library services, creation an intellectual product, optimize the activities of different departments of the library, representation of its electronic resources, etc. The concepts of "information space", "digital space", "information and communication space", "integrated library space" are disclosed. The Internet communications and digital information resources of twenty-two regional children's libraries of Ukraine were researched, information content was disclosed, digital platforms, channels and blogs were characterized and in social media presence. The research find some deficiencies which connected with modification according to interests, requests, users preferences. The article points out the existing features of the unsystematic and chaotic nature of the content presented, the irrelevance and irregularity of updating information. There are also suggested ways to improve the functioning of the digital space of children's libraries of Ukraine.

Keywords: library, digital information, communication, information.

1 Introduction

The proposed research topic touches on the leading trends in the development of the Ukrainian state - the development of the digital economy and society. In accordance with the Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020, approved by the decree of the Cabinet of Ministers of

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Ukraine of January 17, 2018 No. 67-p “the main aim of digitalisation is to achieve the digital transformation of existing and the creation of new industries, as well as the transformation of life spheres into new more efficient and modern ones” [33]. In its turn, the Strategy for the Development of Library Affairs until 2025, “Qualitative Changes to Libraries for Sustainable Development of Ukraine”, defines “the creation of a new architecture of the integrated library system of the state on the basis of universal access and economic expediency” as strategic directions for development (among the proposed measures on realization of this task - formation of electronic library and information space of Ukraine), “modernization of material and technical base and information and technological infrastructure libraries,... intensive development and updating of library documentation and information resources on traditional and electronic media and providing access to them” [18].

In addition, the current life, the transfer of a significant part of its communicative part in the Internet space, requires the intensification of the work of libraries in the direction of mastering modern web services and applications, digitization of documents, expansion of information presence in the electronic communication environment. In view of the above, the creation of digital information and communication space and the creation of digital resources occupy an important place in the activities of library institutions, in particular, the regional children's libraries of Ukraine.

The purpose of the article is to study the practice of organization of electronic children's communication libraries in regional children's libraries, their structure, to form conclusions and recommendations on the development of digital communication libraries on this basis

1.1. Related Research

Ukrainian researchers pay considerable attention to a wide range of issues related to the integration of libraries into the web space. N.M. Kushnarenko in his review of O.Yu.Maryina's monograph “Library in the Digital Space” [16] emphasizes the importance of solving the problem of determining the role and place of libraries in the digital space, emphasizing the importance of the monograph as the first fundamental study that provides a systematic view of digitalization of libraries. K.S. Berezhna [2] considers the definition of the term “information and library environment” and its components, explores the theoretical issues of forming a comfortable information and communication environment of public libraries of Ukraine; the subject of her dissertation was the vectors of modernization of public libraries of Ukraine in the information society [1]. N.P. Pasmor and N.M. Frolova examine the issues of managing a website, offer criteria for its effective functioning and emphasize the importance of the Internet representation of libraries to create their positive image, effective means of positioning and prompt communication [25]. O.Yu. Maryina [21] emphasizes the need for libraries seeking to enter the virtual digital space to formulate a strategy for the development of a new communications environment: “change the orientation of activity in the media environment of the creation of content for the study of information of the users; positioning itself as reliable and secure source of information, digging out for it all the products of this service, able to suppress the

more auditory to create a true image that will enhance the libraries among other members of the virtual process; to propose a new, more friendly library, for which real people stand; to feel the contribution of copy-makers (commentary, conceptual criticism) into the activity of librarian web-projects; to establish the technologies of social media of marketing, social media of cooperation, exchange and self-organization and so on” [22].

E.V. Kulyk, exploring the virtual space of libraries as a medium of education and self-education of young people, notes the active work of Ukrainian libraries in creating a virtual library space to meet user needs using the most convenient communication channels, including sites, blogs, pages and /or groups in the most popular among social users networks, library video feeds, photo collections, online presentations, and more [15]. S. Garagul examines the process of communication between libraries and users in a modern information space. He emphasizes the role of the library as a center of concentration and distribution of information space, as it has a dual function: “offers access to information resources belonging to other subjects of the information space, including those presented on the Internet”, and also “creates electronic information resources (databases, collections of digitized documents, websites and web portals) that lie behind its physical walls” [8]. The researcher draws attention to the role of social networks and the blogosphere to correct the nature and quality of library services, create an intellectual product, carry out selective work on restructuring the library stock, optimize the activities of library departments, representations of its electronic resources and more. A thorough analysis of the “concepts of information space”, “communication space”, “information and communication space”, “integrated library space” are devoted to the research of K.V. Lobuzina [19] and O.P. Dubasa [7]. A. Vitushko and A. Strungar consider various approaches and opportunities for interaction with the departments of the new information web environment in the context of forming a library site for improving the effectiveness of its information interaction with users [35].

Therefore, the problem of electronic information and communication space of libraries occupies one of the key places in the subject of research of modern scholars and practitioners of library affairs. However, the analysis of the national historiography from the question presented showed a variety of approaches to defining the concept of digital (electronic) information and communication space of libraries, its structure. In addition, Internet communications and digital information resources of regional children's libraries of Ukraine are poorly researched.

2 Means and Forms of the Libraries' Network Communication

2.1 Definition of the terms “digital space”, “information and communication space”

The basis of the study was the analysis of sites and Internet communications of 22 regional children's libraries of Ukraine: Vinnytskoi [34], Volynskoi [36], Dnipropetrovskoi [6], Zhytomyrskoi [39], Zakarpatskoi [37], Zaporizkoi [38], Ivano-

Frankivskoi [10], Kyivskoi [17], Kirovohradskoi [14], Lvivskoi [20], Mykolaiivskoi [23], Odeskoi [24], Poltavskoi [26], Rivnenskoi [34], Sumskoï [35], Ternopilskoi [31], Kharkivskoi [11], Khersonskoi [12], Khmelnytskoi [13], Cherkaskoi [3], Chernivetskoi [4], Chernihivskoi [6] (in connection with the temporary occupation of Donetsk, Lugansk and Crimea information on the research on location in these territories the regional children's libraries are not covered). Since the subject of the study is the digital (electronic) information and communication space of libraries, we first consider the concepts of “digital (electronic) space”, “information space”, “information and communication space”.

K.V. Lobuzina focuses on the blurry content of the phrase “information space” as a scientific concept [19]. It is interpreted by researchers from different perspectives: as “informative” physical space”; “virtual territory” owned by the state is its specific resource” (geopolitical approach); “information space as a sphere of relations between people and communities about information” (social approach). According to Yu.A. Schrader, who first proposed the concept of an information environment, the “information environment is not only a conduit of information, but also actively influences its participants, provides the opportunity to obtain the knowledge they need, and the ability to receive information and transform it in the learning process”. With regard to the library, the concept of “information space” has two main meanings [19]: O. Voskoboinikova-Guzeva and V. Nefedov consider the information space of the library in the light of the concept of a library – “a modern library that meets the world standards of service based on the fund, including various types of documents (from printed to electronic and multimedia) and provides access to information networks”; “library - an element of the global information space/environment (“information environment”), which is a collection of information resources, information processes, organizational structures, technical tools and means of information interaction of users”. So, concludes K.V. Lobuzin, the main components of the modern information space are information resources (data, information, knowledge recorded on appropriate media); organizational structures that ensure it’s functioning and development (libraries, information centers); software and organizational and regulatory documents that ensure information interaction between users and organizations; users of information communications [19].

O.P. Dubas considers separately both components of the concept of “information and communication space” [7]. He draws attention to different approaches in the interpretation of the concept of “information space”. Thus, representatives of the geopolitical approach understand it as a virtual territory of interaction between different political subjects, whose task is to control their own information segment, confront competitors and expand their sphere of influence. Proponents of the noospheric approach consider open cooperation and information equality as the main principles of information interaction. The semantic approach to the concept of “information space” involves modeling the information space as a hypertext structure. At the heart of the sociocultural approach is to identify the interconnections of the media with the broadcasting of cultural models that determine the social identity of individuals. According to the socio-informational paradigm, the information fields of the socio-psychological space are correlated with the social, semantic and

psychological spaces. Political information space also differs in its specificity. The concept of “communication space” as a philosophical category can be expanded through the categories of properties, structures, systems and more [7]. O.P. Dubas notes that “acting as an anthropogenic space, communication space is a special form of human being, within which the possibilities of organizing social bonds and interactions of individuals through communication are realized”; “information space, from the point of view of communication approach, is a set of communication technologies that ensure interaction between the producer, transmitter and consumer of information” [7]. As a result, the researcher proposes to understand the “information and communication space” as “a form of existence of information systems that provides and stimulates operational information interactions of information producers and its consumers, the translation of knowledge accumulated in information resources, and their preservation in the formed information infrastructure, the totality of communicators, recipients, meaningful messages, communications channels and communications” [7]. S. Garagulya and N. Samokhina view the information space as a material-spiritual category that is the product of human culture. The material component of the information space consists of information resources, information and communication infrastructure, media system, technologies, communications, information and telecommunications, information products and services, information security systems, which function to ensure the ideal component of the information space. “The main distinguishing feature of the modern information space is the creation of an information communication system that allows access to socially relevant information anywhere at any time” [9]. Taking into account the above approaches to defining the concept of information and information-communication space, in our study we consider the digital (electronic) information-communication space of the regional children's libraries of Ukraine as an electronic space, objects of which are combined by means of network communication technologies that create for user ability to get information quickly and conveniently; these are digital platforms and channels that enable the implementation and interconnection of various digital library projects. This space has a complex structure and consists of such basic elements as a library site (portal), library blogs, library pages on social networks, as well as links of library sites (blogs) with Internet representations of other cultural, educational, governmental, public institutions with the help of Internet links, links, banners.

2.2 Sites of children's libraries as a means of communication

The 21st Regional Children's Library of Ukraine has its own sites, the Odessa Regional Children's Library is represented by a Russian-language blog (See Table 1). There were problems accessing the site of the Zhytomyr Regional Library for Children. Sites of libraries differ in the quality of information and communication characteristics. Standard headings are present on all sites. Most sites are sufficiently informative, easy, easy to navigate, and some sites have a menu. Among the least informative and communicatively attractive there are the sites of regional libraries:

- Zakarpatskoi (unattractive site design, little information, irrelevant information - the latest news at the moment of site visit dates 01.06.2019, no representation on social networks, no blogs, no connection with other institutions sites electronic form for communication with users) [37];

- Vinnitsa (the site has not been updated for a long time, as evidenced by banners-links to banned social networks "VKontakte", "Odnoklassnyky", no site map, return to the main page, information about interesting events, circles, competitions are inconvenient to search inside subheadings, electronic information the library's communication field consists of the site itself, the library page on Facebook, a link to the site of the National Library of Ukraine for Children) [34].

Table 1. Regional libraries for children on the Internet

№	Library Name	Site Availability	Blogs	Social Media Page	Use of Hosting Services, Platforms, Cloud Services
1	Vinnytsia Regional Library for Children named after I.Ya. Franco	+	-	Facebook	Google Drive
2	Volyn Regional Library for Children (Lutsk)	+	-	Facebook, YouTube	YouTube
3.	Dnipropetrovsk Regional Library for Children	+	+	Facebook, YouTube	Slideshare, Upload, YouTube Blogger
4	Zhytomyr Regional Library for Children	+	+	Facebook, YouTube	Calaméo, Slideshare Blogger
5	Zakarpattya Regional Library for Children	+	-	Facebook, YouTube	-
6	Zaporizhzhya Regional Library for Children "Yunyi Chitach"	+	-	Facebook, YouTube	Genially
7	Ivano-Frankivsk Regional Library for Children	+	-	Facebook	-
8	Kyiv Regional Library for Children	+	-	Facebook, Instagram, YouTube, Google+	Slideshare, YouTube
9	Kirovograd Regional Library for Children named after T.G. Shevchenko	+	+	Facebook, YouTube	Slideshare, YouTube Blogger
10	Lviv Regional Library for Children	+	+	Facebook, YouTube, Instagram, Telegram	Calaméo, Slideshare Blogger
11	Mykolaiv Regional Library	+	+	Facebook,	Calaméo,

	for Children named after V.Lagin			Instagram, YouTube, Pinterest	Wix.com, Microsoft Sway, YouTube Blogger
12	Odesa Regional Library for Children named after V. Kataev	-	+	Facebook	-
13	Poltava Regional Library for Children named after Panas Myrnyi	+	+	Facebook, YouTube	Calaméo, Google Drive, YouTube
14	Rivne State Regional Library for Children	+	+	Facebook, YouTube	Calaméo, YouTube, Scoop.it!
15	Sumy Regional Library for Children	+	+	Facebook, YouTube	Slideshare, YouTube
16	Ternopil Regional Library for Children	+	+	Facebook, YouTube	YouTube Blogger
17	Kharkiv Regional Library for Children	+	+	Facebook, Twitter, YouTube, LinkedIn	Calaméo, Slideshare, YouTube, DOCME, infogram
18	Kherson Regional Library for Children named after the Dnieper Chaika	+	+	Facebook, Twitter, Instagram, YouTube, Google+	Calaméo, Slideshare, YouTube Blogger
19	Khmelnysky Regional Library for Children. T.G. Shevchenko	+	+	Facebook, Instagram, YouTube, Flashbook	YouTube, Google Docs Blogger
20	Cherkasy Regional Library for Children	+	-	Facebook, YouTube	Google Drive, YouTube
21	Chernivtsi Regional Library for Children	+	+	Facebook	Blogger
22	Chernihiv Regional Library for Children	+	+	Facebook, Twitter, YouTube	Calaméo, YouTube Blogger

From the point of view of organizing communication with users on the sites of some libraries there is no possibility of interactive communication, electronic forms for feedback are not presented, and therefore libraries are deprived of the possibility of improving their activity taking into account the range of interests and needs of users. Instead, electronic feedback forms are provided on some libraries' sites. Thus, in the Events section of the Ivano-Frankivsk Regional Library for Children at the end of the information about the added electronic form for writing a comment by the user; an online feedback form for evaluating the site (“excellent”, “good”, “not bad”, “bad”,

“awful”) is also provided. Electronic forms for user feedback include the sites of Lviv, Ternopil, Kharkiv, Khmelnytsky regional libraries for children, each section of the site of the Kherson regional library for children, a guest book is also presented on the site of the Chernihiv, Sumy regional libraries for children. Most libraries' websites have different statistics on visitor statistics. The drawbacks of the content of the sites should be noted. In particular, part of the sections of the site of the Dnipropetrovsk Regional Library for Children has no information content. Information highlights of the site are short videos of various topics (library structure, advertising of new books, video review of books, videos devoted to patriotic education, presentation of the work “My heart”, “Giraffe”, etc.), which can be viewed both on the site and on the channel YouTube. On the other hand, this approach is characterized by a certain uniformity of information supply.

Through links, banners, Internet links, library sites establish information and communication links with library blogs, library accounts on social networks, sites of a number of institutions of various nature, including libraries, museums, theaters, educational establishments, mass media, publishing houses, booksellers, organizations, central and local authorities, social partners, etc [32]. The number of such network communications varies from library to library, the obvious lack of a systematic approach, the general concept of the development of libraries in the digital space, the unity of approaches to the construction of digital information and communication network.

2.3 Blog as a mean of engaging with audience

Regional libraries for children integrate into the digital information space, primarily by creating blogs and pages/channels on social networks, as this approach, according to T.Yu. Granchak “makes it possible to comprehensively represent both the holdings of the library and the various directions of its activity, as well as to provide address satisfaction of information requests of users with their greater coverage” [22]. The 15 regional children's libraries have between one and fifteen blogs (See Table 1). Blogs began to be created since 2008 (Kherson Regional Library for Children named after the Dnieper Chaika) and continue to be created today. Blogs are created both by the library as a whole and by its individual departments. The purpose of creating a blog (as well as social media pages) is to enhance the interaction of the library with the user audience in its various compositions (library-reader, communication between library communities and librarians, library-author, reader-author, reader-reader). The blog can also be considered as a marketing tool that helps to present the services of the library, to create its positive image, to attract potential users, to promote the book and reading, to improve the professional communication of library professionals, to interact with social partners [28-33]. The performance of a blog can be measured by such metrics as the number of views, the number of regular readers, the commentary activity of blog visitors. In turn, this contributes to the relevance of the submitted content, its compliance with user requests and expectations, regular updates, convenient navigation, attractive design.

The blogs of regional libraries for children are distinguished by a variety of topics: the promotion of reading (for children of different ages); presentation of children's creativity; reading and entertainment; professional information, professional development of librarians; legal education; psychological direction; local lore information; art, aesthetic education; development of leadership qualities; vocational guidance; economic and financial education of students; Internet center; literature and theater. Most blogs are up-to-date; two blogs of Zhytomyr regional library for children are not active [44]; some blogs were created under separate projects and operated during their implementation.

As a rule, regional libraries' blogs have relevant headings, messages of various form (text, video, audio, photo), blog search function, electronic forms for commenting on posts, translation, archive, banners or links to go to library sites, blogs, sites partners, containing statistics (number of views, number of regular readers). The latter allows you to determine the relative effectiveness of the blog. However, this is not always possible since not all blogs provide statistics. In particular, the number of regular readers is not indicated (perhaps there are no regular readers) in the blogs of the Kyrovograd Regional Library for Children named after T.G. Shevchenko, Lviv Regional Library for Children, Mykolaiv Regional Library for Children named after V.Lagin, Odessa Regional Library for Children named after V. Kataev, Poltava Regional Library for Children named after Panas Myrnyi, Rivne State Regional Library for Children, Sumy Regional Library for Children, Ternopil Regional Library for Children, Kharkiv Regional Library for Children, Kherson Regional Library for Children named after Dniprova Chaika, Khmelnytsky Regional Library for Children named after T.G. Shevchenko; Chernivtsi and Chernihiv libraries for children. Lack of persistent readership interest may indicate poor performance of the blog and indicate the need to modify it in accordance with the interests, requests, preferences of users. In turn, this raises the issue of feedback.

Although most blogs have electronic comment forms, readers' commentary activity is low enough. The number of regular blog readers is low: from 4 (blogs of Khmelnytsky Regional Library for Children named after T.G. Shevchenko) to 149 (blog of Zhytomyr Regional Library for Children). It is the blogs of the Zhytomyr Regional Library for Children that show the highest interest on the part of readers in terms of the number of regular readers. The number of blog views is dominated by the blog of the Preschools and Pupils Services Division of Ternopil Regional Library for Children, created in 2011, which received 1523130 views.

Just like official library sites, blogs through relevant banners, links, and Internet links establish links with the websites of other institutions and organizations, thus expanding the information and communication field of users. It should be noted that there is a tendency to create shared, corporate web resources for regional libraries for children.

2.4 Online representations on social networks

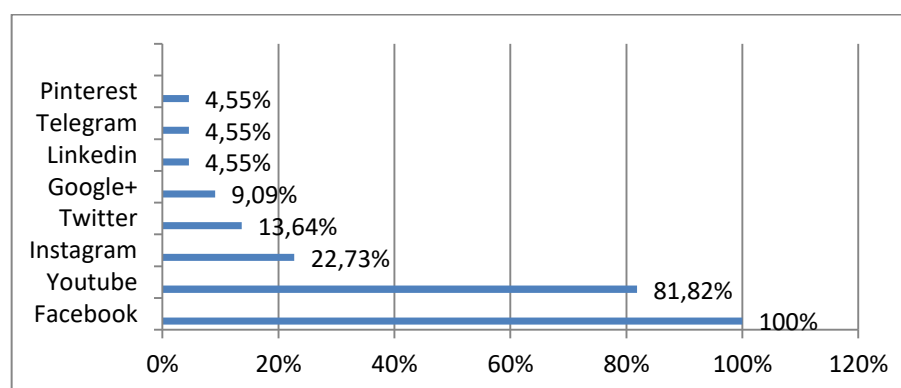
Another promising form of integration of libraries into the digital space and expansion of our own and user information and communication capabilities is the

creation of online representations on social networks. As a rule, the pages of libraries on social networks were created later than the blogs of the respective libraries. In particular, the pages of regional children's libraries on Facebook have been around since 2011. Given the significantly higher number of subscribers to social media libraries, including Facebook, than the number of regular blog readers of these libraries, this form of communication is more effective. Obviously, for the convenience of getting news from the library page, it is enough to subscribe to the library page on Facebook - and you can receive messages in your own news feed [27]. Of course, the specific form of the submission of information of different kinds in social networks of different types also plays a role.

All regional libraries for children have their own accounts on social networks, including Facebook. The problem for a researcher is that not all libraries have a proper link on the site's presentation of the library on a particular social network. Therefore, exploring this issue, I had to search the library's Facebook page, YouTube, using an online search engine. Therefore, possible errors in the quantitative indicators can be explained by the lack of information on the presentation of libraries on social networks on the official sites of regional libraries for children.

General statistics on the availability of accounts of regional children's libraries on social networks are given in Diagram 1.

Diagram 1. Presence of regional children's libraries of Ukraine on social networks



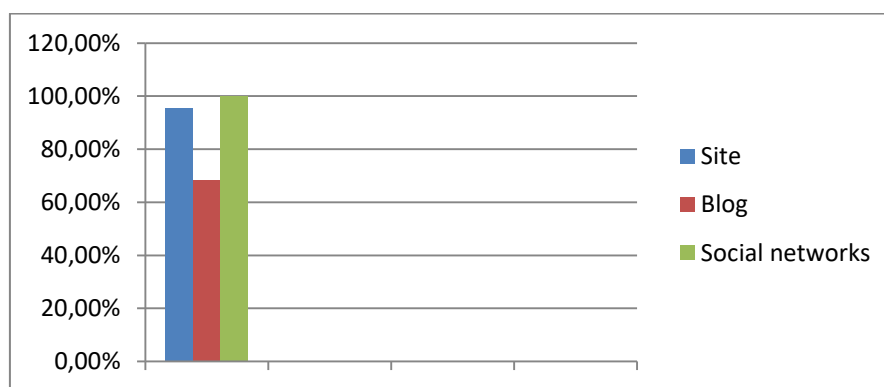
An analysis of the nature of the representation of regional scientific libraries on social networks revealed that most libraries (11) are presented simultaneously in two social networks; three libraries are represented in four, three in three, four in one and one library in five social networks. Some libraries have more than one social network page. In particular, the Lviv Regional Library for Children, the Khmelnytsky Regional Library for Children named after T.G. Shevchenko has two pages on the social network Facebook. The Rivne State Regional Children's Library has a Facebook page for the library, a page for the library's information and bibliographic department.

Regional libraries for children, for the most part, create accounts on social networks, using their features to present their own content: Facebook - to establish and expand communication, building user and professional communities (posting information about events, announcements, photos, videos that characterize life readers and library staff; the ability to communicate through private or public messages, chat); YouTube - for posting videos about activities at the library, video presentations of the library, book trailers, etc; Pinterest, Instagram - for posting visual content (photos of events, readers, announcements, interesting events, etc.), Twitter - for posting news, announcements, reviewing current events [27]. The Google+ social network has been closed since April 2019. Only the Kharkiv Regional Library for Children has an account on the professional social network LinkedIn, which O.Yu.Maryina, characterized by “reputation-advertising self-personalization and high communicative activity of users, specialists and experts” [22].

The policy of regional libraries for children to create pages on social networks is thus characterized by the desire to be represented in more than one social network, in order to expand both the communication possibilities and the possibilities of influencing the quality of the content offered to the user, and management of his information priorities.

The network communication structure of the regional libraries for children of Ukraine, the main elements of which are sites (21 libraries, 95.45%), blogs (15 libraries - 68.18%), social media pages (all without exception) libraries - 100%), shown in Diagram 2.

Diagram 2. Network communication structure of regional children's libraries of Ukraine

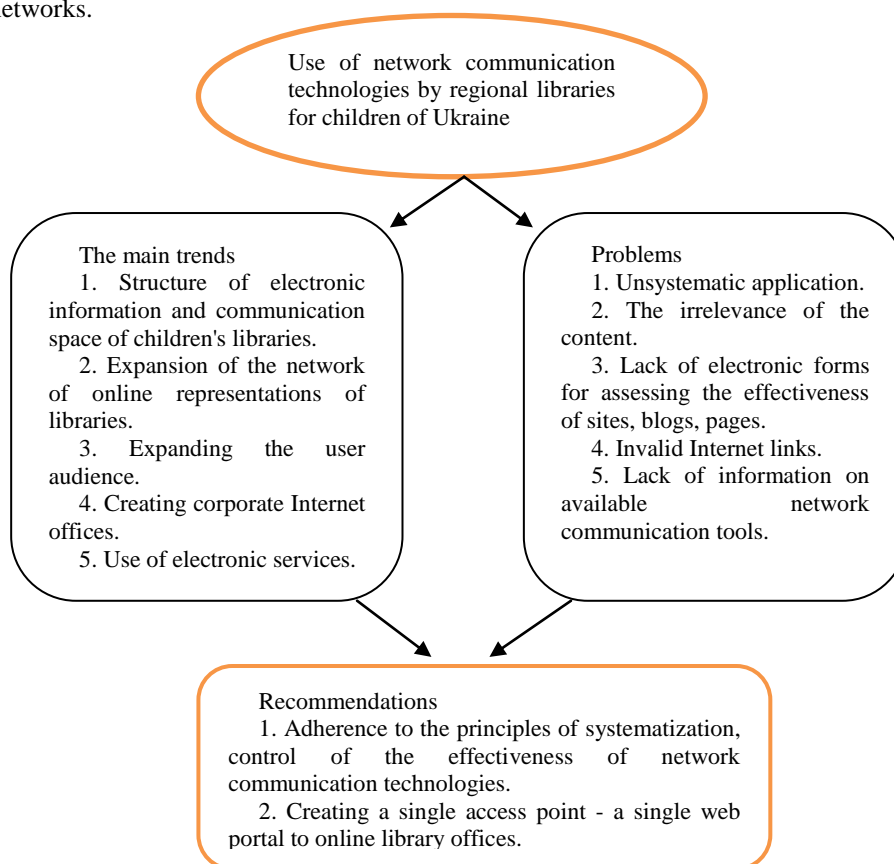


From the point of view of filling the digital information space with quality, intellectual content, it is important to use regional libraries for children for hosting services, platforms, and cloud services. The most popular media platforms for photo, video and multimedia library presentations are the Calaméo, Slideshare platforms. For example, the Kharkiv Regional Library for Children on the Slideshare and Calaméo service platforms posted a booklet presentation of the library. In addition, on the

DOCME document publishing service site, the library has published methodological and bibliographical materials for 2010–2019.

2.5. Results of the research

Information and communication technologies as a set of methods, tools and techniques for searching, collecting, storing, presenting, transmitting graphic, textual, digital, audio and video information based on electronic means of computer technology and communication used by regional libraries for children of Ukraine, in the most general form are represented by sites, blogs, pages of libraries in social networks.



3 Conclusions

The digital (electronic) information and communication space of regional libraries for children consists of official library sites, library blogs, pages of libraries on social networks. In addition, through numerous links, banners, Internet links of the library are connected by communication channels with other library institutions and

organizations, theaters, museums, public organizations, mass media, educational institutions, non-governmental organizations, central and local state authorities, financial institutions publishers, etc. Therefore, the dominant tendency is the constant expansion of libraries' online representations and the reach of as many institutions and organizations through communication channels as possible to create a comfortable, informative space for interaction between social groups of users, different in age, intellectual, cultural, professional, denominational and other grounds. an electronic platform for effective professional communication.

However, the lack of appropriate programs and concepts for the development of libraries in the digital space gives this process features of haphazardness, a certain chaos, which is practically manifested in the different volume and quality of the information and communication field of the analyzed libraries, and makes a corresponding downfall for their adaptation to the digital space, to changes in functioning and activities of the library as a whole. A progressive trend is the creation of libraries of blogs and pages on social networks, which activates communication opportunities, promotes fuller implementation of information and communication, educational and other functions of libraries in society. Since the specificity of the libraries under study is children's orientation, the presentation of content, especially audiovisual on blogs and social media pages, plays an important role. Attention should be paid to the desire of libraries to present their own content on pages of more than one blog or social network, which empowers libraries in the changed information environment, testifies to their communication advantages, psychological features of development of modern generation of young users. There have also been few instances of corporate web sites being created. The popularity of the analyzed Internet representations of the regional libraries for children is influenced (sometimes negatively) by irregularity of updating of information, and the irrelevance, as well as by the lack of electronic forms of evaluation of the functioning of websites, blogs (or information on conducting such researches). The lack of user feedback does not allow for interesting content and form of content, as evidenced by the usually low number of social media site subscribers and the small number of regular blog readers (with few exceptions). In order to increase the convenience and ease of access to digital library space, it may be appropriate to create a single point of access to the library's online offices - websites, blogs, digital resources, online services, etc.

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