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STUDENTS' INFORMATION NEEDS AND DIGITAL TECHNOLOGIES IN THE ACADEMIC LIBRARIES

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KEYWORDS: Academic libraries. Students. Digital technologies. Users needs.

ABSTRACT: **Thesis/Objective** – The topic of this article is the influence of digital technologies on the functioning of academic libraries in the context of their users' needs. Users' information behaviors have changed significantly through the influence of these technologies, what can be identified in particular in students' behaviors. Do far-reaching changes in the way in which users, in case of this article - students, interact with information cause transformations in the functioning and mission of academic libraries? On the basis of literature containing the results of researches conducted around the world an attempt was made to present the way academic libraries react to these changes and how they modify their services and resources. **Research method** – The first step in responding to the actual needs of users is to conduct research in this area. For this reason, the subject of the analy-

sis in this article were publications presenting research on the users' (students) needs in the context of using academic libraries. The next stage was to identify the texts in which the use of digital technology was discussed. The analyzed literature was selected from leading journals indexed in the Science Citation Index Expanded (SCI-EXPANDED), the Social Sciences Citation Index (SSCI), and the Arts & Humanities Citation Index (A & HCI), and included articles which were published within the last 5 years (2013-2018) – a period in which digital technologies in most academic libraries in the world were most widely used, making changes caused by them possible to be diagnosed, and which corresponds to the information query. The results of the query contained 328 articles, 80 of them have been analyzed in detail, because they were deemed to contain the results of research on the functioning of academic libraries in the context of the needs and expectations of the students. **Results/conclusions** – On the basis of the analysis it can be concluded that the widespread use of digital technologies has changed functioning of academic libraries to a large extent, but these changes are not revolutionary. The way of implementing library tasks has changed, but the tasks themselves as well as the mission of an academic library have remained similar. One of the most important postulates for the future is the necessity of far-reaching personalization of the services being offered. The conducted analysis is based on the research presented in the literature, the next planned stage is verification of these conclusions in empirical research.

INTRODUCTION

Digital technologies have found their way into our everyday life and are an unavoidable as well as a commonplace element of our existence. In literature, however, the sudden changes caused by their appearance remain a subject of intense discussion within various areas. This article will deal with the effects of digital technologies on the functioning of academic libraries in the context of the needs of their users. Technologies which are, with good reason, called information and communication technologies strongly provoke changes in information behaviors. How do libraries react to the changing needs of users? Do digital technologies shaping the habits of users also cause libraries to undergo great changes? Or maybe it is finally possible to see the signs of the often repeated opinion about the disappearance of libraries? The article, on the basis of subject related literature illustrating research currently conducted in the world, will attempt to answer these questions.

It is worth mentioning that in case of academic libraries it is possible to distinguish two main groups of users whose needs, to a large degree, vary or may even be divergent: the students and the academics. For this reason the present analysis will be divided into two parts – this article will present the part concerning changes in academic libraries caused by digital technologies in the context of the needs and expectations of students. Similar deliberations, carried out, however, from the perspective of the needs of scholars, will be presented in the next article.

METHOD FOR THE SELECTION OF LITERARY TEXTS

Literature concerning academic libraries is very abundant and, for that reason, it was necessary to limit the query to leading periodicals whose articles reflect research problems addressed by scholars around the globe. A decision was reached that the best way to do this will be to illustrate the situation on the basis of an analysis of studies which are published by the best international journals – those with an Impact Factor. To achieve this goal the publication retrieval was carried out in the Web of Science database limiting it to three main indexes: Science Citation Index – Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI) and Arts & Humanities Citation Index (A&HCI). The search instruction was entered into the „topic" field (the search included the title, keywords and abstract fields) and was formulated in the following way: *„TS= („academic library" or „academic libraries" or „university library" or „university libraries" or „college library" or „college libraries") AND TS=student*"*. The broad construction of the instruction was meant to allow the identification of all articles dealing with the subject of academic libraries in the context of the needs and expectations of their student users. Since there are just too many terms connected with digital technologies which could be used in this context they were purposely omitted from the instruction. A decision was made to identify them on the basis of browsing the query's search results. Additionally, the search was limited chronologically to include only articles published within the last 5 years. The search turned up 328 articles of which 72 were discarded because they were deemed not to be relevant to the subject matter being studied. The remaining 256 items were subjected to analysis – the first stage being the analysis of the abstracts using the *QDA Miner* software, *Version 5.0.18*, with the analysis of the entire article following. It was within this second phase that a total of 80 articles dealing with academic libraries and the utilization of digital technologies in the context of students' needs were chosen. It must also be stated that texts concerning the needs of students included items describing research with students' participation or those based on references in literature to those kinds of studies.

The conducted content analysis allowed the identification of main issues which reflect areas of the research being carried out. Hence, the subject related division of publications proposed in the following part of the article is the result of analysis and not previously established assumptions.

ELECTRONIC RESOURCES

The issue which was most often mentioned by literature in the context of digital technologies was that of electronic resources. This, of course, is

obvious since the digital gathering and sharing of resources that does not require the user to be physically present at the library is definitely a crucial change which impacts numerous aspects of how a library operates. The analyzed literature devoted the most attention to the effective use of these resources which requires from users appropriate skills and knowledge. Confirmation of these intuitively obvious statement can be found in literature: Ukachi (2015) has shown that limited digital competence of users has a direct impact on the low usage of electronic resources, Tang and Tseng (2013) confirmed the same in regard to a user's limited conviction about his effectiveness in information retrieval while Nemati-Anaraki and Babalhavaeji (2013) demonstrated a connection with a lack of knowledge about resources.

Within this context the crucial role of library training can be seen. The significance of well designed instructions on the real level of resource use has been confirmed by studies: it is possible to see a long-term change in student behavior reflected in the intensified utilization of digital resources as well as a higher level of student satisfaction in this regard (Chen, 2015; Chen & Chengalur-Smith, 2015). Direct correlation between library training and the number of downloaded full texts has also been shown in analyses of data collected over a period of 2 years by ACRL Library Trends and Statistics (Fagan, 2014). Despite all of this, instructions concerning the use of library resources often do not address the subject of utilizing digital resources to an adequate degree. This is shown, among others, by a study done by Aderibigbe and Ajiboye (2013) conducted on a sample of 250 students which confirmed that library training is not sufficient to meet their needs with too much attention to the traditional use of library resources and too little time devoted to expanding the students' digital skills connected to the utilization of electronic resources.

Studies considering the factors influencing the effective use of resources have shown that socioeconomic aspects (Soria & Nackerud & Peterson, 2015) or the major selected by students are important (Wu & Chen, 2014) – with science majors preferring to use simple tools such as Google Scholar while humanities and social sciences majors being more open to invest a little effort into becoming familiar with and utilizing the electronic resources offered by the library.

Another issue which often becomes the subject of research is the comparison of digital resources with other types of resources, especially with traditional printed materials. It is worth mentioning that these study results vary and do not show a preference for digital resources. According to research performed by Northern Caribbean University the utilization of digital resources is on the rise but it is not accompanied by a decrease in the use of printed sources (Knight, 2013) while a study carried out in Nigeria on data obtained during a period spanning from 2005 to 2014 show

a pronounced reduction in the use of printed books and periodicals after the introduction of digital resources (Asogwa & Ugwu & Idoko, 2016). A study carried out in Spain on the other hand, shows that the use of digital collections remains lower than those available in the printed form (Rodriguez-Bravo & Pacios & Vianello-Osti & Moro-Cabero & De-la-Mano-Gonzalez, 2015). An analysis of Sociology and Anthropology dissertations conducted by the Hebrew University of Jerusalem demonstrated more references to printed books while periodicals were cited both in electronic as well as the printed form (Rosenberg, 2015).

Digital resources of libraries compete with resources which are commonly available on the Internet and this is especially true when it comes to students. Despite their appreciation for the quality of materials gathered in libraries students prefer the comfort and easy access of such tools as Google Scholar (Wu & Chen, 2014).

The cost of resources is yet another aspect and comparison research carried out by Auburn University of Montgomery showed that it is significantly more expensive to purchase the electronic version of a given document than a printed copy of one (Bailey & Scott, & Best, 2015).

Among articles devoted to electronic resources special attention was given to electronic versions of books. The number of studies concerned with these collections shows the significance of this subject in respect to the functioning of academic libraries. Considered articles mainly addressed two research problems: diagnosis of the usefulness of electronic books in relation to printed ones as well as factors which have an impact on the increase in the level of electronic book use.

The policy of gathering resources and the appropriate allocation of funds for this purpose are an obvious cause for the need to ascertain whether users prefer the electronic or printed versions of books. Interestingly, despite the oft-repeated opinion that the technological revolution will cause printed books to be replaced by e-books contemporary research conducted in various regions of the world denies this phenomenon. A study carried out by Walton (2014) among students from the United States (Southwest Baptist University, Bolivar, Missouri) demonstrated that when it comes to books required in their academic endeavors students decidedly prefer them in their printed form. Electronic books are used only when the traditional version of such a document is unavailable. Compelling is the fact that students were much more willing to use e-books when reading for pleasure. However, even in this respect studies performed among library users confirm a preference for printed materials (Mueller & Hanson & Martinez & Meyer, 2017). Similar results can also be seen in the conclusions drawn by Wang and Bai (2016) who studied Chinese students and, similarly to their American counterparts, consider the electronic versions of books to be especially inconvenient when they are the subject of class

discussion and analysis. The researchers did observe, however, that the disinclination to the use of e-books is the strongest among first year students and decreases in later years of their studies. The authors also pointed out the lack of awareness among students regarding availability and various uses of e-books. This problem, a main factor impacting the low level of utilization of these types of resources, is also indicated by Kahn and Underwood (2015) in their analysis of students from South Africa. Libraries should place more emphasis on developing strategies meant to inform students about the availability of and ways in which e-books can be utilized. Research carried out in South Korea demonstrated that in this respect information displayed on library websites is very important since it is there that users learn about electronic books (Hwang & Kim & Lee & Kim, 2014).

Attention should be drawn to the correlation which can be seen in various studies between the students' level of education and their readiness to use e-books for academic purposes. Other than in the above-mentioned study carried out by Wang and Bai (2016) this tendency was also observed by Lamothe (2013) in his research performed among Canadian students (J.N. Desmarais Library of Laurentian University) where e-books were most readily used by doctoral students and least often by BA students. Similar observations were also made in a study conducted at the University of Maryland in College Park (Carroll & Corlett-Rivera & Hackman & Zou, 2016) but it additionally included academics who mainly reached for e-books. Furthermore, the study attempted to analyze the correlation between the students' major and the use of digital books. A discernible difference was observed between readers who majored in the sciences (*STEM – Science, Technology, Engineering and Mathematics*) and made the decision to reach for e-books much more often than all others who overwhelmingly preferred to utilize the printed versions of publications. Similar results were seen in the comparison of reading habits of engineering students with those of social sciences students (Khan & Bhatti & Khan, 2016) as well as technology majors with humanities and social studies majors (Pinto & Pouliot & Antonio Cordon-Garcia, 2014). In all instances STEM students were more willing to read e-books. Despite the fact that the authors of the above-mentioned study do not discuss the reasons behind this phenomena it can be assumed that, on the one hand, the higher level of acceptance for new technological solutions (usually seen among STEM majors) may be an important factor here while on the other it may have be connected with the process that makes scientific literature obsolete, occurring much faster within these fields, and forces students to utilize the most current publications whose digital form generally becomes available earlier.

The second widely discussed matter in regard to the use of e-books includes factors which promote an increase in their utilization. The authors

of such studies draw attention to the lack of promotional activity of libraries meant to inform readers about titles available in the electronic version as well as ways to gain access to them (Carr & Cardin & Shouse, 2016). A lot of students do not know that such resources exist and many of those who have heard of them have doubts regarding their use (Kahn & Underwood, 2015). An analysis of literature performed by Walters (2014) has shown that in the opinions of students from the UK and the USA limitations regarding the printing or downloading of e-books resulting from restrictive licenses for sharing such resources is also a significant problem. The level of e-book utilization is obviously also impacted by the attitude toward digital technologies or, more generally, to introduced innovation (Raynard, 2017). Studies concerning the *Technology Acceptance Model (TAM)* have shown that the satisfaction connected with the use of digital books relates to the self-assessment of the users regarding their abilities to use the Internet. Their willingness to use e-books was also influenced by their opinion regarding the ease in using them (Tri-Agif & Noorhidawati & Ghalebandi, 2016). Research dealing with this subject performed by Ahmad and Brogan (2016) demonstrated that students who draw satisfaction from everyday use of laptops are equally content using e-books. In countries where it is not commonplace for students to own a computer, such as Pakistan, not having access to such equipment was cited as one of the main obstacles to reading the electronic versions of books. Other than that rather obvious reason, the variety of formats in which e-books are made available was also named as one of the problems discouraging potential readers from reaching for this type of resource (Khan et al., 2016). In turn, studies carried out in Spain, where the availability of equipment was not a problem, demonstrated that despite general access to e-book readers scientific publications are usually read by students on computer screens (Navarro-Molina & Alonso-Arroyo & Vidal-Infer & Valderrama-Zurian & Aleixandre-Benavent, 2015). From the standpoint of libraries equipment preferences of readers are important in the context of purchasing the right type of books. Another crucial factor impacting the level of usefulness of a collection is the correct preparation of metadata. Research performed at British universities showed the significance of discovering and meeting the needs of users in establishing the metadata of e-books so that they see them as having real educational value (Vasileiou & Rowley & Hartley, 2013). Aside from the high quality of available books their number within the collection is also important. A study carried out in the libraries of Canada for a period exceeding 9 years has proven that the size of digital collections is strongly correlated with the level of their use and users having access to a large number of items reached for e-books much more willingly than those whose access was limited to only a few positions (Lamothe, 2013).

Interestingly, especially in respect all of the above-mentioned analyses of factors impacting the level of e-book use, among these texts only one concerns the manner in which digital books are read. The analysis of the way users read, searched for information or selected books showed that the most common manner of interacting with the book were short sessions aimed at finding particular information (Zhang & Niu & Promann, 2017). Other issues addressed by research included the connection between the use of e-books and academic marks – high level of e-book use translated to good marks (Soria & Fransen & Nackerud, 2017), as well as the cost of electronic books in relation to their printed versions (Bailey et al., 2015).

ONLINE ACCESS TO THE LIBRARY'S OFFER

Another research trend which can be distinguished in the present literature analysis concerns online access to services and collections through an Internet webpage using the desktop as well as mobile applications.

In the perspective of designing library web pages the potential of mobile devices is seen as particularly significant on account of the common and constantly growing students' use of this equipment. Studies confirm that this occurs also in respect to behaviors connected with education (Becker & Bonadie-Joseph & Cain, 2013) hence the identification of the needs and habits of users has become the focus of researchers. However, the question whether libraries can make use of that potential is debatable. Numerous studies within this area, carried out independently of each other, confirm that despite the commonplace use of mobile devices at this time students are not willing to use them to take advantage of online services or collections of libraries (Bomhold, 2015; ChanLin & Hung, 2016; Dukic & Striskovic, 2015; Ko & Chiu & Lo & Ho, 2015; Lo et al., 2016; Vassilakaki, Moniarou-Papaconstantinou & Garoufallou, 2016; Zha & Zhang & Yan & Wang, 2015). Within this context it is not unusual that there are attempts made to discover the factors which impact the willingness of users to use smart phones to access library resources (Chang, 2013; Chang & Lou & Cheng & Lin, 2015; Hu & Zhang, 2016; Yi & You & Bae, 2016). Unfortunately studies which are included in the analysis conducted for the needs of the present article do not contain any results which could shed new light on this matter. The authors verified the scientifically obvious thesis that the general attitude of students to technology (Chang et al. – „theory of acceptance and usage of technology (UTAUT)", Yi, You, & Bae – „the task-technology fit" (TTF)) also influences their approach toward utilizing solutions offered by the library through the use of their mobile devices. Importantly, the above-mentioned studies refer to environments where libraries have adapted solutions or applications for mobile devices. This sit-

uation, however, is not commonplace and, for example, studies performed at academic medical libraries in Great Britain showed that there are few applications and solutions adapted for mobile devices and, additionally, there is a lack of activities which could promote existing solutions among students (Chamberlain & Elcock & Puligari, 2015).

Among studies dealing with digital technologies and libraries there are also typical usability studies of: desktop versions of web pages (Duncan & Durrant, 2015; Sheikh, 2017), mobile versions of web pages (ChanLin & Hung, 2016; Fung & Chiu & Ko & Ho & Lo, 2016), OPAC (Naik & Nikam, 2014), the Primo search engine (Kliewer & Monroe-Gulick & Gamble & Radio, 2016) as well as the EBSCO Discovery Service (Bonner & Williams, 2016). These studies are typical case studies although, a more general perspective was embraced by Taiwanese researchers (Wu & Hsieh & Chang, 2013) who, using the Delphi method, attempted to determine the criteria considered by the students to be the most significant in assessing a usefulness of a library web page as well as services provided through it. The three distinguished main criteria of web page evaluation (system type, effectiveness and quality of information) permitted the authors to prepare a schematic according to which it is possible to evaluate the quality of library services. An interesting study testing the method for the assessment of the quality of LibWebSQ library services was carried out at academic libraries of Nigeria by Haruna, Kiran and Tahira (2017). This method is calculated using, among others, with consideration for services provided online. The authors confirmed the existence of a strong correlation between user satisfaction (being the result of the assessment of the quality and value of traditional and internet based services) and their loyalty – their willingness to continue using the library's services. It must be said, however, that this study was declarative and was based solely on the results of questionnaires sent to students and academics.

Chan (2014) in turn put forth an interesting solution concerning the adaptation of a library's web page to the needs of the users. He believes that libraries, even without carrying out user related studies, possess data which allows the library's web page to become personalized to the needs of the users. This data is the information which the students present when they sign up to a given university.

It is worth mentioning that among the 22 articles analyzed within this area 20 of them were based on empirical studies and the needs of the users were evaluated through the use of: surveys – 12 times, observation – 4 times (usability tests), the Delphi method – once as well as statistical analysis of web page use – also once. This shows a clear dominance of quantitative research although in these cases where it is necessary to expand knowledge about information needs the greater usefulness of qualitative studies would be more advisable.

.COMMUNICATION WITH USERS

At the start of the present analysis it was assumed that the subject of the influence of digital technologies on the way users communicate with the library will become clearly defined. The matter of the general use of social media or other methods of digital communication used by students is the subject of numerous studies hence it was expected that it will also come up in the context of academic libraries. The actual small number of publications connected with this subject matter among the works taken under consideration – only 12 articles – was, therefore, surprising. The issue of social media was clearly dominant in these publications and only two of them addressed the topic of communication between library workers and students more comprehensively. Butler and Byrd (2016) conducted a study involving library employees and students of the George Mason University. On the basis of a questionnaire which the students filled out after coming in contact with library workers the authors concluded that, among others, the students' attitude toward using digital communication tools to ask for help in using resources is one of reluctance. They decidedly preferred personal interaction fearing that their online communication may not be understood or they will not comprehend the provided answers. Similar conclusions were drawn by Tang and Tseng (2014) who carried out research among students of Jacksonville State University. Those students who lived in close proximity to the university's campus overwhelmingly preferred personal consultations although an increase of the willingness to use digital methods of communication could be noticed along with the increase of the distance at which the students lived from the campus. Interestingly, e-mail was the most common method of communication and the researchers stipulated that the students had a negative attitude toward using social media for this purpose. A study performed by Stvilia and Gibradze (2017), on the other hand, showed that students value social media as a source of information about events, training or new developments at the library. This apparent discrepancy can be understood through the conclusions of an observation conducted by van Beynen and Swenson (2016) who analyzed the content of the entries on a Facebook group titled *USFSP Know It All Guide to Knowing It All* created by University of South Florida students. The aim of monitoring of this content was the assessment of the potential of this type of activity to improve the quality of services provided by libraries. The scientists noticed, among other things, that in these entries students eagerly included general information about libraries but when it came to particular questions they had a habit of suggesting that other participants get help at the library. Comparing this with the results of other studies we can assume that social media are treated as a certain kind of a "message board" which has the advantage of being personalized

but its potential as an interactive form of communication is not seen and, in this context, personal communication is preferred. Of course the confirmation of this hypothesis would require further research.

Other articles which tackle the subject of libraries and digital communication are not based on studies which include students as respondents but rather present analyses of current activity of libraries (from the perspective of students' expectations). Chu and Du (2013) sent a questionnaire to academic libraries all over the world to establish the level of the possibility for the use of social media worldwide. Unfortunately the low response rate (38 libraries) does not allow for the formulation of general conclusions. However, those responses which had been received show that Facebook and Twitter are the most used media as well as that in all countries libraries have a problem in getting students to follow their profiles. A study which focused on social profiles (Twitter and Facebook) of four largest Canadian academic libraries also confirmed a low level of student interaction with content published there (Winn & Rivosecchi & Bjerke & Groenendyk, 2017). The conducted analysis was mainly quantitative in nature but the authors noticed that most of the posts had the form of notices related to upcoming events, new services or sources of information (Winn et al., 2017, p. 302). Within this area it is also possible to mention research conducted in Africa where libraries do not commonly use social media. The authors of that study present the opinions of students who are active users of such media in which they agree that the implementation of these forms of communication would be useful (Akeriwa & Penzhorn & Holmner, 2015).

Another significant issue is the fact that the analyzed literature lacks publications which discuss other forms of digital communication with users. The study performed by Yang and Dalal (2015) who examined the web pages of 362 American libraries in respect to the presence of tools for online consultations: text chatting, video chatting, e-mail or other solutions using digital technologies as well as encouragement to call to get information, is the sole exception. Among the participating libraries 74% offered at least one possibility of communication using digital technologies. The researchers noticed that among libraries with a large number of students the offer for consultations using a text chat was dominant. The small number of publications addressing this matter is perplexing. On the basis of described literature it is difficult to draw conclusions about the situation as a whole, however, generally the quoted opinions of students about their unwillingness to use digital means of communication as well as a lack of a broader discussion regarding this subject permits us to conclude that digital technologies have not caused great changes in communication. The channels of communication have changed, however, the scope and type of provided consultations has remained the same.

EDUCATIONAL ACTIVITY OF LIBRARIES

The matter of training appeared simultaneously as the discussion of using electronic resources. However, digital technologies decidedly increase the possibilities for conducting various kinds of training at the library – starting with those for new students all the way to specialized training. On the basis of research dealing with the effectiveness of online teaching Ingalls (2015) analyzed the benefits which could be provided through online library training. According to her these forms of training rather than traditional practices meet students' expectations. Advantages of online courses are a subject which is often addressed by authors (Moreno-Pulido & Sanchez-Fernandez, 2015; Scales & Nicol & Johnson, 2014; Somoza-Fernandez, 2015; Thornton & Kaya, 2013) who especially emphasize the possibility of being able to participate in the training at a convenient time and place and in accordance with one's pace of work as well as the attractiveness of these courses because of additional audiovisual and interactive materials. These texts are mainly descriptive with recommendations regarding the best solutions. Courses dedicated to special groups or subjects form a distinct group within this area. Cassidy and Hendrickson (2013) described the manner in which librarians should prepare courses expanding informational skills of history students while Jacobs, Dalal and Dawson (2016) presented a procedure of preparing such courses for chemistry students. Webb and Hoover (2015) tried to determine which forms of educational materials (texts, pictures, audio files) are the most effective in respect to students of biology. Kratochvil (2013, 2014) enumerated the benefits of online training for medical students – both from the perspective of students as well as librarians. He also drew attention to the importance of including academic lecturers, who should encourage students to participate in courses, in this matter. Another aspect is the manner in which the materials for online training are shared on library web pages – a team of American scientists (Obradovich & Canuel & Duffy, 2015) inspected the web pages of 140 libraries belonging to the Canadian Association of Research Libraries (CARL) and the Association of Research Libraries (ARL) and concluded that although as much as 76% of them provide video training materials only 2% supply clearly formulated advice as to the best way to make use of them. Within the literature being considered there are also interesting suggestions regarding the expansion of a library's traditional training offer. Denda (2015) described a process of creating and conducting of a workshop during which students could learn to utilize visual forms of communication and according to the author the librarians should actively take part in this kind of educational activity. A similar idea, one that actually goes even further, concerns the creation of a Media Commons where students would be presented with various opportunities of learn-

ing to use multimedia as part of their courses and individually prepared projects (Mestre, 2013). Yet another idea which would enhance the process of learning at the library involves changing of the formula through the inclusion of games (Elzen & Roush, 2013).

DIGITAL TECHNOLOGIES AND...

During our query we also found publications which are difficult to include in one of the subject-related groups described above. Researchers from Australia described a way to expand a library's offer through providing the students with technical support in their use of information and communication technologies (Renner et al., 2014). Cobblah and van der Walt (2016) established that Internet services were the library services that contributed most to academic achievements of students at the universities in Ghana. In China a study was carried out among students and scientists regarding their need for support from the librarians in relation to management and storage of data gathered during the process of conducting research (Liu & Ding, 2016). A very similar study was realized among students and employees of the University of Kansas (Weller & Monroe-Gulick, 2014). On the basis of surveys and individual interviews Melles and Unsworth (2015) attempted to determine factors influencing how students create footnotes and bibliographies. The results were used to develop a list of recommendations for librarians preparing educational materials within this area. Remaining publications identified during the query and dealing with academic libraries and the use of digital technologies only marginally addressed the subject of student needs or they did not address it at all.

CONCLUSIONS

The first thing that comes to mind after reading the abovementioned texts concerns their very real, utilitarian character. Among those works there were no publications whose research could be a basis for theoretical reflection on the change in the role or mission of the library within a transforming environment. Most texts contained practical recommendations for improving the functioning of academic libraries. Within this area it can be concluded that the commonplace use of digital technologies has, to a large degree, changed the way academic libraries function, however, these changes are not revolutionary. On the basis of the presented studies it is possible to see the significance of the introduction of electronic resources but the often repeated concern that they will soon replace traditional materials have not been confirmed within the analyzed publications and the predominance of printed works, especially books, can still

be seen. An important reoccurring observation relates to the differences in the preferences of students with varying majors which should affect the policy of gathering resources. The studies also show the weak points of up-to-now activity of libraries – not enough informational and training related projects which could expand the knowledge of students regarding electronic resources and ways of their utilization. The analysis of publications dealing with the educational activity of libraries, on the other hand, demonstrates that new technologies create, when it comes to interesting and engaging ideas for training, a whole spectrum of possibilities which the libraries take advantage of more and more. Where, therefore, lays the problem? It is apparent that libraries from all over the world face the same problem – a way to get the information to students. This is clearly seen through the analysis of those publications which concern communication with students. Although the channels of communication have undergone change its character has not been significantly altered. The potential for interaction online is not being fully exploited. Libraries are not sure how to digitally engage their users and when looking for help the students themselves prefer personal contact. There is one more issue that is worthy of notice: majority of the considered empirical research was based on surveys. These types of studies are great in situations where it is necessary to confirm or disprove already diagnosed problems but they lack the potential of qualitative research for the discovery of new knowledge, determining the perspective of users or their needs and gaining understanding about their behavior. One negative aspect with which libraries are charged is their tendency to stagnate, to follow the same paths and their unwillingness to change (Little, 2011). The observed insufficiency of studies which could help libraries to open up more to the real needs of their users to some degree confirms the existence of this problem.

Do presented studies present a basis for reflection on the changing mission of academic libraries? If we accept the broad definition offered by Stover (2001, p. 169) in which he states that: "The mission of the academic library is to support research, teaching, and service within the parameters of its parent institution" then there seems to be no need to introduce any modifications. However, the situation changes completely when we think upon the ways in which this mission can be fulfilled. The completed analysis of literature allowed the discovery of one tendency which is common to the expectations of users within various spheres of the libraries' function: preparation of resources, educational activity, communication or new services. The need to personalize all of these aspects in respect to the requirements of particular groups of students (and sometimes even individuals) and going beyond the metaphorical "walls" of the library to provide services in ways and places expected by the user. This type of change demands both the investment of time as well as money. It seems that the approach "the library

as an institution provides services for a group of users – students" is not very effective and the introduction of new technology will not change this. However, adopting the attitude where a specialized employee – the librarian – provides, prepares services for a select group of users or individuals can help overcome barriers between the institution, its offer and the users. Its worthy of notice that in the recently published report titled *Academic Library Impact: Improving Practice and Essential Areas to Research* (Connaway & Harvey & Kitzie & Mikitish, 2017) containing conclusions drawn both upon literature as well as broad qualitative research the authors very strongly stress the need to adapt library services to individual requirements of users.

The analysis presented in this article aims to demonstrate activity trends of academic libraries. On the one hand, it allows the creation of an outline of changes in the way academic libraries operate in relation to an important group of users – the students. On the other hand, it enables demonstration of research subjects which are being addressed within this area of study. Certainly, the selective literature review may not reflect accurately the real situation in academic libraries which is the main limitation of this study. The next step to answer the research question should be the series of empirical research which would verify presented conclusions. Results of this study would be completed with an analysis of information behaviors of the other main group of users – the academics.

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STUDENTS' INFORMATION NEEDS AND DIGITAL TECHNOLOGIES IN ACADEMIC LIBRARIES

ABSTRACT: **Thesis / Objective** – The author focuses on the impact of digital technologies on the services of academic libraries in the context of their users' needs. That impact has led to a significant change in the information behavior of library users, which is particularly visible in students' behavior. Do far-reaching changes to the users' (in this case – students) interactions with information transform the functions and the mission of academic libraries? Using the literature presenting the results of international research projects the author made an attempt to describe how academic libraries react to these changes and modify their services and resources. **Research methods** – In order to respond to the actual users' needs one has to start with some research on the subject. The author analyzed publications discussing research done on users' (students') needs in the context of the use of academic libraries. The next stage was to identify the texts in which the use of digital technology was discussed. The analyzed literature covered articles from leading journals indexed in the Science Citation Index Expanded (SCI-EXPANDED), the Social Sciences Citation Index (SSCI), and the Arts & Humanities Citation Index (A & HCI), published within the last 5 years (2013-2018). The results of the query included 328 articles, with 80 analyzed in detail as they were found to contain the results of research on the functions of academic libraries in the context of their student users' needs and expectations. **Results and conclusions** – The results of the analysis bring the conclusion that the widespread use of digital technologies has changed functions of academic libraries to a large extent, but these changes are not revolutionary. The way the library tasks are performed has changed, but the tasks themselves as well as the mission of an academic library have remained similar. One of the most important postulates for the future is the necessity of far-reaching customization of the services being offered. The analysis discussed in the article is based on the results of research presented in the literature of the field and the next planned stage is the verification of these conclusions based on empirical research.