Exploration of Academic Information Seeking and Library Use of the Blind and Visually Impaired Students in Croatia

Silvana Šehić
Department of Information Sciences, Faculty of Humanities and Social Sciences, University of Osijek, Croatia. Email: silvana.sehic@gmail.com.

Sanjica Faletar Tanacković[1]
Department of Information Sciences, Faculty of Humanities and Social Sciences, University of Osijek, Croatia. Email: sfaletar@ffos.hr.

Abstract

The study presented in this paper explores the educational experiences of blind and visually impaired students in Croatia, with particular emphasis on their academic information behavior and access to and uses of library services.

In-depth interviews were conducted with six blind and three visually impaired undergraduate and graduate students across country in September 2013. Interviews were conducted in person and via Skype. Initial findings reveal that academic libraries used by respondents only sporadically respond to their needs and that blind and visually impaired students, when looking for information and materials for academic purposes, rely most often on interpersonal sources and the Internet. In seeking and using information respondents put more value on information quality and reliability than the level of effort and time needed to find it (and adapt for reading). The preferred format for this specific user group is not the Braille, but electronic document. The assistive technologies play major role in their educational experiences. Overall, they are struggling with time-constraints, lack of independence and lack of understanding of others and limited access to electronic materials and 'clear' print documents which can be 'read' by the blind and visually impaired if equipped with adequate technological solutions. Interestingly, students' determination proved to be very important factor enhancing their information behavior.

While the findings of this study can not be generalised, valuabe insights have been gained into the information behavior and library use of blind and visually impaired students, a user group that has been largely understudied in library literature.

In conclusion authors discuss possible improvements to the library services which would facilitate information behavior and contribute to the successful educational experience of blind and visually impaired students at Croatian universities.

Keywords: blind and visually impaired students, information behavior, academic library use, interviews, Croatia

Introduction

Education and school/university attendance are regarded as essential factors of social participation for all citizens. However, people with disabilities (including the blind and visually impaired) face numerous barriers (personal, social, technological, institutional etc.) in exercising their rights (Council of Europe, 2003). Available data shows that the portion of visually impaired students is relatively low, in the total population of the visually impaired. For example, in 2002 only 2,85 of the visually impaired persons registered in Zagreb, capital of Croatia, were enroled in post-secondary studies, while this percentage for the "normal" population involved in post-secondary education is estimated at almost 5%. This is the result not only of the fact that majority of people who are blind or vision impaired tend to be older people, but also of the fact that many visually impaired persons decide not to continue their schooling at university level because they faced (too) many difficulties in their primary and secondary education (Butorac, 2002: 1).

Since they cannot use the traditional print materials and must use alternative means of accessing academic information (Braille, audio books and electronic documents) which in most cases are not readily available, the blind and visually impaired students can be regarded as marginalized in their information seeking (Saumure & Given, 2004: 26). People differ in the ways they seek and use information, as a result of different contexts, demographic characteristics, motivations, source preferences and so forth. The information behavior and library use of the blind and

[1] Corresponding author.

visually impaired students are (or should be) therefore of particular interest to librarians and information professionals because the number of people with this disability can not be disregarded. According to the World Health Organization, there are 285 million visually impaired people worldwide, and almost 18000 in Croatia (2013).

Athough national and international guidelines for library and information services for visually impaired persons have been drafted (Machell, 1996; Kavanagh & Christensen Sköld, 2005), academic libraries services for visually impaired students are being investigated (Harris & Oppenheim, 2003; Babalola & Haliso, 2011; Eskay & Chima, 2013) and academic library websites and databases are being analyzed for accessibility to people with visual disabilities (Byerley & Chambers, 2002; Power & LeBeau, 2009;), the empirical studies of information needs, information behavior and library use of blind and visually impaired persons (and students in particular) are still very rare (Williamson, Schauder & Bow, 2000; Davies, 2007). Although the information behavior of visually impaired persons, especially in the context of their everyday life information behavior, has been studied by a number of information professionals and scholars, a literature search revealed the paucity of studies of the information needs and information-seeking behaviour of visually impaired students.

For example, Smale studied the needs of visually impaired students in Australia while in the library but did not explore how do these students seek and locate information (Smale, 1992). Schuyler explored the library experience of visually impaired students and their use of library services and described the approaches to the process of setting up library computers for the visually impaired (1999). Saumure and Given examined the information behavior of visually impaired students in Canada, with special emphasis on the adaptive technology (2004). The use of assistive technology by visually impaired students in their academic work and information seeking has been studied by several authors who found out that technology plays an important role in the information behavior of visually impaired persons (Corn & Wall, 2002; Abner & Lahm, 2002).

Although development of adaptive technology and the rise of information in electronic format (and Internet in particular) has largely improved their independence and increased the opportunities of the visually impaired persons to locate and use information, more studies are needed to gain deeper understanding of how students with visual impairment locate and access academic information. Results of such studies can and should be used by information professionals for the improvement of their services and facilitiation of academic information use by the blind and visually impaired patrons.

In order to contribute to the general knowledge of academic information behavior of blind and visually imapired students and to gain insight into the experiences and perceptions of visually impaired students in Croatia a pilot study was launched in 2013. In the study, authors set off to answer the following research questions:

1. How are blind and visually impaired students accessing and using academic material?
2. What factors enhance/impede their successful information behavior (finding and using academic information)?
3. How can academic libraries better serve the needs of this specific user group?

The major findings of that study, which explored the educational experiences of blind and visually impaired students in Croatia, with particular emphasis on their academic information behavior and access to and uses of academic library services, are presented in this paper.

Study

In order to obtain answers to the above mentioned research questions the qualitative study was conducted in September 2013. Participants in the study were identified and recruited with the help of university support offices for students with disabilities and over a dozen of relevant non-government organizations that cater for the needs of people and students with disabilities in Croatia. Since university offices for students with disabilities have not yet been set up at all Croatian state universities, and those that are active do not have official data on the number of students with specific disabilities, the number of students with visual impairment was extremely difficult to established. Finally, on the basis of available data from a number of sources it has been calculated that in 2013 there were around 30 blind or visually impaired students enrolled in undergraduate and graduate studies at Croatian universities.

In-depth interviews were conducted with nine students enrolled in the university studies at Croatian state universities who were unable to read conventional print resources. Two students were interviewed in person and seven via Skype. Skype was chosen as a prefered communication channel (instead of the telephone) by those respondents from across the country with whom the personal interview could not be arranged due to time or financial constraints.

Semi-structured interviews were conducted using a variety of open-ended questions which focused on general demographic data (including information on their disability), educational experience, academic information search processes and use of academic libraries. Interviews lasted from 30 to 90 minutes Following the transcription, a qualitative thematic analysis was done.

In conducting the study, researchers paid special attention to ethical considerations and respected the dignity, autonomy, equality and diversity of participants in the research (National Disability Authority, 2009). All interviewees consented verbally to participate in the study

and agreed for their conversations to be recorded. Also, interviewees were reminded of their right to withdraw from the study at any time. The research was carried out in a respectful and private manner, with a clearly communicated goal. During the study, researchers observed that participants appreciated such an approach and perceived that the results of the study might benefit them and were glad to have taken part.

Results

General demographic data

Interviews were conducted with six blind and three visually impaired students who could not read conventional print material. Out of nine respondents, six indicated that they were born with their disability. Six interviewees were female and three male. Three respondents were older than 25, and six fall in the age range 20-25. Although a call for participation in the study was sent to all known members of this population through designated offices at all seven Croatian state universities, the participants were in the end recruited from only three universities: University of Osijek, University of Split and University of Zagreb. All participants studied social sciences and humanities: Croatian language and linguistics, history, and philosophy, psychology, library science and museology, law and journalism. Three interviewees were undergraduate and six graduate students. All but one respondent indicated that they had no breaks in their studies, they successfully moved from one academic year to another. Majority of respondents indicated that their GPA was above 3,5 which means that they are academically very good students.

As far as their living conditions are concerned, only three students were enroled in the studies in the place where they live and six had to move to another town to be able to study. As a result, majority of participants in the study indicated that they lived independently (in an apartment or in the student house), and only one lived with his parents. Two interviewees owned a trained dog to help them move around.

Living with visual impairment

Following the collection of basic demographic data, interviewees were asked to describe their general experience of living and studying with the visual impairment. Majority of participants thought that their disability influenced somewhat their level of independence. They explained that their position in the community did not depend that much on society itself but on themselves, because they are the minority and they have to adjust to the society. One of the respondents elaborated that the inaccessability of public buildings and transport, is a result of the uncaring society but he also explained that the blind and visually impaired should fight for their rights. Majority of students included in the study believes that the society discriminates them only if they allow it, but also points out that the situation has immensely changed for the last couple of years and that the coomunity is more sensitive to people with disabilties now. One respondent remembered how he was asked, as a child, how does he have a bath, since he can not see.

"Our position in the society is such as we make it. If I approch a person and ask for help, for example, tomorrow that person might notice me and say hi; he will tell me something about himself and we might become friends. But if I just stand and wait for somebody to approach me first, they will not. Why would they? Especially not at university where we are all grown up." (R6)

"We have to be aware of the fact that we are creators of our destiny… We have to do something, try to animate the community, and change something." (R2)

However, they also say that the position of the blind and visually impaired in the society still largely depends on their or their parents' financial possibilities and that the situation with the education and employment possibilities of blind and visually impaired persons is still very difficult.

"Imagine that you are an employer and have to chose between a blind person and a person with no visual impairment. Would you think about the options or employ the latter person because with such a person your company might be more successful. Employers are not humanitarians…" (R5)

One interviewee noted that often people with visual disability who have a university degree end up with some kind of manual work (e.g. as masseurs). Yet another student stated that people in general seem to get quite excited if they see that a visually impaired person studies or has a job, as if they were less competent and everything is too complicated for them.

Assistive technology, different house appliances (such as color detector, thermometer, scale) and their trained dogs were noted by all interviewees as a major living facilitators. They described that their family and friends provided them with necessary support needed to start and continue studying. They also noted that if a visually impaired person wants to "leave the house" and study it needs to have certain personal characteristics such as; be open, communicative, hard-working and above all persistent. Several participants also noted the importance of local and national non-governement organizations for the blind in different aspects of their life: they provide a forum for communication with other people/students with similar disabilities, they provide a financial support (acquisition of necessary computer technology and other equipment, scholarship), they help them access the needed academic resources and digitize study materials etc. One of the respondents described the importance of such associations in the following way:

"If a blind or visually impaired person in Croatia wants to exercise any of the rights he or she is entitled to, he has to be a member of some non-government association for the blind." (R5)

Studying with visual impairment

After looking into everyday lives of persons with visual impairment, we wanted to learn about their perceptions of educational experiences of the blind and visually impaired students. All students included in this study agreed that they were not equal because unlike the sighted students they have to invest more time, effort and financies into their education, in particular the adaptation and use of teaching and reading materials. They described that they need more time and effort to complete even simple assignments and prepare for exams, and in most cases need an intermediary. Also, they identified a major drawback in the fact that blind and visually impaired students have to work almost exclusively at home and plan their time and obligations carefully and well in advance. For example, they can not study in the library between classes, as sighted students, because library does not have the necessary equipment.

They also indicated several other important problems in the lives of a visually impaired students such as the longer period of getting to know the new city (in which they study), the problem of finding out that the class was cancelled last minute or that the room in which it will take place has been changed. Also, they noted that they cannot participate in different extracurricular activities, student exchange programs or conferences if they do not provide special arrangements for people with special needs. And rarely they do.

Lastly, some interviewees experienced it as a major personal problem the fact that due to the low number of visualy impaired students at universities and the unpreparedness of the university (buildings, teaching practices, available information resources, library policies and so forth) for the needs of the visually impaired, they seemed to be constantly "fighting" for their rights to education. Also, they noted that they disliked the feeling that they were perceived as "special" either by some teachers or colleagues, and that they were always asking for some kind of special treatment.

"Technical problems can always be solved and once you learn how to deal with them they are no more a problem. But prejudices, misunderstanding and labeling is something that, in my opinion, is moch harder to deal with." (R1)

Information access and use

Overall, students felt that their information behavior differed from the experience of the "normal" or sighted students in relation to the process of locating and searching for academic information. They explained that for them the acquisition of textbooks and other study materials is time intensive and is not as straightforward as for the sighted students: they cannot just go to the library and check out a textbook. In most cases they depend on another person (e.g. librarian) to find the book or download the article from the library database. Then they have to scan and translate the material into the accessible format, most often at home (if they are allowed to check it out) with their own technology. Only than can they read it. This supports Saumure and Given's point that information-seeking process of visually impaired students involves additional time and intermediaries for material selection and location (Saumure and Given, 2004: 31).

Students noted that they faced many challenges in their efforts to locate and find the needed material: many academic websites are not accesible to the visually impaired, it is difficult to obtain a clean copy of the textbook in the library which is a prerequisite for a successful scanning process etc. However, the students who were interviewed believed that they were fully equal to their sighted peers when it came to the use and understanding of the acquired information, either in the form of the textbook, class notes or PowerPoint presentation.

"In interpreting the information a blind person can be just as good as, sometimes even better than the sighted student." (R5)

It is worth mentioning that in seeking and using information students included in this study put more value on information quality and its reliability than the level of effort and time needed to find it (and adapt for usage).

When describing their process of searching for academic information and its usage, students indicated a number of barriers they face. First and the most important barrier seems to be the nonexistence of the textbooks and reading material in an electronic format. Already in 1998 Edwards and Lewis stated that the access to the printed word is a significant barrier to the integration of visually impaired individuals into school and work environments (1998: 302). Students preferred electronic materials and explained that if the material was not in the electronic format it was practically inaccessible to them (without the additional help of somebody else who would in the first place locate the material). Preference for electronic material was also supported by similar studies, such as the one conducted in Canada by Saumure and Given (2004). Students explained that print material demanded a time-consuming process of transformation into the appropriate adapted format (e.g. scanning). Also, they explained that library copies of the textbooks often were not clean copies (large sections and paragraphs are often underlined) and this fact presented a major problem in their adaptation. Print textbooks, in addition, are often written in undersized or difficult to read font, they use italics, inadequate contrast between the color of the words and the background etc. all of which impedes their transformation into an accessible format. Students also emphasized that their access to (print) academic information was made further difficult by strict and unflexible library loan policies: some materials could not be checked out and the check out period for library books in general was too short for the blind and visually impaired students.

As far as electronic texts were concerned, interviewees stated that these also presented them with unsurmountable problems if they are saved in PDF format, if documents contain text embedded in pictures, if electronic documents are scanned as pictures or if they are refered to web pages with many hyperlinks. Interviewees often experienced these and similar difficulties when reading teaching materials prepared by unaware course instructors.

Although students obviously faced many barriers in locating and accessing the academic information it was interesting to find out that interviewees almost never abandoned their quest for information. One interviewee described that he once scanned an over 100 pages long textbook by himself and returned it to the library only to find out later on that he made a mistake and nothing was scanned properly. He went back to the library, checked out the textbook again and scanned it all over again. Obviously, they do not let barriers stand in their way and fight them successfully. The importance of determination for students with visual impairment, in the information seeking processes and educational experiences in general has been noted by several other studies as well (Saumure and Givens, 2004; Corn and Wall, 2002; Roy and MacKay, 2002).

The most important thing that facilitates students' searching and using of academic information is adaptive technology. Students use the technology in a number of ways to locate and access (digital) information and adapt it for use: they scan print materials, enlarge text/magnify screen, translate documents into audio forms, access information on the Internet with the help of speech synthesizers etc. All interviewees stated that they possess the technology (personal computers with speech synthesizers/screen readers, scanners etc.) and that they could not imagine living/studying without it. However, they indicated that the price of this equipment is relatively high and that many students with disabilities cannot afford it. The findings about the intensive and versatile use of adaptive technology by visually impaired students supports the Saumure and Given's study who concluded that adaptive technologies are essential to the successful academic experience of the blind and partially sighted post-secondary students (Saumure and Given, 2004: 30).

Students in this study also noted that they obtain a substaintial help and support in their educational experiences and information searching processes, from their colleagues, teachers and librarians. In most cases, teachers provide them with (teaching) materials in electronic format, they arrange for them to take the exams in the time and in the form that suits them best (e.g. they are given more time to complete tests, they can take oral exam instead of the written one or they enlarge the font of the text in the exam etc.). Only two interviewees indicated that they had negative experiences with their teachers: on one occasion the teacher refused to provide the visually impaired student with access to an electronic version of his own textbook which was on the reading list and on the other the teacher refused to adjust the format of the exam to the visually impaired student. Students also stressed that their colleagues help them a lot in accessing academic information by providing them with notes from the classes in the electronic format, copying their notes in enlarged format, and helping them adapt the reading material. Only one student, unfortunately, said that his studying and searching for academic information was facilitated by librarians. In this one case, the librarian helps a student to acquire the needed materials. Students involved in the already mentioned Canadian study also emphasized the importance of interpersonal contact in academic information location and adaptation. However, they indicated that librarians play a significant role in their information seeking experience and serve as key facilitiators in disabled students' information seeking (Saumure & Given, 2004: 31, 34).

Library use

Students indicated that most often they obtain the materials needed for their studies over Internet and through their colleagues and teachers. In most cases, they visit the library only if they cannot find the material in any other way. One student said that the library was his first choice, and one indicated that he never goes to the library. Interviewees noted that they rarely used library's virtual services as well. However, when asked about how they felt while visiting their academic library, students described that they felt good and accepted, thanks to the kind and professional staff. Two respondents indicated that they do not feel well in their academic library because they feel that everybody is looking strangely at them (especially when they for example use their magnifier) but also because of the long and complex procedure to obtain the needed library materials.

Students who occasionaly use the library do it in most cases to check out some library materials. Since their academic libraries do not have adaptive technology, interviewees almost never use them for studying purposes. A couple of students, however, explained that in their academic library they can check out non-circulating material, that they can keep books for longer periods. Librarians also make effort to find clean copies of library books that can be scanned. One interviewee said that a librarian at his academic library if very helpful and that she regularly locates and scans material for him. Students in short indicated the following as major barriers to their library use: big, noisy and crowded spaces; inaccessible (print) library literature, rigid library policies which do not take into account specific needs of students with special needs, underlined books and lack of adaptive technology.

As far as librarians are concerned, students said that they treated them with respect and did not discriminate them in any way. They are open, helpful (within their possibilities) and in most cases available to spare some extra time for them. A couple of interviewees indicated that librarians had problems in understanding their needs, lacked skills to use

adaptive technology and were relatively rigid in respect to general library rules (would not allow them to negotiate special check-out periods if these were not provided by the library policy).

In the end students gave suggestions for the improvement of academic library services, in relation to the needs of blind and visually impaired students. Interviewees recommended the acquisition of the adaptive technology by the academic/university libraries – at least one computer with speech unit, speech synthesizer/reader software and scanner. They also pointed out that libraries should try to negotiate the special arrangement between the teachers and academics (textbook authors) and publishers regarding the establishment of the digital repository of adapted materials which would be accessible only to students with special needs. They recommended closer cooperation of academic libraries and universities in general with non-government organizations for the blind and visually impaired, and the education/training of librarians for the use of adaptive technology and working with people with special needs in general.

Interviewees pointed out also that they would use academic libraries more often if they observed less rigid policies regarding material use. Finally, in relation to library architecture, they suggested the improvements to the lighting and the organization of the library spaces. In most cases students concluded their brainstorming about possible improvement to library service for visually impaired students by commenting on the overall responsibility of the universities and their currently inadequate role in securing and promoting inclusive education and equal educational opportunities for all.

Conclusion

This exploratory study has produced valuabe insights into the information seeking processes and library use of blind and visually impaired students at Croatian universities, a user group that has been largely understudied in library literature in general. While the results of this study can not be generalised, and additional research is needed to explore these findings further, it is interesting to note that they have confirmed the main findings of similar studies conducted worldwide by pointing out to the adaptive technology and personal determination as major factors influencing the success of blind and visually impaired students in their search and use of academic information, and academic success in general. It also identified the main challenges that students with visual impairment meet on daily basis in their educational efforts: lack of academic information/materials in accessible format, dependence on intermediaries and time-consuming processes of material adaptation.

Croatian academic libraries, according to the findings of this study, seem to be largely underused by the blind and visually impaired students. Students included in this study, in most cases, visited libraries only after all other options have been exhausted because their experience has taught them that their academic libraries did not possess adequate technology and resources needed for their studies. However, within their limited possibilities, librarians seem to be responsive to the needs of this specific user group.

In order to better cater for the needs of the students with visual impairment, and improve their educational opportunities, Croatian universities and academic libraries should make several small but important steps. Firstly, at faculties where visually impaired students have been enroled, academic libraries should acquire adaptive technology and train at least one member of the staff in their use. For these purchases and staff training universities could apply for both local and international grants. Library staff should also be trained for the work with different patrons with special needs, including the visually impaired. If possible, libraries should offer the service of scanning and adaptation of library materials for visually impaired students. This service could be offered in collaboration with LIS or Computer Departments at universities and students volunteers. Furthermore, they should maintain archives or repositories of scanned/adapted material (for reuse) and if possible establish collaboration (either in the form of inter library loan or even joint repository) with other academic libraries in the country, and abroad. Collaboration with international academic libraries is encouraged as well because exam literature and reading assignments at Croatian universities are often in English.

Librarians should also pay more attention to the patrons' handling of the library materials to make sure that they do not underline textbooks and thus make them impossible for adaptation into accessible format for the visually impaired students. Also, libraries should revise their policies and introduce special provisons for students with special needs such as extended check out periods and borrowing of non-circulating materials. Finally, universities should produce minimal guidelines for the design of educational websites and teaching materials so that information produced by teachers and librarians is accessible to all students.

If these steps are taken, visually impaired students at Croatian universities will be in much better position to exercise their right to education and enjoy their academic experience. The availability of adaptive technology and accessible (academic) information would increase their independence and boost their confidence. They already have the needed determination and positive work habits.

ACKNOWLEDGMENTS

Authors thank all students who took part in the study and provided valuable insights into the educational experiences of the visually impaired.

REFERENCES

Abner, G. H. & Lahm, E. A. (2002). Implementation of assistive technology with students who are visually impaired: Teachers' readiness. Journal of visual impairment and blindness, 96,02, 98-105.

Babalola, Y. T. & Haliso, Y. (2011). Library and information services to the visually impaired: The role of academic libraries. Canadian Social Science, 7, 1, 140-147.

Butorac, D. (2002). Računalo kao nova pomoć u obrazovanju slijepih studenata. Edupoint, 2, 6. Retrieved January 25, 2014 from http://edupoint.carnet.hr/casopis/broj-06/clanak-01/racunalo-slijepi.pdf

Byerley, S. L. & Chambers, M. B. (2002). Accessibility and usability of web-based library databases for non-

visual users. Library Hi Tech, 20, 2, 169 – 178.

Corn, A. L. & Wall, R. S. (2002). Access to multimedia presentations for students with visual impairments. Journal of visual impairment & Blindness, 96, 4, 197-211.

Council of Europe. (2003). Access to social rights for people with disabilities in Europe, Integration of People with Disabilities. Council of Europe Publishing. Retrieved January 10, 2014 from http://www.coe.int/t/e/social_cohesion/soc-sp/access%20to%20social%20rights%20%20in%20color.pdf

Davies, J. E. (2007). An overview of international research into the library and information needs of visually impaired people. Library trends, 55,4, 785–795.

Edwards, B.J. & Lewis, S. (1998). The use of technology in programs for students with visual impairments in Florida. Journal of Visual Impairment and Blindness, 92, 302-312.

Eskay, M. & Chima, J. N. (2013). Library and information service delivery for the blind and physically challenged in University of Nigeria Nsukka Library. European academic research, 1, 5, 625-635.

Harris, C. & Oppenheim, C. (2003) The provision of library services for visually impaired students in UK further education libraries in response to the Special Educational Needs and Disability Act (SENDA). Journal of librarianship and information science, 35, 4, 243-257.

Kavanagh, R. & Christensen Sköld, B. (Eds.) (2005) Libraries for the blind in the information age: Guidelines for development. The Hague, IFLA Headquarters.

Machell, J. (1996) Library and information services for visually impaired people: National guidelines. London:

Library Association.

National Disability Authority. (2009). Ethical guidance for research with people with disabilities. Retrieved May 25, 2013 from http://www.nda.ie/cntmgmtnew.nsf/0/232F61AE5397A93D802576650052B3B9/$File/ethicsfootnotes.html

Power, R. & LeBeau, C. (2009). How well do academic library web sites address the needs of database users with visual disabilities? The reference librarian, 50, 1, 55-72.

Roy, A. W. N. & MacCay, G. F. (2002). Self-perception and locus of control in visually impaired college students with different types of vision loss. Journal of visual impairment and blindness, 96, 4, 254-266.

Saumure, K. & Given, L. M. (2004) Digitally enhanced? An examiniation of the information behaviours of visually impaired post-secondary students. The Canadian journal of information and library science, 28, 2, 25-42.

Schuyler, M. (1999). Adapting for impaired patrons. Computers in libraries, 19, 24-29.

Smale, R. (1992). Australian university library services for impaired students: Results of a survey. Australian Library Journal, 41, 199-212.

Williamson, K.; Schauder, D. & Bow, A. (2000). Information seeking by blind and sight impaired citizens: an ecological study. Information Research, 5(4). Retrieved January 25, 2014 from http://informationr.net/ir/5-4/paper79.html

World Health Organization. (2013). Visual impairment and blindness, 2013. Retrieved May 20, 2014 from http://www.who.int/mediacentre/factsheets/fs282/en/

Curriculum Vitae

Sanjica Faletar Tanacković obtained her PhD in 2009 from Zagreb University, Croatia. Her research interests are in convergence of cultural heritage institutions, library and museum services to the underprivileged and human information behavior.

Silvana Šehić graduate from the Department of Information Sciences, Faculty of Humanities and Social Sciences in Osijek, Croatia in 2013. Her main research interests include human information behavior and library services to people with special needs.