Student Use of Library Physical Spaces: Unobtrusive Observation of Study Spaces in an Academic Library

Sanjica Faletar Tanacković
Department of Information Sciences, Faculty of Humanities and Social Sciences, University of Osijek. L. Jaegera 9, 31000 Osijek, Croatia. Email: sfaletar@ffos.hr

Darko Lacović
Department of Information Sciences, Faculty of Humanities and Social Sciences, University of Osijek. L. Jaegera 9, 31000 Osijek, Croatia. Email: dlacovic@ffos.hr

Gordana Gašo
Library, Faculty of Humanities and Social Sciences, University of Osijek. L. Jaegera 9, 31000 Osijek, Croatia. Email: ggaso@ffos.hr

Abstract
Despite the massive impact of ICT on library service provision, academic libraries continue to supply patrons not only with collections but also spaces – spaces for study, research, contemplation and relaxation (Bryant, Matthews and Walton, 2009; McDonald, 2010; Carpenter et al., 2011; Latimer, 2011). In order to understand the role of the 'library as a place' and to gather valuable data on study behaviour of students, that would facilitate the planning process of the new library building at the Faculty of Humanities and Social Sciences at Osijek University, Croatia, a large study has been underway. The study employs triangulation to answer the following research questions: How are library spaces, collections and equipment being perceived and used? What factors facilitate/impede library use? How could the new library spaces be designed in order to serve the patrons better?

In the paper authors will focus on the qualitative data, obtained with the help of ethnographic methodology of unobtrusive observation, relating to the students' usage of the library study spaces (quiet study room). These public study spaces were observed (and photographed) during the course of one week in different time periods to capture diverse users and uses and intensity of use. Observers recorded any behavior or event that was regarded relevant to the research questions being investigated. The initial results show that varied activities occur in the library study spaces which have not been catered for properly. For example, students are using the library study rooms as an informal meeting place; at peak periods quiet study room is being used for group work; significant number of working places in study rooms is underused because of inadequate table sizes etc.

Keywords: library space planning, library use, user behavior, students, observation

Introduction
Despite the massive impact of ICT on library service provision, academic libraries continue to supply patrons not only with collections but also spaces – spaces for study, research, contemplation and relaxation (Bryant, Matthews & Walton, 2009; McDonald, 2010; Carpenter et al., 2011; Latimer, 2011). Although many predicted the decline of the academic library, there seems to be actually higher demand for libraries both by academics and students (Antell and Engel, 2006: 553). Modern academic libraries are increasingly introducing hybrid and flexible learning spaces, information/academic commons, broadly defined as physical convergence of digital tools and assistance with traditional reference services, resources and areas (MacWhinnie, 2003: 2). In order to provide for the emerging trends in higher education they accommodate wide range of services: print and electronic information resources, provision of ICT, collaborative and independent workspaces and social space where patrons can eat, drink, chat and rest.

In order to understand the role of the 'library as a place' and to gather valuable data on behaviour of students in library spaces, that would facilitate the redesign process of the existing library and the planning process of the new library building at the Faculty of Humanities and Social Sciences at Osijek University, Croatia, a large study has been launched in 2013. The study used a mixed-method approach, combining extensive patron survey (for students and academics) with unobtrusive participant observation to answer the following research questions:
1. How are the library spaces, collections and services being perceived and used?
2. What factors facilitate/impede library use?
3. How could the existing library spaces be renovated and the new library spaces designed in order to serve the patrons better?

Student survey provided researchers with overall insight into the Faculty of Humanities and Social Sciences in Osijek (later on FHSSO) student body (general demographic information, academic success etc.), their studying habits, and library perceptions and uses. Academics survey was similar in nature and explored their perceptions and levels of library use. Patron surveys focused in particular on factors that facilitate and impede their use of the library. It also collected patrons' opinions of ideal library (space, collections, services etc.). Out of 1404 undergraduate and graduate students, a total of 606 students took part in the survey (57.04%). The sample was representative of the FHSSO student body and included all academic majors at both undergraduate and graduate level. Similar recall was recorded for academics, with over half of the FHSSO staff (53.7%) responding to the survey. Academics responded to an online survey, while the print survey was distributed to students at the beginning of their classes, in collaboration with individual course instructors. This quantitative investigation was followed by the ethnographic study whose goal was to provide deeper insight into the student behavior in library and the nature of activities taking place in different library areas. The final aim was to apply the gained knowledge and understanding to the renovation of the existing and the design planning of the new FHSSO library, in order to better support patrons' work behavior. This paper focuses on the ethnographic, observational study and presents a portion of qualitative data relating to the students' use of the library study spaces (quiet study room).

**Literature Review**

Observation studies typically involve the systematic recording of observable phenomena or behaviour in a natural setting (Gorman & Clayton, 2005: 40) and they do not deal with the opinions or beliefs about the events or actions with which those being observed are engaged (Sommer & Sommer, 2002). The value of observation is that it permits researchers to study people in their native environment in order to understand “things” from their perspective (Baker, 2006: 171). They can be structured or unstructured, overt or unobtrusive. Structured observation samples a predetermined event or activity, using a prearranged form into whose categories the observer records whether specific activities take place, when and how often it happens. In unstructured observation the observer records any behaviour or event that is relevant to the research questions being investigated. Observational method of inquiry in general has a ‘reality verifying’ character, whereby what people say they do can be compared with what they actually do (Gorman & Clayton, 2005: 104). The structured observation is considered to be a quantitative, and unstructured a qualitative method. In overt participant observation the observer acts as an active participant in the study group and those being observed have given permission to be studied. In contrast, in unobtrusive observation, the observer is passive and has no interaction with the people being studied. The latter type is also known as naturalistic, complete or non-participant observation.

As every methodology, both types of observation have advantages and disadvantages which should be dealt with carefully. On one hand, an overt observer has the opportunity to better understand the behavior by asking questions of those being observed but people who are aware of being observed might change their behavior. On the other hand, unobtrusive observation raises some ethical questions such as gaining permission to study, right to privacy, confidentiality of data etc. (May, 2011: 358-359). Two general disadvantages of observational method are that it is time consuming and the subjectivity of the observer (Gorman & Clayton, 2005: 105). In addition, observation has several unique challenges such as the acquisition of special skills that can be learned only in field, gaining access to the group for researchers who are not members of the studied group, ethical issues, validity and reliability (Baker, 2006: 179-181).

Although observation is generally seen as the least intrusive data collection method, today strict policies are in place to guide research on human participants and that is probably the reason why complete observers are not being used by researchers more often. To address bias and improve validity, researchers can use more than one observers to collect and analyze data - investigator triangulation (Johnson, 1997: 283), include participant feedback and use additional methods of inquiry (Baker, 2006: 184).

Although as an ethnographic method, observation has a long history it has not been commonly used in library and information science (LIS) research. For example, as recently as in 2005 only 3.5% of studies in high-profile LIS journals have used observation as a data-collection technique (Hider and Pymm, 2008). However, the observation is slowly gaining favor in LIS field and the review of current, peer-reviewed literature in English, indicates that LIS researchers are beginning to employ this methodology in the information seeking and public and academic library use/behavior context.

McKechnie used this methodology repeatedly to study babies and young children's behavior in the public library setting (2000, 2006). Two other Canadian researchers, Given and Leckie, used a specific observational approach, the seating sweeps method, to study individuals’ use of central public libraries in two large Canadian cities (2003). In 2010 Mandel published an article on her unobtrusive observational study on patrons' initial wayfinding in a medium-sized public library in south Florida. Different aspects of the library use, seating patterns, user behavior and technology use in the library have also been studied across...
different academic library settings by a number of international researchers. For example, Applegate (2009) writes about systematic observation of non-computer seating areas in library spaces on an urban US campus. Bryant, Matthews and Walton (2009) describe in their article a case study of user behavior in a newly established library space at Loughborough University, UK. Similar ethnographic study on students’ work behavior was undertaken by Bedwell and Banks (2013) at Killam Memorial Library at Dalhousie University, Canada, Suarez at the Brock University, Canada (2007), and Pierard and Lee at New Mexico State University (2011). Seating patterns and use of library study tables was explored, with the help of this methodology, by Loder (2000) and Young (2003). Finally, the use of library computers and laptops was studied by Briden and Marshall (2010), Thompson (2012) and Johnson and Finlay (2013). Although not exhaustive this literature review serves its purpose to document that ethnography as a quantitative or qualitative methodology can be useful to librarians and researchers in the field of library and information science (LIS) who want to understand the patrons behaviors and activities.

Study

Observation study described in this paper was conducted by ten graduate students from the Department of Information Sciences, as a part of their research assignment for Library Architecture course. A minimum of 10 hours of observation was negotiated as a requirement for course completion for each student. LIS majors were perfect candidates for the role of observers because they had some training in research methodology and were supposed to be studying other students in their own environment. Their membership in the culture under observation permitted them unobtrusive access to rich data. Data was collected in the period from 25 to 29 November 2013 (week 9 in Autumn semester). The period for data collection was determined on one hand by the head librarian’s suggestion: she indicated that this was the period of heavy library use because it is the middle of the semester when students have many written assignments and prepare for midterm exams. On the other hand, the students’ research assignments were supposed to be finished by late January so the end of the semester, which is perhaps the period of the heaviest library use, was excluded as the observation period at this point. The observation time periods were purposively selected in order to obtain a glimpse of the ongoing activities across the range of normal library business hours (9 a.m. to 6 p.m.). Only days Monday through Friday were included because the library is not open on weekend. Observations were conducted in four library areas: quiet study room, group study room, foreign languages study room and reference desk. Data was collected at different time periods each day of the week according to the timetable presented in Table 1, resulting in 27 observation periods lasting 60 minutes, in each of the four library areas, and over 100 observation hours altogether.

<table>
<thead>
<tr>
<th>Table 1. Observation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Tuesday</td>
</tr>
<tr>
<td>Wednesday</td>
</tr>
<tr>
<td>Thursday</td>
</tr>
<tr>
<td>Friday</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Observation data was collected in print sheets – one sheet was used for each time period for each library area. Students observed specific library areas and recorded their observations of patrons’ activities and behaviors and interaction patterns. In most cases students noted activities such as study engaging or supporting activities (reading, writing etc.). Library computer user, (smart)phone/tablet/iPod etc. use, independent study, group work/discussion, chatting, and eating and drinking.

The observation protocol was the following: when student observers arrived to the designated library area they would sit and pretend to work (read and take notes) while at the same time observing the patrons’ behavior and recording their general observations on patrons’ activities and anything else that caught their attention. Researchers also tried to interpret what they observed, often based on their own experience. At the end of their observation period the researchers took photographs of the studied library area to obtain the visual evidence of the actual situation in the room.

Prior to conducting the study, ethics approval for the project was granted by the FHSSO. The notification was posted on the library website to inform patrons that unobtrusive observations would be taking place. Library staff were notified of the study well in advance and the head of the library was actively involved in the research project from the start. Since visual research in particular is associated with a number of ethical issues, such as consent, confidentiality and anonymity, special attention has been given to this part of the data collection and necessary steps were taken to ensure that informed decisions and professional approaches were taken (Wiles et al. 2008). Prior to taking the photographs, patrons were verbally informed by researchers that photographing was a part of the students’ research project whose aim is to study different library behaviors and uses and that the photographs will be analysed and used only for scientific purposes (publication of scientific papers) and the redesign of the library. Also, patrons were explained that the photographs will be taken in such a way to ensure the highest degree of anonymity by photographing them from behind so that their faces do not appear. In addition, patrons were given the opportunity to leave the room if they preferred not to be photographed. In the end, students observers noted that none of the patrons in the quiet study room objected to being photographed. On the
contrary, they became interested in the study and inquired about the renovation and redesign of the library.

Results

The observational method resulted in several interesting findings. The majority of them could not be documented in any other way. Since the large amount of data were collected, in this paper we shall explore only some of the findings to provide a glimpse of the library behaviors and to highlight the usefulness of this approach in documenting patron behavior and implementing changes/renovations in the library. As mentioned earlier, in this paper only results pertaining to one library area will be reported: quiet study room. At the time of the study, quiet study room (located at the far right end on Figure 1) was located on 62.43 square meters and contained a maximum of 35 individual seats. There were eight computer workstations, three individual tables and 12 tables which could seat two persons each. In this room, patrons are never monitored in any way by library staff.

![Figure 1. Library floorplan (November 2013)](image)

Before examining the observation results, it might be useful to provide context for the observed behaviors by presenting some of the results obtained in the quantitative study (survey). The gender and age of the sample in the students survey was representative of the general demographic characteristics of student body at the FHSSO (79,5% of respondents were female, and 75,5% fall into the 20-24 age group). According to the survey, majority of respondents studies in the late afternoon (62,5%), in the evening (52,6%) and in the night (45,2%). Majority of students studies at home (94,8%). However, a significant portion of respondents studies in the academic library (38%) and on their way from home to faculty (15,8%). Only five respondents indicated that they also studied in other non-library areas at the faculty, such as the hallway, student restaurant located in the basement of FHSSO and gazebo in the courtyard (2,5%). Over half of the respondents (55%) indicated that physical space of the library (size of the room, number of seating places, computer equipment etc.) were important or very important for their academic success. However, less than a third of respondents (27,9%) indicated that the physical space of the library (size of the study rooms, number of individual seats, computer equipment) did not meet their needs. When asked about their favorite place to study in the library 50,9% of respondents indicated quiet study room because "it's quiet" and they "can concentrate better there". A total of 30,9% of respondents indicated the group study work as their favorite study place in the library because there they can talk with their colleagues and study in groups. When asked, in an open ended question, about the changes the library should introduce to improve the study areas, the largest number of respondents indicated the purchase of more computers (55,3%) and more copies of exam literature (32,7%). Over a third of respondents emphasized that the size of the library study areas should be expanded and that more seats should be provided (30,5%). A significant portion of respondents also indicated the need for free wireless connection in the library (23,7%).

As far as academics and teachers are concerned only 9,6% of respondents indicated that they worked in the academic library and less than a third indicated that physical space of the library (size of the room, number of seating places, computer equipment etc.) was important or very important for their work (28,8%). Over 90% of respondents - FHSSO staff, when visiting/using the library, stays there up to 15 minutes (91,5%) and borrows material (87,7%). A total of 66% of the respondents reported that they did not have a favorite place to work in the library but, expectedly, almost 80% indicated that electronic library resources were very important for their work (78,1%). In their suggestions for improvements of the library the most common were the following: subscription to more online databases, expanding the library space, providing designated workplaces for teachers/academics, wireless Internet access and longer working hours.

The analysis and conclusions reached in the ethnographic study were grounded in the actual data gathered and presented in a narrative style. Recorded observations are generalized under four broad themes: general observations, study behavior, computer use, social and leisure behavior.

General observations

Quiet study room was constantly heavily used. Just as some other similar studies have shown (Applegate, 2009), this library space was on average most intensively used from 11 a.m. to 1 p.m. The morning and afternoon uses were relatively low in comparison. First patrons in this library space were, as a rule, student commuters who as a result of inadequate train/bus schedules arrived to the Facutly earlier than their classes required. Patrons usually started to pour into the quiet study room after 10:30. Apparently, patrons could chose whether they wanted to sit next to the window or at the back, if they came at 9 a.m. or at 4 p.m. but if they arrived around noon they would probably not find a free spot to sit. Similar was noted for the different days of the week. The usage of the quiet study room varied across week days. Again, the beginning and the end of the week saw less
use in general. On Monday and in particular on Friday quiet study area was less used than on other days of the week.

Observers noted that all patrons using this library space in the above mentioned observation time periods were students. Having in mind the results of the quantitative study, it is not surprising that none of the teachers came to the quiet study room: they indicated that they preferred to work in their offices and seldom worked in the library because they could not use their own laptops (since there are not enough power outlets and wireless is not available) and apparently they did not want to take up the few workplaces for students who might not have another option.

It was further observed that unaffiliated patrons, who arrive alone and work alone, almost never sit right next to each other. Students observers noted quite a regular pattern of such behavior because whenever an unaffiliated patron entered the quiet study room and saw that in the room there were no empty tables (not individual portions of tables but the whole tables) they would leave. As a result, at all tables which can (in theory) sit two persons there was most often one place empty. The only exceptions were people who came to work in pairs but since this library area is intended for individual work the furniture should be adjusted to the needs of patrons working alone. Student researchers also noticed that the size of the tables, or an individual-sized portions of tables, were inadequate and do not suffice for comfortable work if students want to spread out their books, papers, supplies but also jackets, umbrellas and bottles with water.

Students observers also reported that the quiet policy was for most of the time adhered to despite the fact that the library staff was not present and students knew that they were not monitored. From time to time however the level of noise was relatively high, because some patrons working in groups come to this area to conduct collaborative work. However, the students working individually would tolerate them. Student researchers explained that, according to their personal experience, certain level of noise generated by several patrons working together was tolerated because many students from time to time use the quiet study room for group work but also that certain level of background noise was actually contributing to the working atmosphere.

Students indicated that the lighting was satisfactorily and that the area is brightly lit. The air conditioning system, however, was described as utterly inadequate: in the quiet study room the heating cannot be locally regulated so the room was always too hot which contributed to drowsiness. If somebody asked a window to be open persons sitting next to the window would naturally object because in that case they would be too cold. In addition, computer workstations were located along the wall with windows so if the windows were open, and left unattended, the rain or snow might have negative effect on the computers.

According to the students’ recorded notes, most of the observed behaviors in the quiet study room were studying or working behaviors. Also, the majority of patrons observed in the silent study room were working individually. In most cases they were reading (from a library book or their own copies), taking notes and working on a PC. While a substantial portion of patrons were observed to be working in the library for shorter periods (up to half an hour) the majority would settle in for longer periods of time (60 minutes or longer). Students observers explained that many patrons who stayed in the quiet study room up to 30 minutes were actually on a break and in between classes or waiting for their bus/train home. Some used that time to prepare for the upcoming classes (go through the required readings, finish an assignment and so forth) and some just to sit and relax, use library computers to check their emails, read news and so forth.

Despite the fact that the quiet study room is intended for independent work, researchers observed that there tended to be a relatively high proportion of students working in smaller groups (Photograph 1). Majority of these groups involved two or three persons. Student researchers describe that the reason for this lies in the fact that the study room for group work is quite small (providing only 32 individual seats) and the level of noise in it is relatively high because patrons tend to use it as lounge area. When a group of students used the quiet study room, in most cases they would gather around one computer and move the chairs around a bit to suit their needs (in most cases so that all can see the screen). Since furniture in this study area is not meant to be moved around, such seating (re)arrangement often impeded the spatial communication in this room altogether.

**Photograph 1. Group work in quiet study room**

Many patrons were noticed to be consulting library books and after studying for some time, leaving their place for couple of minutes to bring more library books, in many cases reference material (large size encyclopaedias, dictionaries etc.). Student observers noted therefore that it would be very convenient if the reference section was located closer to the quiet study room. At the moment,
students have to pass two library areas, both unattended by librarians, to reach the reference desk/collection. Also, a number of patrons were noted leaving their possessions (jackets, books) at the desk and returning after 90 minutes or so. They apparently went to class and returned to continue working but by leaving their things spread around the desk they reserved the spot.

**Computer use**

The students observers indicated that the second most common activity observed in the quiet study room was using library computers. During the peak periods (11 a.m. to 1 p.m.) library computers, as a rule, were used to their full capacity, and there were often students waiting for computers to become available. As was noticed in some similar studies, some patrons were noticed to organize "shifts" with their friends or colleagues and take turns using the same workstation throughout the day (Bedwell & Banks, 2013: 9). Also, according to the students observers there were many patrons who would leave the quiet study room immediately after entering and having noticed that there were no free seats at the computers. One student observer noted that at one point when there was the Internet shut down all patrons who were working at computers left the library. Computer use was even and steady across different times of day and week days.

As far as the computer activity is concerned, students reported that library computers were used in two different ways. On one hand some patrons used it for longer periods and obviously used MS Office to write something or take notes, or they searched Internet and databases (academic use). On the other hand a significant portion of patrons also used computers for shorter periods just to check their email or Facebook account (leisure). In addition, it was observed that the computers were old and slow, and that for example screens were blinking, which impeded their use. Also, one out of eight computers located in the quiet study room, was constantly out of order. Based on their own experience, students researchers indicated that this computer has not been in function for some time. Students also reported that the desks which accommodated computers were too small if student wanted to write something or to consult a book while using the computer (Photograph 2). On many occasions patrons sitting at the computer workstations were observed holding their reading material in lap.

**Photograph 2. Computer workstation in quiet study room**

It was also noted that the number of patrons using laptops in the quiet study area was very low despite the fact that in the quantitative study around 80% of respondents (both students and teachers) reported owning a private laptop. The evident reason behind the low use of patrons' laptops lies in the fact that in this library area there are only three power outlets which can be used by patrons and the library does not provide a wireless Internet connection. Student observers also noted that the desks nearest to these power outlets were favorite spot for patrons and have always been the first occupied. It is interesting to note here once again that the lack of power outlets and wireless connection were noted as major problems by respondents in the survey.

**Social and leisure behavior**

Apart from studying-related activities, patrons were also observed socializing, indulging in some kind of leisure activities or just resting (sitting alone, just watching). Student observers recorded that in the quiet study area patrons were frequently eating and drinking, using their telephones, listening to music on portable devices, and chatting with friends and colleagues (not related to academic work). Although consumption of food and beverages is not allowed in the library nor in this particular space, students observers explained that students at FHSSO do not have many options for such activities. The student restaurant, located in the basement of the building, is relatively small and can accommodate cca 15 persons. There is also a cafeteria on the first floor of the building, which closes at 4 p.m., but it seems to be predominantly used by FHSSO staff (teachers, academics). So, the library and in particular the quiet study room is often the only place students often have if they do not want to have their snack in the hall. The quiet study room, on the other hand, provides them with certain level of privacy. Although quiet study room is not attended by librarians, as it has been previously mentioned, it is interesting to note that students who have their snack in this room are very careful and do not leave any trash or remnants of food when they leave. Also, in most cases they do not have any reading materials
with them (because they just came for a snack) so there is no potential harm to library books. That is probably the reason why librarians tolerate such behavior.

Since there are no designated long areas within FHSSO library, or FHSSO building altogether, apart from the above mentioned student restaurant and a cafeteria, it does not come as a surprise that a number of students also used the quiet study room to meet with their friends and chat (on topics not directly related to their assignments or academic work). However, their conversations were in most cases very quiet so that they did not disturb other patrons who were working.

Discussion

While the survey indicated that the quiet study room at FHSSO is a preferred study space with the students, the ethnographic study has shown that this library space is indeed heavily used library space and that it supports different patron activities. While it is almost never used by FHSSO staff (academics and teachers) it is very popular with students, especially at peak periods from 11 a.m. to 1 p.m.

Quiet study room at FHSSO as a physical space, despite its many limitations, offers a unique environment to students’ learning experience. Although patrons use this library space for individual learning in most cases, significant amount of small group work has also been reported. Students also seem to use the quiet study area at FHSSO not only as a working environment but also as a social space. They chat and meet with their friends there, and also eat, drink and rest. The multitude of students’ study engaging, social and leisure behaviors and activities in academic library was noted and described by Suarez in his ethnographic study at Brock University Library, Canada (2007).

Although not monitored by library staff, in most cases the patrons in this library space adhere to the quiet policy and respect each others’ need for privacy and quiet learning environment. Patrons also seem to be very tolerant of a certain amount of noise in this learning environment. Interestingly, several studies have shown that students actually prefer some kind of ambient, background noise which appears to have a positive effect on their ability to concentrate and stay focused and that they seek out quiet but not silent areas for study purposes (O'Connor, 2005: 63; Webb, Schaller & Hunley, 2008: 420; Bryant, Matthews & Walton, 2009: 11; Bedwell & Banks, 2013: 11).

According to the students observers the average usage of this library space for study purposes could be facilitated and largely improved by the provision of adequate library furniture. In particular, they recommended the acquisition of bigger size tables. While it has been noted that unaffiliated patrons at the FHSSO quiet study room avoid sharing tables with other students, it seems that in general students prefer relatively large individual workspaces and that in the case they are provided with sufficient study surface areas that can accommodate their laptops, work material and supplies, they do not mind sharing it with other students (Gibbons & Foster, 2007: 28; Bedwell & Banks, 2013: 12).

In the survey, students expressed their opinion that the existing number and quality of library computers was not sufficient, and the observation study has confirmed that the library computers were widely used across all week days and times of day, and that there were always students wanting for them to be available. Also, the study has shown that the laptop usage is very low, and the reason being the lack of power outlets in this library space and inavailability of wireless Internet connection. Trends of ever increasing demand for library computers, powere outlets and wireless Internet connection for patrons’ laptops have been noticed in a number of studies on library computer and laptop use conducted over last couple of years in a number of academic libraries (Briden & Marshall, 2012; Thompson, 2012; Johnson & Finlay, 2013).

The study has also shown, as well as some other library space and use studies which were conducted with the help of ethnographic methodology and student observers in particular (Bedwell & Banks, 2013; Johnson & Finlay, 2013) that the student-led participant observation can contribute significantly and uniquely to the library space redesign and planning and that ethnographic methodology can be successfully applied in the (academic) library setting to gain insight into the patrons’ behaviors and uses of library spaces. Belonging to the culture under study and using the same spaces for their own academic work, student observers were able to gather rich data on natural behaviors of library patrons with minimal intrusion in their routine. Also, their own experiences helped them understand and explain the observed behaviors. The potential bias, which is often mentioned as a potential drawback of such studies, has been removed by the regular consultation of student observers with researchers and close cooperation of students, librarians and researcher in the analysis of data.

In combination with the quantitative results from the survey, the rich data obtained in the ethnographic study has helped librarians at FHSSO to understand in what ways the library patrons are using the existing library spaces and how well are their needs being met. In the end, they were given solid evidence and recommendations of what needs to be changed if the needs and demands of their patrons are to be better served.

Conclusion

Thanks to this study, FHSSO librarians did not have to rely only on their assumptions on patrons’ study behavior and the use of the library space but were given solid evidence to base their decisions regarding the design of library space and resources. Based on the results of this study several explicit recommendations have been made to FHSSO library in respect to its redesign and service improvements in order to better support student work
behaviors. These studies served also as a powerful tool for the head librarian to convince the decision makers at FHSSO that urgent adaptation of library spaces through the modernization of library furniture and improvements of ICT services was needed. Since library head was from the start involved in the project these suggestions were directly used in the subsequent minor renovations of the library.

Shortly after analysing the survey and observation data, and making them available to the FHSSO decision-makers the first step was made and the number of library computers in the quiet study area was doubled. In April 2014 eight existing, outdated library computers were replaced by 16 brand new computers. Also, some of the existing tables have been replaced by a larger sized ones. The tables have also been slightly differently arranged in the room to allow for more efficient use of the available power outlets (Figure 2).

![Figure 2. Library floorplan (May 2014)](image_url)

It is expected that by the the beginning of the next semester the quiet study room will be furnished with brand new tables of adequate size to provide sufficient space to accommodate library computers/laptops, reading materials, supplies etc. Also, librarians have started negotiating with IT staff the introduction of the wireless Internet connection, not only in the library but the whole FHSSO building.

Since FHSSO library will soon be embarking on a new library building project, in collaboration with teachers and students at LIS department, it has been arranged that the library space and use study will be continued and repeated at different times of academic year. It is hoped that it will be possible to arrange more observation hours and to focus in depth on some specific activities or phenomena observed in this study in different library spaces (patterns of computer technology use, the group work behavior etc.) and to arrange in-depth interviews with patrons. In this way, the questions regarding the nature of students educational experience, and especially their use of the learning spaces, that is desired in any renovation or construction project will be asked persistently and throughout the planning process (Bennett, 2007: 2).

ACKNOWLEDGMENTS
Authors thank the following LIS students for their assistance with data collection and analysis: Bajić Meri, Begović Mia, Ćičak Žrinka, Dekić Eleonora, Fištrović Alana, Hećimović Ana-Marija, Macokatić Ivana, Maganjić Dino, Smajić Andrea and Spahić Helena.

REFERENCES


**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.

Darko Lacovic is a Teaching and Research Assistant at Department of Information Sciences, Faculty of Humanities and Social Sciences in Osijek, Croatia and a doctoral student. His main research interests include human information behavior and library services to socially excluded persons.

Gordana Gašo is a head of the library at Faculty of Humanities and Social Sciences in Osijek, Croatia (since 2012). She has a degree in Croatian language and literature and Librarianship. Her field of interests are bibliometrics, information literacy and library management.