

This article will describe the user experience (UX) methods used during the years, the results and the implementation of the suggested changes conducted will then be summarized.

Methods

In-depth survey 2012-2013

In late 2012 and the beginning of 2013, an in-depth survey was conducted in the Linnaeus University Library in Kalmar and Växjö. Four sub studies were defined: 1. examine current use and give a short background to the study environment from a student perspective; 2. provide a forecast for the physical collection and needs for teaching environments; 3. examine the student needs and expectations for the study environment; 4. identify good examples of study environments in other libraries. A number of methods were used: questionnaires, observations, web surveys, seminars, interviews, detailed personal interviews and focus groups. A study visit day and an attendance at a national conference about future learning spaces gave inspiration for the planning for more appropriate study environments. The total results were categorized in nine attributes for user preferences for informal learning spaces defined by Harrop and Turpin (1) in a study at Sheffield Hallam University.

The results of the survey conducted in 2012-2013 were useful in guiding the redesign of the library in Kalmar and Växjö in the years to come and gained the planning of informal learning spaces in new university buildings in Kalmar.

Studies and observations 2014 - 2018

Over 3 weeks in 2015, in Kalmar, student opinions about refurbished learning places, were collected, through short interviews.

In 2017, after the redesign of Växjö Library, some smaller studies and observations were conducted, in order to find out the students opinions.

User experience in Växjö 2019

To gain knowledge about how the students perceive the study environments that were refurbished in 2015-2016, a survey with focus on a typology of learning space preference attributes (1) was conducted in Växjö 2019. Different UX-methods were used. To get an understanding about student study preferences, they were asked to dot in their preferred places on library photos. The respondents also marked out where in the library they considered different zones were located.

Students furthermore gave their opinions on different subjects either in in-depth interviews or in written form.

Results

2012-2013

The 2012-2013 survey results were categorized in a typology constructed by Harrop and Turpin (1), and a report was compiled (2). A short summary follows: *Destination* (location preference) – most respondents chose Linnaeus University Library over other places, but some were only choosing the library when it came to group work. A factor that limited the time students spent studying in the library were the opening hours, which were seen as too limited. *Identity* (the ethos of the space and how it should be used) – some study spaces were perceived to have multiple identities and could be used for several kinds of learning, which students found confusing. In the interviews, the students claimed that some spaces were difficult to interpret and the observations showed that the spaces were used in other ways than planned. *Conversations* (collaboration and interpersonal communication) – in the interviews and the focus groups, students emphasized the importance of group study rooms or demarcated places for two or more while learning was said to deepen understanding of the material. *Community* (social interactions, support and sense of common purpose) – the students expressed the view that the library was a central meeting place. Surrounded by other students and to be seen as a person seriously studying motivated them even more. The “library feeling” was perceived as important. *Retreat* (privacy and quiet study) – multiple respondents expressed the importance of being part of a community in a quiet environment. Sometimes it was hard to concentrate in the open spaces because of the loud and messy impression that other students passing by makes. The students wanted more possibilities to separate parts of the study spaces. *Timely* (just in time and on demand access to spaces and their resources) – bookable and non-bookable group study rooms and generous open hours were important factors as well as collaboration with fellow students, computers, literature, food and drink. *Human factors* (ergonomics of work spaces and physical attributes) – the user studies underlined the need for an improved sound environment. A distinct division of study zones divided after the expected sound

Long-term value of an in-depth survey regarding study environments

level could help students to accommodate for different needs. *Resources* (access to technology) – over all access to technology such as Wi-Fi, electrical sockets, computers and widescreens was a necessity. *Refreshments* (access to food and drink) – a popular space is regarded as hard currency and was not left for lunch breaks. Instead, the students consume their lunch in place even if that behavior created an untidy and smelly environment. Some respondents desired a dining area adjacent to the library.

The survey 2012-2013 gave rise to a number of improvements: create a better acoustic environment, clarify the use of different study places, an increase in the number of group study spaces and spaces for lunch breaks, more plug sockets and extended opening hours.

2014-2018

When deciding which improvements suggested in the survey 2012-2013 should be implemented, the cooperation with the Linnaeus University Office of Facilities Management and Services (LOS), with responsibility for facilities planning and keeping, was intensified. The library determined which proposals had priority and the LOS decided if the improvements could be implemented.

In the survey, the need for more group study places were significant. In 2015, a small classroom/silent room in Kalmar was revamped into six group study places, partitioned off with slimmed sound shields between each place. Whiteboards with sound absorbers and TV screens for connecting to laptops were fixed to the walls

In 2015, the students' opinions concerning the refurbished study spaces were evaluated. The students thought that the new study places were convenient for group study. The library as a whole was perceived to have flaws in its sound environment and there was a suggestion to have a map in the entrance to the library where the expected sound level in different parts of the library should be described. As a result of the evaluation the study spaces in Kalmar were divided into zones.

In Växjö, students wanted a more varied range of informal learning places with good ventilation and a uniform temperature. During 2015-2016, library staff, LOS and interior designers developed the ideas from the user studies. When the furniture was selected, students had the opportunity to test sample pieces of furniture and give feedback.

In 2017 defining the zones permanently in Kalmar and

Växjö became more intense and four zones were settled: Silent zone (silent individual study, no talking or noise), Quiet zone (quiet conversation and collaboration), Social zone (group work and collaboration, possibility for interaction and meetings), Pause zone (for breaks, relaxing and to have a meal). In Växjö the furniture was ordered in the same color as the zone it was placed in. In addition to new furniture, parts of the premises were repainted and access to electricity, Wi-Fi and ventilation improved.

Students also expressed a desire for increased opening hours. This was implemented with the introduction of self-service opening hours.

A library-parking system was constructed. When using the parking system the students could keep the space for up to an hour during lunch break.

The development of the study environments at the university library 2014-2017 is described in a report (3).

2019

The UX-activities during 2019 and the result (4) can be summarized as: *Destination* – the students gave their preferences by placing dots on library photos. It was found that most popular study spaces were the group study rooms followed by an open area with group study places. *Identity* – the visitors' task was to define where the different zones were situated in the library. The results showed that the students' knowledge of the zones was high and that the color marks were helpful.

A proposal that emerged was to advertise the activity zones on the website at the start of the semester.

Conversations – interviews revealed that although there was an awareness of the amount of group study places, it was considered difficult to find a place for 3-4 people during daytime. *Community* – students who study next to each other knew each other but do not always attend the same courses.

Resources – a written questionnaire concerning Wi-Fi, power outlet and technical support confirmed that the Wi-Fi worked well but that there is a lack of power outlets in some places. It was easy to receive technical support when required. *Human factors* – the students wanted more table spaces and group rooms. The students pointed to places where there was too much noise. Library ventilation was good, but it was cold in some areas.

Retreat – during an in-depth interview, students highlighted the silent zone and some of the group rooms and sofas with high backs as places for retreat. More shielded places were desirable.

Timely – most of the respondents were happy with the

opening hours and could usually get some kind of study place, except between 10 am and 3 pm, especially if searching for a calm, quiet individual place. *Refreshments* – the students were aware that the University offers spaces with microwave ovens. In order to keep their places at the library people left things, took turns taking lunch breaks or ate at their place. Only a few knew about the special library-parking system.

Discussion and conclusions

This article set out with the aim of get an understanding of students' definition of an attractive study environment and how the Linnaeus University Library perceives by the students. During the survey, the close collaboration with the students and LOS has been fundamental. Working with study environments in a library in two locations has been rewarding as changes made in one location, if successful, could be adopted in the other. Before changes were implemented, the students' wishes were gathered, and after rebuilding or refurbishing, they have been asked to evaluate. The commitment to conduct an in-depth survey in 2012-2013 meant collecting a large amount of information about the students' expectations of the library's informal learning spaces. Over the years, the librarians have learned more about different UX methods. Jones and Grayson (5) describes how the students can be treated as partners when the staff works actively and collaborates with them. The method "you said, we did" has been developed to become an ongoing dialogue which contains the inviting phrase "what should we do together?". That is a device well worth working after.

The creation of zones in order to clarify the expected behavior in the areas has been received positively; it has been easy for the students to navigate the different zones and their locations.

Due to the library's involvement in study environments, the library was also deeply engaged in planning the formal and informal learning spaces for the new university campus being built in Kalmar. Furthermore, having had the opportunity to work closely together

with students has been beneficial when developing the plans for the new University Library building.

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REFERENCES

1. Harrop D, Turpin B. A study exploring learners' informal learning space behaviors, attitudes, and preferences. *J. Acad. Librariansh.* 2013;19(58-77):doi: 10.1080/13614533.2013.740961
2. Fredriksson M, Henriksson I. UB:s fysiska studiemiljö – en attraktiv kunskapsmiljö? [Internet]. Linnéuniversitetet Universitetsbiblioteket [cited 2020 April 16] Available from: https://lnu.se/globalassets/dokument---gemensamma/bibliotek/verksamhetsdokument/rapport_lokaloversyn_version2013.pdf
3. Erliksson A-H, Fredriksson M, Linden B, Palm J. Utveckling av studiemiljöerna på universitetsbiblioteket 2014 – 2017 [Internet]. Linnéuniversitetet Universitetsbiblioteket [cited 2020 April 16] Available from: <https://lnu.se/globalassets/dokument---gemensamma/bibliotek/verksamhetsdokument/rapport-studiemiljo-2014---2017.pdf>
4. Erliksson A-H, Fredriksson M, Linden B. Studiemiljöerna på UB i Växjö med fokus på de 9 framgångsfaktorerna och studentupplevelser: En användarstudie 2019 [Internet]. Linneuniversitetet Universitetsbiblioteket [cited 2020 April 16] Available from: <https://lnu.se/globalassets/dokument---gemensamma/bibliotek/verksamhetsdokument/studiemiljoerna-pa-ub-i-vaxjo-med-fokus-pa-de-9-framgangsfaktorerna-och-studentupplevelser.pdf>
5. Jones R, Grayson N. Changing the dialogue: The story of the award-winning Alan Gilbert learning commons. In: Priestner A, Borg M, editors. *User experience in libraries: Applying ethnography and human-centred design.* Abingdon, Oxon: Routledge; 2016.