



**Pełna nazwa projektu:** Potrzeby i zachowania informacyjne neuroróżnorodnych użytkowników w kontekście projektowania inkluzywnych usług bibliotek akademickich w fizycznej przestrzeni biblioteki -NEURO-INC. Projekt finansowany w ramach konkursu OPUS 28 przez Narodowe Centrum Nauki na podstawie umowy: UMO-2024/55/B/HS2/00694.

**Full project name:** Information needs and behaviors of neurodiverse users in the context of designing inclusive academic library services in the physical library space -NEURO-INC. The project is financed under the OPUS 28 call for proposals by the National Science Centre under the agreement: UMO-2024/55/B/HS2/00694.

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## Streszczenie

Punktem wyjścia projektu jest idea inkluzyjności usług bibliotecznych, definiowana tu jako dążenie do takiej organizacji usług, aby były one dostępne i przyjazne dla jak najszerszego grona użytkowników. W literaturze przedmiotu można znaleźć wiele opisów pomysłów na dostosowanie usług bibliotecznych do potrzeb osób z niepełnosprawnościami narządów ruchu, a także z niepełnosprawnościami sensorycznymi wzroku i słuchu, jednak problem dostosowania fizycznych przestrzeni bibliotecznych do specyficznych potrzeb użytkowników neuroróżnorodnych jest wciąż rzadko poruszany. Wynika to po części z niejasności samego pojęcia neuroróżnorodności, które jest definiowane niemal wyłącznie z perspektywy nauk medycznych, a nie z perspektywy jego społecznych konsekwencji. W tym kontekście jednym z głównych celów poznawczych badań będzie opracowanie kompleksowej definicji opartej na dorobku nauk społecznych, ze szczególnym uwzględnieniem kontekstów informacyjno-komunikacyjnych tego zagadnienia, w której neuroróżnorodność będzie postrzegana jako pewna cecha użytkowników bibliotek. Inne cele naukowe obejmują:

- a) opracowanie ram koncepcyjnych i metodologicznych do badania potrzeb informacyjnych i zachowań użytkowników bibliotek neuroróżnorodnych,
- b) opracowanie narzędzi i procedur do badania neuroróżnorodnych użytkowników bibliotek oraz testowanie tych rozwiązań w praktyce,
- c) określenie związku między neuroróżnorodnością a potrzebami i zachowaniami informacyjnymi użytkowników bibliotek akademickich,
- d) opracowanie kompleksowego modelu projektowania innowacyjnych usług informacyjnych dostosowanych do potrzeb użytkowników bibliotek neuroróżnorodnych,
- e) opracowanie wytycznych i rekomendacji dla bibliotekarzy, kadry zarządzającej bibliotekami i projektantów, umożliwiających efektywne dostosowanie istniejących usług bibliotecznych do potrzeb użytkowników neuroróżnorodnych.

Projekt opiera się na tezie, że neuroróżnorodność może mieć istotny wpływ na zakres i sposób zaspokajania potrzeb informacyjnych użytkowników bibliotek akademickich, w tym na ich zachowania informacyjne. Może to oznaczać, że osoby neuroróżnorodne (np. ze spektrum

autyzmu, ADHD czy dysleksją) mogą mieć odmienne wymagania w zakresie wyszukiwania, przetwarzania i wykorzystywania informacji oraz interakcji z bibliotekami akademickimi.

Celem realizacji zadania 2 było przeprowadzenie systematycznej analizy i porównania praktyk stosowanych w wybranych bibliotekach europejskich w kontekście dostosowywania ich usług do potrzeb osób neuroróżnorodnych. Analiza obejmowała podejście interdyscyplinarne, uwzględniające rozwój psychologii, projektowania przestrzeni publicznych, zarządzania instytucjami kultury oraz technologii wspomagających. W szczególności nacisk został położony na rozwiązania z zakresu dostępności, takie jak mapy przestrzeni sensorycznej, strefy ciszy czy aplikacje ułatwiające nawigację. Uzyskano następujące rezultaty:

- a) identyfikacja kluczowych działań i praktyk w zakresie tworzenia miejsc dostępnych dla osób neuroróżnorodnych
- b) identyfikacja potencjalnych obszarów poprawy w funkcjonowaniu bibliotek uniwersyteckich.

## Summary

The starting point for the project is the idea of inclusiveness of library services, defined here as striving to organize services in such a way that they are accessible and friendly to the widest possible group of users. The literature on the subject contains many descriptions of ideas for adapting library services to the needs of people with disabilities of the motor organs, as well as sensory disabilities of sight and hearing, but the problem of adapting physical library spaces to the specific needs of neurodivergent users is still rarely discussed. This is partly due to the vagueness of the concept of neurodiversity itself, which is primarily defined almost exclusively from the point of view of medical science, and not from the point of view of its social consequences. In this context, one of the main cognitive goals of the research will be to develop a comprehensive definition of neurodiversity perceived as a feature of library users, based on the achievements of social sciences and taking into account in particular the information and communication contexts of this issue. Other scientific goals include:

- a) developing a conceptual, methodological framework for researching the information needs and behaviors of neurodiverse library users,
- b) developing tools and procedures for researching neurodiverse library users and testing these solutions in practice,
- c) determining the relationship between neurodiversity and the needs and information behaviors of academic library users,
- d) developing a comprehensive model for designing innovative information services tailored to the needs of neurodiverse library users.
- e) preparation of guidelines and recommendations for librarians, library management and designers enabling for effective adapting existing library services to the needs of neurodivergent users.

The research project is based on the thesis that neurodiversity may have a significant impact on the scope and method of satisfying the information needs of academic library users, including their information behaviors. This may mean that neuroatypical people (such as those on the autism spectrum, ADHD, or dyslexia), may have different requirements for searching, processing, and using information and interacting with academic libraries.

The aim of Task 2 was to conduct a systematic analysis and comparison of practices used in selected European libraries in adapting their services to the needs of neurodiverse individuals. The analysis included an interdisciplinary approach, taking into account developments in psychology, public space design, cultural institution management, and assistive technologies. Particular emphasis was placed on accessibility solutions such as sensory maps, quiet zones, and navigation apps. The following results were obtained:

- a) identification of key activities and practices in creating accessible spaces for neurodiverse individuals,
- b) identification of potential areas for improvement in the functioning of university libraries.

## Task 2: Benchmarking

### 1. Research objectives

The aim of Task 2 was to conduct a systematic analysis and comparison of practices implemented in selected European libraries in the area of adapting their services to the needs of neurodiverse individuals. The analysis included an interdisciplinary approach, taking into account recent developments in psychology, public space design, cultural institution management, and assistive technologies. Particular emphasis was placed on accessibility solutions such as sensory maps, quiet zones, and navigation apps.

### 2. Research methodology and procedure

In accordance with the adopted objectives of task 2, members of the research team carried out study visits to academic libraries presenting a high level of librarianship, with particular emphasis on designing inclusive services. Libraries were selected based on the subject literature analysis and a review of libraries' websites to represent different geographical regions of Europe, with particular emphasis on Nordic libraries, which have long been described in the literature as exemplary in terms of user services and library space design. Academic libraries operating in Sweden, Norway, Finland were included, as well as – for comparison purposes - libraries in Belgium.

Study visits were based on semi-structured interviews with librarians and observations carried out directly in the library space. The prepared questionnaire included groups of mandatory questions focused on a) issues of inclusivity and universal design for various user groups, b) issues directly related to solutions targeted at neurodiverse individuals, c) the operating conditions of libraries, collaboration with other entities, and barriers and problems in implementing inclusive solutions. During the interviews, other relevant topics arising from the initiative of the librarians were also discussed, depending on the situation and course of the particular visit. Autoethnographic methods were also used, including a cognitive walk recording the experiences of the researchers themselves. Each visit was recorded in the form of notes and photographs. In some cases, only with the librarians' clear consent, it was also audio-recorded. The course of each visit was described according to the adopted scheme, and then the conclusions from all study visits were analyzed and used to formulate a list of key activities and

practices in creating accessible spaces for neurodiverse users, as well as to identify potential areas for improvement in the functioning of university libraries.

### **3. Description of study visits**

Below detailed descriptions of study visits to selected European libraries, conducted as part of the Neuro-inc project, are presented.

#### **3.1 Library of Universitetet i Innlandet in Elverum, Elverum, Norway**

The study visit in the University of Innlandet (INN) Library on the Elverum campus took place on November 5, 2025. It contained an interview with the library manager and guided tour. INN Library in Elverum serves as the central academic library supporting programs offered on campus, primarily in nursing, health, physical education, biomedicine, and emergency medicine. It provides teaching and research facilities for students and staff, offering access to courses and specialist literature, scientific articles, electronic resources, and spaces for individual and group work. Users can use computers, printers, scanners, and study areas. Thanks to the 'meråpen' policy, they can access the library outside of staff hours using their student card and PIN code.

The history of the library is intertwined with the development of the entire university after the establishment of University of Innlandet through the merger of Høgskolen i Hedmark and Lillehammer University College. The library structures were integrated into one catalog, tailored services, and uniform access to research resources. The library became a center for academic support and enabled the development of modern services, particularly in the area of digital literacy and access to online materials.

##### **3.1.1 Implemented solutions for increasing the overall availability of library services**

The library is open to everyone, and its services are based on the principles of universal design. This concept represents complete inclusivity. The library is located on the ground floor, right next to the university's main entrance, and features an open space based on a circular plan. This architectural design distinguishes different areas within the library. The space between the shelves containing the collection allows for easy movement throughout the library. The library can be divided into several open-plan areas: staff rooms, a reception desk, a computer station for self-checkout, a crocheting corner, a puzzle area, individual workstations with laptops, meeting stations with removable desk walls, a printing station, and a photocopying machine.

Furthermore, on the upper floors, there are lockable rooms for group work or individual quiet work, which can be booked by students or university staff. The library offers an online lending system, and its management is fully automated.

### 3.1.2 Implemented solutions of particular importance for neurodiverse users

The library offers quiet work areas and rooms. If the noise level is too high, earplugs are available. The interior is bright and subdued, dominated by natural wood, white, and occasional touches of Norwegian red. The library has large, glass windows. The floor is lined with sound-reducing PVC carpeting. A quiet room, which also serves as a prayer room, was recently opened on campus. The library is attached to the Tibi system – the Norwegian Library for Accessible Literature – which enables people with special needs (dyslexia, impaired vision, ADHD, concentration problems, etc.) to borrow traditional books in the form of talking books and e-books. The library works closely with the University-wide Inclusion and Equity Group, which is responsible for implementing the concept of universal design.

### 3.1.3 Barriers in implementing accessibility solutions in library spaces

The main obstacle is the limited budget.

### 3.1.4 Other remarks and observations

The library did not identify with neurodiverse users, although it provides a variety of amenities for those with special needs. This is due to the principles of universal design, which guide the work of libraries and other institutions in Norway.

Drinking and eating are allowed in the library. Users are free to speak and discuss loudly, but they should not disturb other users.

## **3.2 Library of Universitetet i Innlandet in Hamar, Hamar, Norway**

The INN Library in Hamar was visited on November 7, 2025. The visit contained an interview with the library manager and one senior librarian. Simultaneously, a guided tour was provided as part of the study visit. The history of the library is linked to changes in the university's status. Although intended for students and staff, the library is also open to non-university users. It offers borrowing books and research materials, access to print and digital resources, scanning and printing documents, and workstations for individual and group work. The library also offers access to supplementary course materials, scholarly articles, and online resources. The university library is 'meråpen' - it allows students access outside of staff hours, requiring only

a student card and PIN. This gives students great flexibility in using space and resources, making it easier to work on projects, study after classes, or prepare for exams.

### 3.2.1 Implemented solutions for increasing the overall availability of library services

The library services are also based on universal design principles, meaning it is open to everyone. The library is located on a mezzanine floor near the university's main entrance. The library features open space and separate, lockable rooms. The open space includes a reading room, reception, a loan and return desk, group workstations, staff rooms, and a training/conference room. A photocopying room is available. The library also offers lockable, glass-enclosed rooms for individual quiet work, which can be booked by students or faculty. The library offers an online lending system, and its management is fully automated.

### 3.2.2 Implemented solutions of particular importance for neurodiverse users

The library offers quiet work areas and rooms, a relaxation room where mothers can, for example, feed their babies, or library users can unwind and take a nap, and a user-designed game room. If the noise level is too high, earplugs are available. The interior is bright and subdued. The floor is lined with a sound-reducing carpet. The library is connected with the Tibi system – the Norwegian Library for Accessible Literature – which enables people with special needs (dyslexia, impaired vision, ADHD, concentration problems, etc.) to borrow traditional books in the form of talking books and e-books. The library works closely with the University-wide Inclusion and Equity Group, which is responsible for implementing the concept of universal design.

### 3.2.3 Barriers in implementing accessibility solutions in library spaces

The main obstacle is the limited budget. The library plans modernization based on the real needs of its users and therefore wants to involve them in planning the changes.

### 3.2.4 Other remarks and observations

The library has not previously identified itself with neurodiverse users, although it provides a variety of facilities for those with special needs. This is due to the principles of universal design, which are a guiding principle in the work of libraries and other institutions in Norway.

## **3.3 Library of OsloMet Universitetet, Oslo, Norway**

OsloMet Library (Universitetsbiblioteket) is the central academic unit responsible for providing access to research resources and supporting teaching and research. The library was developed

in 1994, when Høgskolen i Oslo was established, at a time when the existing libraries operated in separate locations. In 2011, following the establishment of Høgskolen i Oslo og Akershus, the libraries were integrated into a unified library system. With the university's attainment of university status and the establishment of OsloMet in 2018, the library was modernized and expanded its range of services, particularly in the areas of open learning, research data management, and publication support. Some solutions implemented in the library space are inspired by Deichman Bjørvika in Oslo.

Currently, the library operates in four campus locations (P32, P35, P48, and Kjeller). The library in P48 was visited on November 6, 2025, when guided tour and interview with one librarian was provided. The library offers access to book collections, multimedia resources, workspaces, and electronic materials. It provides professional assistance with literature research, citations, academic writing, and the use of research tools. The OsloMet Library is a key research resource for students, staff, and researchers at the university. What is more, it is open to the public.

### 3.3.1 Implemented solutions for increasing the overall availability of library services

The library, designed in accordance with universal design, is accessible to all users. However, those who are not students or employees of OsloMet are not permitted to access the subscription databases. The library occupies two floors of building P48. The ground floor features an open space with workstations for group work and a section of the book collection, as well as a room for quiet work with partition walls. The library rooms on the floor above are designed to resemble waves spreading across a lake – the central point is the most silent intended for individual users, while the periphery is intended for loud areas for groups. Accessibility is achieved through appropriate furniture height and an automated loan/return process. The color scheme is subdued, with wood and light hues dominating, highlighting the Norwegian nature.

### 3.3.2 Implemented solutions of particular importance for neurodiverse users

The OsloMet Library is part of the Tibi system – the Norwegian Library for Accessible Literature – which enables people with special needs (dyslexia, impaired vision, ADHD, concentration problems, etc.) to borrow traditional books in the form of talking books and e-books. Signage throughout the library is very clear and unambiguous. The tables in the open-plan space have mobile partitions that can be freely configured. If users need to work in complete silence, they can use dedicated rooms that they can reserve. The color scheme is subdued – black shelves dominate with subtle LED lighting. The main lighting is not

overpowering, ideal for work. The floors are soundproof, making moving around the library completely silent.

### 3.3.3 Barriers in implementing accessibility solutions in library spaces

The main reason is budget constraints.

### 3.3.4 Other remarks and observations

The library's solutions were inspired by the Deichman Bjørvik Library and serve as a kind of reflection. Users participated in the modernization planning process, sharing their needs. As with other libraries, OsloMet Library does not distinguish dedicated solutions for neurodiverse users but is based on the inclusive principles of universal design.

## **3.4 Hamar Bibliotek, Hamar, Norway\***

The Hamar Bibliotek was visited on November 4, 2025. During the study visit an interview with two library staff was conducted. They provided a guided tour too. The library is currently established in Hamar Kulturhus, a modern complex opened in 2014. Hamar bibliotek is formally a public municipal library, but it serves valuable support for students, especially those living in the Innlandet region or studying remotely. The library offers open access to books, periodicals, media, and workspaces. Students can access popular science literature, fiction, basic academic titles, computer stations, and quiet work areas. The library serves as an open, publicly accessible institution for residents. Furthermore, resources are available on-site to anyone interested without a library card.

The history of the Hamar Bibliotek dates back to 1887. The decision was made to establish a free public library, which opened a year later with a small collection of approximately 370 volumes. Until the 1920s, the library operated in temporary locations before acquiring its own building on what was then Torggata Street. The next major development phase came in 1986 with the relocation to a new facility on Stortorget Street. The library's contemporary character was finally shaped by its relocation to Hamar kulturhus, which provided it with significantly larger space, modern facilities, and the ability to serve as the city's central cultural institution.

### 3.4.1 Implemented solutions for increasing the overall availability of library services

The library was also designed in accordance with universal design and the principles of inclusivity. Users can enjoy an open-plan space featuring a newspaper reading room, a food court, a self-service printing service, a children's literature section with furniture adapted to the

size of this group, a relaxation area, stroller parking, and a reception desk. The library is rich in multilingual resources. The space between the shelves is sufficient for easy movement. The library offers the possibility of reserving individual or group work rooms, which are located on the floor above and are glazed.

#### 3.4.2 Implemented solutions of particular importance for neurodiverse users

The library is part of the Tibi system - Norwegian Library for Accessible Literature, which enables people with special needs (dyslexia, impaired vision, ADHD, concentration problems, etc.) to borrow traditional books in the form of talking books and e-books. The library has an extensive collection of music and audio materials and also allows users to play the synthesizer, but this is only possible with special headphones that mute the sound of instruments from the surroundings. The library's signage is very clear and unambiguous. The color scheme is subdued – black shelves with subtle LED lighting dominate. The main lighting is not overwhelming, making it ideal for work.

#### 3.4.3 Barriers in implementing accessibility solutions in library spaces

Librarians mentioned budget constraints as the main reason.

#### 3.4.4 Other remarks and observations

The library was unaware that it had solutions for neurodiverse users, as it is based on the inclusive principles of universal design.

### **3.5 Deichman Bjørvika, Oslo, Norway\***

The study visit in Deichman Bjørvika took place on November 6, 2025 and it included just self-guided tour. It is a public library that serves as the focal point of Oslo municipal library system, which has existed since the 18th century. The library is an important place for students. The library functions as a modern center for culture and creativity. Various floors house a children's section, a makerspace with 3D printers, embroidery and knitting tools, sewing machines, a recording studio, work and study spaces, a cinema, and an auditorium. A café and restaurant are also available, what emphasize library character as a social space.

The history of the institution dates back to 1785, when the first public library in Oslo was founded thanks to a donation of a book collection by philanthropist and collector Carl Deichman. Construction of the new headquarters began after Atelier Oslo and Lundhagem Architects won an architectural competition in 2009. The interior is designed as an open, airy

space with glass facades and an atrium shaft that directs light through all floors. The building spans six floors and houses approximately 450,000 volumes and a rich multimedia collection.

#### 3.5.1 Implemented solutions for increasing the overall availability of library services

The library's space is inspired by the movement of waves on a lake – most floors in the center feature dedicated quiet rooms for individual work. The periphery is noisier. These areas include areas for group work, relaxation, and more.

Opposite the entrance there is a path leading to the automatic ordering point, which is connected to the library lending point. Signage throughout the library is clear, distinct, and intuitive. The shelves housing the collection are equipped with subtle lighting. The library also has information points staffed by librarians on duty. These stations feature pictograms informing about support for people with hearing impairments.

#### 3.5.2 Implemented solutions of particular importance for neurodiverse users

Library cardholders can reserve small, soundproof rooms for individual work. The library also houses the Future Library. The Future Library is a long-term artistic and literary project in Oslo, initiated by artist Katie Paterson in 2014. One thousand trees have been planted in the Nordmarka forest, and after a hundred years - in 2114 - these trees will be used to produce paper for printing one hundred previously unpublished texts. Each year, a guest author contributes a new work to the project, which remains sealed and unavailable to the public until publication. Manuscripts are stored in a special "Silent Room", where only the authors' names are visible.

#### 3.5.3 Barriers in implementing accessibility solutions in library spaces

Barriers have not been found.

#### 3.5.4 Other remarks and observations

Although the library is not academic, it was packed with students, both in open spaces and makerspaces, as well as in the quiet study areas. The library makes an amazing impression due to the extensive resources, automated solutions, and different types of visitors.

### **3.6 Stockholm University Library, Stockholm, Sweden**

Stockholm University Library is one of the key academic libraries in Sweden. The history of the library dates back to the 19th century. Nowadays, it provides a wide range of services to the academic community, both on-site and in various remote forms, including organization of

access to the physical collection, as well as access to databases and the provision of information and educational services. The library is so popular among both academics and practitioners that it has a formal study visit program that includes a recruitment process for participants. The study visit to the library building took place on November 13, 2025 and included interviews with several librarians, participation in a meeting between a librarian and a disabled person to determine forms of support, and a guided tour of the library. The library building itself is an interesting architectural case, designed in the 1980s by the renowned British-Swedish architect Ralph Erskine. It includes detailed solutions such as a spacious hall, reading balconies and a characteristic arch-formed entrance. The building is a good example of a structure that is not new, however, thanks to conscious interior design and architectural measures, still serves the academic community well.

### 3.6.1 Implemented solutions for increasing the overall availability of library services

The library's efforts to generally increase the inclusiveness of services for various user groups have encompassed several key areas. First, all restrooms and elevators within the library are adapted to the needs of people with mobility impairments. Furthermore, the library has well-designed circulation routes and very wide aisles that allow for easy maneuvering with wheelchairs or large strollers. The library offers both group work rooms and individual work rooms, as well as "resource rooms" – rooms for individual work with adjustable desk height, wheelchair access, and specialized software installed on computers, such as various e-readers and text magnifiers. Additionally, the library also has a special room for people with allergies. The first floor of the library is designated for group work and events – users can chat, eat, and drink freely. The entire second floor, on the other hand, functions as a quiet zone which is respected by both librarians and users. The entire library is designed based on universal design principle, meaning solutions are designed to accommodate needs of specific group while simultaneously being useful to all users. The library is bright, clean, spacious, and cozy, with neutral flooring, walls, and shelves, accented with colorful furniture and other decorative elements (e.g., the art displayed in the library). It creates a welcoming atmosphere—the library's appearance encourages visitors to use it. The library conducts systematic user studies via interviews, surveys, a request box, etc., and user requests are implemented in practice both in the design of library spaces and in the planning of collections and services. For instance, collections are purchased solely based on suggestions submitted by users, demonstrating a strong focus on users' real needs. This policy - although it may spark some controversy - gives

librarians the opportunity to meet the needs of diverse groups, including specific linguistic and cultural needs of particular groups. Librarians are constantly expanding their knowledge about diversity. Training sessions on inclusivity are organized for this purpose two or three times per year.

### 3.6.2 Implemented solutions of particular importance for neurodiverse users

Among the library's initiatives that may be particularly useful for neurodiverse individuals, librarians most frequently mentioned:

- quiet zones allowing overstimulated users to rest
- rooms for individual work allowing users to focus better and avoid getting overwhelmed
- signposts to facilitate orientation within the library
- Talking Books – a flagship project implemented in all Swedish libraries – books read by human narrators or AI and made available to people with disabilities. The program is very popular, and many neurodiverse individuals use it. For example, individuals with ADHD have reported that they can concentrate more easily when they can see and hear the text simultaneously.

### 3.6.3 Barriers in implementing accessibility solutions in library spaces

Among the barriers hindering the introduction of more inclusive solutions, librarians mentioned primarily financial factors, e.g. lack of funds for general renovation works, staff shortages and a heavy workload for librarians, as well as space constraints, which prevented, for example, the creation of more rooms for individual work.

### 3.6.4 Other remarks and observations

The library has a flat organizational structure. The director and a seven-person board constitute the management setting the overall vision and providing financial and organizational resources. Individual departments, each composed of several people, operate without any managers or even working leaders being democratically self-organized. This management model is based on collaborative and participatory solutions developed by librarians often with strong cooperation with users.

The library maintains good cooperation with the Department for Persons with Disabilities. It's worth noting that in Sweden, a strictly medical perception of neurodiversity prevails – it is

officially classified as a disability, which the librarians perceived as positive, as all public institutions are legally obligated to care for people with disabilities. They emphasized that viewing neurodiversity as a disability doesn't have negative connotations.

### **3.7 KTH Library - Royal Institute of Technology, Stockholm, Sweden**

The KTH Library is the academic library of the Royal Institute of Technology. It is a good example of a library with a specific collection profile that is related to the technical university's educational agenda. In addition to the standard types of resources and services typical for academic libraries, KTH library also offers services related to the specificity of research conducted at the university, for example, it emphasizes support in the process of obtaining patents, using technical standards or creating data visualization. The library is an interesting case study because it is currently undergoing a transformation of its space, planned for 2025-2027. The goal of the changes is to create an open, accessible, and flexible space. The study visit to the library building took place on November 14, 2025.

#### **3.7.1 Implemented solutions for increasing the overall availability of library services**

The library has a modern, industrial look, warmed by cozy textiles and colorful furniture. It is an interestingly designed, inspiring, and welcoming space. The entire library have been aesthetically, carefully and purposefully design and decorated. Universal design principle is seen by librarians as a standard solution that should and is implemented in practice in every library. Although, the structure of the building is quite unusual, there are clear signposts and legible markings everywhere, also in English which makes it easier to navigate around the building. Like any Swedish library, anyone can simply walk into the KTH library with their own laptop and spend time there, even without being a user. The right to use libraries – including academic libraries – is available to everyone, regardless of citizenship or other formal criteria. The library organizes numerous events aimed at various audiences, including meditation workshops, a craft club, language workshops, and more. The library conducts systematic UX studies with users—exploratory walks, interviews, functional testing, brainstorming sessions, and more. Research findings are often implemented in practice. The library has accessible restrooms and elevators. The library offers "resource rooms" with special software, such as for the visually impaired, and special collections, such as Braille books. Many librarians are familiar with basic simplified sign language.

### 3.7.2 Implemented solutions of particular importance for neurodiverse users

The library maintains a strong partnership with the Department for Persons with Disabilities, which also offers rooms where neurodiverse individuals, including library users, can relax when feeling overwhelmed. Activities of particular importance to neurodiverse people implemented directly in the library include:

- quiet work zones taken very seriously
- use of sound-absorbing textiles
- clean desk policy – only essential items on surfaces, e.g., a lamp, nothing else
- Talking Books project
- signposts, in the past librarians also tried colored dots on the floor, but it didn't work – the poor quality of the markings meant users didn't notice them and they quickly wore out,
- simplifying some messages and striving to clear the library space of unnecessary stimuli and objects,
- during user events and library training, paying close attention to the way content is presented, e.g., providing a presentation plan and its timeline in advance, speaking and showing on a slide simultaneously (linking image and sound), simplifying colors and some messages,
- plans for the future include developing a library guide that allows neurodivergent users to plan ahead their visit, which can reduce stress and a project offering users haptic enhancements to facilitate learning (e.g., educational materials in the form of models).

### 3.7.3 Barriers in implementing accessibility solutions in library spaces

Barriers to implementing more inclusive solutions are mainly related to the building itself, which was originally designed not for the library but for industrial needs (designing and testing ships). Interestingly, the library's design doesn't clash with the original structure but embraces it. The former courtyard has been roofed and serves as a beautiful reading room, former silos have been converted into rooms, former laboratories into workspaces, and so on. The librarians emphasized that a thorough reconstruction of the building and adapting it fully to the library's needs would involve significant costs - therefore, financial issues are also a barrier. Nevertheless, ongoing renovations and adjustments are carried out as financially possible and on a smaller scale.

### 3.7.4 Other remarks and observations

The library also collaborates with library associations and networks to exchange experiences and provide training in accessibility and inclusivity. Librarians are encouraged to pursue lifelong learning and feel empowered to do so. Every librarian signs a declaration in their employment contract stating that they will not discriminate against anyone, including based on health status, and this is taken very seriously.

## 3.8 Library of University of Helsinki (Kaisa House) and Aleksandria Learning Centre

The University of Helsinki Library is the central academic library of Finland's largest research university. Its main building, Kaisa House, together with the newly modernised Alexandria Learning Centre, forms an integrated learning ecosystem combining traditional academic library functions with contemporary, user-centred study environments. The institution follows the University of Helsinki's equality and diversity strategy and applies formally adopted *safer space principles*, co-created with students in 2023. These principles shape behaviour, communication, and service delivery across all physical and digital spaces of the library.

### 3.8.1 Implemented Solutions for Increasing the Overall Availability of Library Services

Helsinki University Library has developed a comprehensive and coherent approach to accessibility, welcoming all users and ensuring that learning, research, and participation are possible regardless of background, identity, or ability. This approach is reflected both in policy frameworks (safer space principles) and in the architectural and functional characteristics of the library buildings.

The library implements safer space principles in all facilities and events. These principles—created jointly with students during workshops and through an online consultation in 2023—are displayed throughout the building, including group work rooms, hallways, and toilet facilities. Anyone renting or booking library spaces must adhere to them. The principles emphasize inclusivity, respectful interaction, and the prevention of harassment or discrimination, forming part of the broader institutional framework for responsible and equitable academic culture.

Kaisa House exemplifies modern sustainable (“green”) architecture designed to maximize natural light, provide acoustic comfort, and ensure energy efficiency. Three floors above ground and one underground level (-1) create a vertical, visually interconnected environment.

Key observations include: natural lighting (extensive glass façades illuminate all levels, reducing sensory fatigue); acoustic balance (sound dispersion prevents noise accumulation despite high user density), a monochromatic, calm aesthetic (white surfaces, light wood, and soft visual textures promote comfort), clear orientation (intuitive circulation paths, supported by a distinctive spiral staircase, make navigation simple), visible, well-organised support services (information materials and a help desk are present immediately upon entry).

Even during a high-traffic periods the space remained comfortable, non-overwhelming, and conducive to study.

The Alexandria Learning Centre extension, opened in 2024, operates as a 24/7 learning environment accessible to university students. Key characteristics - four floors organized around central lobbies functioning as flexible social and study hubs, multi-purpose study rooms easily bookable via QR codes, an open kitchen and meal area accessible to all users, multiple types of seating and work zones supporting individual and collaborative learning, a strong emphasis on everyday usability rather than monumental design. These elements support continuous study routines, enabling users to choose the environment best suited to their needs at any given time.

### 3.8.2 Implemented Solutions of Particular Importance for Neurodiverse Users

The University of Helsinki systematically incorporates accessibility and neuroinclusivity into its architectural, behavioural, and service frameworks. While the library does not use separate neurodiversity suites, its approach aligns with international standards for neuroinclusive higher-education environments. Both Kaisa House and Alexandria Learning Centre provide clearly structured spatial logic, reducing cognitive load, minimal visual noise, relying on neutral colour palettes and limited decorative elements, multiple sensory zones, bright, open spaces for high-energy work, dimly lit nooks for calming sensory environments, high-quality acoustic design reducing overstimulation, predictable circulation paths supporting orientation and reducing stress.

In Alexandria in particular users may adjust lighting (from analytical bright white to warm,

calming light). There are rooms for rest and quiet regulation, featuring soft lighting and minimal stimuli. Varied seating options allow users to adopt preferred work postures (sofas, stools, soft poufs, traditional desks). Clear guidelines for respectful interaction reduce social uncertainty—a salient factor for many neurodiverse individuals. The library environment provides autonomy, predictability, sensory choice, and behavioral clarity—key components of neuroinclusive design.

### 3.8.3 Barriers in Implementing Accessibility Solutions in Library Spaces

Based on observations and the architectural characteristics of the facilities, the following barriers were identified. Kaisa House, although modern, is architecturally significant and highly distinctive. Large-scale rearrangements may be restricted due to architectural integrity requirements and high renovation costs. The existing spatial layout—especially extensive open voids—limits the possibility of building additional enclosed quiet rooms without altering structural elements. Accessibility solutions requiring advanced technological equipment or construction modifications compete with other university priorities.

Both Kaisa House and Alexandria are heavily used. Sustaining consistent quiet or sensory-safe conditions in open study areas may therefore be challenging during peak hours. Despite these constraints, both buildings are regularly updated, and accessibility improvements are integrated into continuous planning cycles.

### 3.8.4 Other Remarks and Observations

The University of Helsinki Library and Alexandria Learning Centre jointly form a coherent and welcoming academic ecosystem grounded in inclusivity, user-centred design, and responsible interaction. The environment feels warm, open, and safe.

Additional observations include:

A highly intuitive spatial flow encouraging natural movement across floors. A strong sense of “everyday academic life” in Alexandria, where studying, eating, resting, and collaboration coexist organically. A coherent atmosphere: from materials to lighting to behavioral norms, all elements contribute to reducing stress and supporting productive work. A visible commitment to accessibility as a routine practice, not a stand-alone project. The library stands as a compelling example of how policy (safer space principles), architecture (green, sensory-

considerate design), and ongoing participatory processes (student involvement in policy formation) can form a unified ecosystem where users truly remain at the center.

### **3.9 Aalto University Library & Harald Herlin Learning Centre**

The Aalto University Library, operating as part of the Harald Herlin Learning Centre, is one of the most recognizable academic learning environments in Finland. This is the central academic library serving a multidisciplinary university known for its focus on technology, design, business, and the arts. The building underwent a major transformation completed in 2016, reshaping it into an open, inclusive, and user-centered academic space designed to support learning, research, and collaboration. The Learning Centre is a flagship example of user-centered library architecture, interior design, and service provision. It has undergone significant renovation in recent years—transforming formerly dense, multi-level library floors into a spacious, open, and sensory-balanced environment oriented around flexibility, wellbeing, and collaborative learning. The Learning Centre forms part of Aalto University’s pedagogical and architectural vision, which prioritizes open structures, collective responsibility, and non-hierarchical organizational models.

#### **3.9.1 Implemented Solutions for Increasing the Overall Availability of Library Services**

The Learning Centre offers a broad range of services supporting study, research, and accessibility. Notably, it cooperates with Celia—the national center for accessible literature—to provide accessible coursebooks and materials for students with print disabilities. Aalto University conducted a major spatial transformation by removing an entire intermediate floor on the lower level of the library. This intervention created a tall, open space characterized by abundant air, light, and visual clarity. The result is a breathable, non-overwhelming environment that enhances cognitive comfort and supports long periods of focused study.

Key features observed include: high vertical space enabling natural light distribution and reducing visual compression, soft seating and lounge arrangements encouraging both individual work and informal social interaction, a sleeping capsule, which was in use during the visit, indicating student acceptance and the library’s openness to wellbeing-oriented features, study rooms of various types—single-user rooms, fully glazed collaborative rooms, and more enclosed, intimate spaces.

The spatial zoning of the Learning Centre has a simple logic. Louder, more dynamic study zones are located closer to circulation paths, while quieter areas are positioned deeper within the building, allowing users to select environments that match their working style.

The library includes an in-house café, supporting longer study sessions. Modular tables and well-distributed lighting enhance ergonomic and functional flexibility. Hanging white lamps arranged at varying heights create aesthetic continuity while reinforcing a calm learning ambience. The overall design favors low barriers to use, allowing students to engage with library resources without complex procedures or spatial constraints. The effect is a functional, user-responsive academic environment aligned with Aalto University's learning philosophy.

### 3.9.2 Implemented Solutions of Particular Importance for Neurodiverse Users

The Learning Centre employs multiple strategies aimed at supporting neurodiverse users, although some are still being developed or require improvement. The redesigned lower level, with its high ceiling, natural lighting, and open layout, reduces sensory clutter and supports calmer cognitive states—a key element for many neurodivergent users. Seating is varied, allowing users to choose spaces with different degrees of enclosure, lighting, and social exposure. Quiet zones are clearly separated from collaborative or noisier areas, enabling users to regulate sensory input.

The color palette, despite initial contrast (rose flooring vs. black-and-white walls), is deliberately muted and non-stimulating, promoting sustained focus.

Aalto University provides accessible coursebooks, including structured texts, digital formats, and materials compatible with assistive technologies.

The Learning Centre offers wheelchair-accessible circulation routes, elevators and barrier-free entries, accessible study spaces and restrooms, support for screen readers and other assistive digital tools.

Inclusive design practices in user services - clear zoning of activities helps reduce unpredictability, the calming aesthetic and abundant soft seating lower sensory load. However, challenges remain: signage is placed unusually high and text size is small, which is inconsistent with otherwise user-centered design principles.

Although the Learning Centre does not currently offer as extensive a neurodiversity-specific program as some Scandinavian libraries, the direction of development clearly aligns with inclusive and neuro-affirming library design standards.

### 3.9.3 Barriers in Implementing Accessibility Solutions in Library Spaces

Despite the successful redesign, several structural and organizational barriers remain. The Learning Centre is housed in a historic building whose original structure places limitations on full-scale accessibility upgrades. Although extensive reconstruction has already been undertaken, some elements—such as signage placement or the layout of certain stairways—are not easily modifiable without significant financial investment.

While the space is modern and strongly user-centered, wayfinding signage is surprisingly difficult to read. Information boards are positioned too high and text sizes are small, which poses a barrier especially for neurodiverse users, visually impaired visitors, and international students unfamiliar with the space. This stands in contrast to the overall accessibility ethos of the Learning Centre.

Aalto University Library operates under a flat, non-hierarchical structure. Although this fosters autonomy and co-responsibility, it may also slow decision-making processes when coordinated, large-scale changes to accessibility are required. Some improvements may require central investment or coordinated oversight that is harder to execute in distributed management models.

### 3.9.4 Other Remarks and Observations

The most distinctive element of the Aalto Learning Centre is its management structure. The library does not have a traditional director. Instead, it operates through a flat organizational model in which responsibilities are distributed, and decisions are developed collectively. This governance structure is unusual in the European academic context and reflects Finland's broader institutional culture of trust, autonomy, and collegiality.

The atmosphere of trust is visible in the spatial design itself: open access, minimal barriers, and a clear expectation that users will treat the space responsibly. Staff interactions appear collaborative, and service design is approached from a user-experience perspective, prioritizing flexibility and shared responsibility.

The redesign of the building was driven by user needs rather than architectural ambition. The result is a learning environment that is open, functional, and genuinely supportive of diverse

study practices. The coherent aesthetic, ergonomic furniture, zoning principles, and accessible digital services contribute to an environment that encourages long, focused work without sensory overload.

### **3.10 Helsinki Central Library Oodi**

The Helsinki Central Library Oodi, opened in 2018, is one of the most emblematic public libraries in Europe and a flagship of Finland's people-centered approach to public services. Conceived as a "living room for the city," Oodi integrates traditional library functions with extensive creative, technological, educational, and community-oriented facilities. It serves as an accessible civic hub where residents of all ages can learn, experiment, and participate in communal life.

#### **3.10.1 Implemented Solutions for Increasing the Overall Availability of Library Services**

Oodi's design philosophy is grounded in radical openness, multifunctionality, and user empowerment. The building is intentionally structured to offer distinct yet interlinked zones that support a wide variety of learning, leisure, cultural, and creative activities. Its architecture and programming communicate a clear message: every resident should feel welcome and encouraged to explore new skills or experiences.

The ground floor functions as an informal civic plaza. Upon entering, visitors encounter a lively space filled with people playing chess, meeting strangers, waiting for events, or simply enjoying a coffee while looking out at the city. This openness fosters social mixing, spontaneous encounters, and a sense of communal belonging.

The upper levels provide an impressive array of services:

- a makerspace with equipment for digital fabrication, including 3D printing, laser cutting, and milling;
- recording and podcast studios;
- sewing and textile-work rooms;
- a computer lab where users design interiors, buildings, or prototypes;
- gaming rooms;
- meeting rooms and project spaces available for reservation;
- a family zone with a play area;

|- traditional reading rooms and extensive collections on the top floor, referred to informally as the “Book Heaven.”

These services are freely available or offered at a minimal cost, supporting Finland’s commitment to universal access to culture and education.

The atmosphere created by this multifunctionality is notable: families playing, students prototyping, adults recording podcasts, strangers engaging in friendly chess matches. The coexistence of these activities is natural rather than theatrical; visitors appear completely at ease, as though such diversity were an everyday feature of urban life.

Oodi embodies the idea of a public library as a platform for lifelong learning and democratic participation. Its flexibility, openness, and low entry thresholds significantly increase the availability of library services by dissolving traditional boundaries between users, activities, and learning modalities.

### 3.10.2 Implemented Solutions of Particular Importance for Neurodiverse Users

Oodi is primarily designed as an open and dynamic public space, but many features support the needs of neurodiverse users, whether by intention or through the architectural logic of the building. Oodi offers a spectrum of sensory environments -lively, socially dense areas on the ground floor; makerspaces and active creative rooms on the second floor; quiet reading zones and peaceful open areas on the top floor. This gradient allows neurodiverse users to choose spaces aligned with their sensory preferences. The clarity of spatial hierarchy makes the building predictable despite its diversity.

The “Book Heaven” floor, with its undulating white ceiling, natural light, open sightlines, and soft seating, functions as a low-stimulus environment that supports prolonged concentration. The color palette throughout the building is restrained and the materials are tactile but not overwhelming.

Providing access to structured digital environments (e.g., design software, controlled makerspace tools, reservation-based rooms) supports users who thrive in predictable, step-by-step learning settings. The children’s zone is designed to support both free play and calmer engagement, benefiting neurodivergent children and their caregivers. Oodi’s website provides comprehensive information on spaces, equipment, opening hours, and room reservations, supporting advance planning—an important element for many neurodiverse individuals

### 3.10.3 Barriers in Implementing Accessibility Solutions in Library Spaces

Several constraints emerge from the building's programmatic ambition and architectural design. The ground floor and makerspaces are intentionally vibrant. For some neurodiverse users or individuals sensitive to noise and movement, these zones may be overstimulating. Although the building offers calmer alternatives, transitions between very lively and very quiet areas can be abrupt.

The richness of functions may be disorienting for individuals who prefer simple, easily legible environments. Although staff support and digital tools mitigate this issue, the sheer breadth of services can create cognitive load.

Open public events, spontaneous gatherings, and mass visitor flows are central to Oodi's identity but may reduce predictability and autonomy for some users. Advanced equipment often requires prior booking or brief instruction sessions. Users unfamiliar with such systems may encounter barriers despite Oodi's emphasis on accessibility. These limitations do not stem from neglect but from the inherent tension between Oodi's ambition to be a vibrant civic hub and the need for consistently low-stimulus environments.

### 3.10.4 Other Remarks and Observations

Oodi conveys a civic ethos grounded in trust, openness, and experimentation. It feels as if the institution has received a mandate to allow people to try things without fear of failure or embarrassment. This cultural foundation is visible in how users move, interact, and engage with equipment and spaces. There is no sense of policing or hierarchy; instead, the building's logic communicates freedom, responsibility, and mutual respect.

The social atmosphere is exceptionally organic: strangers play chess, adults experiment with textile tools or digital fabrication, and readers settle into quiet alcoves. The natural coexistence of these activities creates a uniquely Finnish model of the contemporary public library as a civic engine rather than a repository.

## 3.11 Library Celia

Celia is a state-run special library whose mission is to promote equal access to reading and learning.

Celia Library creates and provides books and educational materials in formats adapted to the needs of people with reading difficulties (e.g. audiobooks, Braille books, tactile books).

Celia's services are available to people who have difficulty reading traditional books due to dyslexia, visual impairment, concentration disorders, cognitive disorders or motor problems. Access to Celia's collection is free of charge. Books can also be borrowed online via a website and an app. In addition, Celia collaborates with libraries, schools and publishers, and advises on the publication of books in formats accessible to readers with disabilities.

Celia acts as a national resource and service supporting reading and education for people with disabilities or reading difficulties, complementing the functions of traditional libraries.

Celia functions as an institution that complements traditional libraries. It provides accessible books and publications for people with reading difficulties and enables them to participate fully in educational and cultural life.

### **3.12 University Library of Vrije Universiteit Brussel (VUB)**

The Vrije Universiteit Brussel is a Dutch- and English-speaking university organized into eight faculties that fulfil its three central missions: education, research, and service to the community. The faculties cover a broad spectrum of academic fields, including the natural sciences, classics, life sciences, social sciences, humanities, and engineering. The university offers bachelor's, master's, and doctoral programmes to more than 10,000 students. It operates across four campuses: Brussels Humanities, Science and Engineering Campus (Elsene), Brussels Health Campus (Jette), Brussels Technology Campus (Anderlecht), and Brussels Photonics Campus (Gooik).

VUB was established in 1970 following the division of the Free University of Brussels, originally founded in 1834 by Pierre-Théodore Verhaegen. His aim was to create a university independent of state and church, where academic freedom would prevail. This ethos remains reflected in the university's motto, *Scientia vincere tenebras* ("Conquering darkness through science"), and its more recent slogan, *Redelijk eigenzinnig* ("Reasonably self-willed"). In keeping with this heritage, the university is pluralistic and open to all students on an equal footing, regardless of ideological, political, cultural, or social background. It is governed democratically, with all members, from students to academic staff, participating in decision-making processes.

The VUB University Library consists of three physical locations: the Central Library and the LIC on the VUB Main Campus, and the Medical Library on the VUB Health Campus. The study visit took place on 26 November 2025 in the Central Library and the Learning and Innovation Center, both located on the Elsenne campus.

I was received by the Policy Advisor to the Director of the VUB Library, who advises the Director on ensuring that the library's activities remain aligned with current legal, organizational, and cultural requirements. He acts as an interface linking the library with other entities within the university ecosystem: various administrative and research units, VUB authorities, the student community (particularly the Student Council) along with regional and federal authorities and the university's socio-economic environment.

With regard to neurodiversity, it is not explicitly referenced in the university's official mission or strategic documents. These documents do, however, emphasise the university's commitment to providing education accessible to all in the name of the common good. The primary mechanism enhancing inclusivity is the introduction of the so-called **REFLEXIVE (reasonably flexible) status**, which closely resembles the package of individual accommodations granted by the Jagiellonian University's Accessibility Centre. Beneficiaries of REFLEXIVE status may, for instance, complete coursework and sit exams under conditions tailored to their needs. All VUB libraries participate in delivering services in alignment with the REFLEXIVE framework.

The main source of insight into users' needs is the ongoing observation conducted by librarians working at loan desks and reception points. Additionally, several online surveys are carried out each year, addressing topics such as opening hours of the various branches. Solutions relating to inclusivity are also developed within numerous university dialogue forums in which the Student Council plays an active role.

The Central Library is located at the edge of the Elsenne campus, surrounded by the oldest buildings of the complex, characterised by architecture dating from the 1970s. It is a four-storey structure of moderately modern design, aesthetically consistent with the oldest part of the campus. Clear signage distributed throughout the campus facilitates access to the library. Mobility access is optimal. During the visit I toured the main reading room with open stacks, offering around 100 study places. The spatial arrangement and interior design are traditional, although users may retreat to a designated quiet study room. Works of art are displayed along circulation routes.

#### 3.12.1 Implemented solutions for increasing the overall availability of library services

The main reading room is located on the ground floor, free of stairs or architectural barriers; lifts are available, and the stacks are open-access.

#### 3.12.2 Implemented solutions of particular importance for neurodiverse users

The library does not design solutions explicitly for neurodivergent users. The spaces of the main reading room comply with general accessibility standards; however, no features are present that could be identified as specifically addressing atypical cognitive or sensory profiles.

#### 3.12.3 Barriers in implementing accessibility solutions in library spaces

The Central Library building retains the architectural characteristics of the 1970s, and full adaptation to the diverse needs of all user groups is not feasible. The complex and insufficiently human-centred spatial layout (winding staircases, long corridors, external stairways, numerous transitions between separate building sections) was one of the reasons for establishing the Learning and Innovation Center, which is discussed in the following chapter.

#### 3.12.4 Other remarks and observations

The Central Library experiences very high attendance throughout the academic year. On the day of the visit (Thursday, 1:00 p.m., during lunch hour), 80% of the seats in the reading room were occupied.

### **3.13 Learning and Innovation Center, LIC (VUB + ULB)**

The LIC is a facility jointly established and maintained by two universities: the Vrije Universiteit Brussel and the Université Libre de Bruxelles. Students of both institutions enjoy equal access. It is situated on the boundary between the two neighbouring campuses, which were connected by opening a passage through a building that had previously impeded free movement between them.

The LIC hosts the Science and Technology Library of ULB and the Science and (Bio-)Engineering collections of the VUB University Library. A course library is available in the reading room on level -1. These materials form part of the required curriculum for programmes within these faculties and are available for on-site consultation. Portions of both the ULB and VUB collections are located there; the bulk of the printed collections is stored in the LIC stacks and can be requested through the respective library catalogues, with processing times of up to three working days. Both libraries additionally provide extensive online electronic collections.

During my visit on 26 November 2025, I was able to confirm firsthand that the LIC indeed corresponds to how it is described on its official website: “The LIC offers an inspiring environment with hundreds [300] of study places, over 40 meeting rooms, and seven modern teaching spaces, all available daily from 8 a.m. to 11 p.m. It is a dynamic space designed for active, collaborative learning...”

Inclusive solutions will be described in subsequent sections; however, it should be emphasised at the outset that the LIC visibly embodies the vision articulated by the management of the VUB Central Library. According to this vision, a library is fundamentally a **social structure** built around the competencies and ideas of its librarians. Librarians employ both their professional expertise and their knowledge of users to create an alternative, fully fledged living space on campus, not only for students but also for academics and other members of the university community.

A particular tradition among Belgian students provided strong justification for creating the LIC as an exceptionally open, low-restriction environment: the **massablok** (French: *blocus*). During the exam period, students gather in large groups and either study (together or individually, but in the presence of others) or simply spend time doing activities such as crossword puzzles or colouring. This is an established, culturally respected component of student life. The LIC was developed in its current form partly to ensure optimal conditions for students to gather during massablok. It is fully acceptable for users to sleep, nap, stroll, or engage in activities unrelated to studying, provided they do not disturb others.

### 3.13.1 Implemented solutions for increasing the overall availability of library services

The LIC is not merely a library. It is a comprehensive spatial and service platform that supports all forms of group and individual learning, teaching activities, seminars, teleconferences, and various types of meetings. It also serves as a social space: one can come here to nap in the presence of others, to counteract loneliness, or even simply to sit and daydream while looking out at the greenery. In the same spirit, access to the LIC is permitted for homeless individuals. The centre’s maximal accessibility stems from genuine concern for the wide spectrum of users’ needs, especially for those who cannot study effectively at home. The centre is open daily from 8:00 to 23:00. Staff members (librarians) are present until 17:00, after which student assistants are employed from 17:00 to 19:00 (paid occupation!), which is an original form of inclusion and equal-opportunity support.

### 3.13.2 Implemented solutions of particular importance for neurodiverse users

- immersive rooms
- rest and sleeping areas
- soundproof workrooms (up to 8 people)
- individual cubicles
- isolating lounge chairs
- spaces not associated with work yet enabling it, e.g. staircases where one can sit and study while looking out the window, shielded from the view of others
- sound-dampening wall treatments
- subdued colour palette
- abundant natural daylight throughout
- absence of flickering screens
- visual notification systems on monitors and display stands
- abundance of large natural potted plants that contribute to a calming and biophilic atmosphere throughout the building; the rooftop is planted with bamboo, creating a visually soothing green canopy that further enhances the sense of tranquillity and environmental comfort.

### 3.13.3 Barriers in implementing accessibility solutions in library spaces

None observed.

### 3.13.4 Other remarks and observations

Attendance at the LIC is extremely high and remains so throughout the academic year. On the day of the visit (Thursday, 16:00), nearly all seats were occupied. The level of silence is remarkable: the average of four measurements on different floors was 26 dB (as measured by a smartphone application). As neurodiverse user, I felt safe and comfortable and confident. I would certainly use this facility for my work and in case of need for being by myself, but not alone nor isolated. Even though the VUB Central Library policy advisor who offered me a guided tour of LIC couldn't confirm that LIC conception involved architects specialised in human-centred design, I am convinced that it was the case. I presume also relevant intervention of information architecture experts.

### **3.14 Bibliothèque des sciences humaines Simone Veil, Université Libre de Bruxelles (Human Sciences Library)**

The Université libre de Bruxelles, lit. Free University of Brussels, abbreviated ULB, is a French-speaking university in Brussels. It has three campuses: the Solbosch/Solbos campus (in the City of Brussels and Ixelles), the La Plaine/Het Plein campus (in Ixelles) and the Erasme/Erasmus campus (in Anderlecht). The Université libre de Bruxelles was formed in 1969 by the splitting of the Free University of Brussels, which was founded in 1834 by Pierre-Théodore Verhaegen. The founder aimed to establish a university independent from state and church, where academic freedom would prevail. The ULB now has about 24,200 students, 33% of whom come from abroad, and an equally cosmopolitan staff. Brussels has two universities whose names mean Free University of Brussels in English: the French-speaking Université libre de Bruxelles (ULB) and the Dutch-speaking Vrije Universiteit Brussel (VUB). Neither uses the English translation, since it is ambiguous.

ULB does not have a single central library. Each library within the “ULB Libraries and Scientific Information” network is autonomous and has its own management. Their profiles do not directly correspond to the individual faculties of the university. During my visit to the Bibliothèque des sciences humaines on 27 November 2025, I was welcomed and guided by the Head of Public Services. I learned that the library has not adopted any official document (such as a mission statement, strategy, main objectives, operational agenda, etc.) in which the term neurodiversity would appear. The term is also not frequently used in discussions among the management teams of the various ULB libraries.

Nevertheless, the university has a very active unit called Support for Students with Specific Needs. According to the declaration available on its website: “ULB is committed to making education accessible for everyone. As part of its dedication to inclusive higher education in Belgium, the university provides tailored support through the ULB Student Welfare Office and ULB accessibility services. Students with specific needs, including those with disabilities, can benefit from practical measures that ensure equal access to academic programmes. ULB also offers specialised support for high-level athletes, student entrepreneurs, and student artists, helping them balance their personal paths with their studies. The goal is simple: to promote inclusive education at ULB while maintaining the high standards that guarantee the value of its degrees. Depending on their situation, a student can be recognised as having Specific Needs (SSN) for inclusive education ULB aid. This allows them to access tailored support and measures that make inclusive higher education Belgium more accessible.” The services are available to: Students with Disabilities or Suffering from Disabling Diseases, Documented

Deficiencies, or Learning Disabilities; High-Level Athlete Students; Student Entrepreneurs; High-Level Artist Students; Incarcerated Students; Expectant Students; (Future) Young Parents. “The status of Student with Specific Needs (SSN) is granted by a committee of experts based on the student’s profile. Faculties can then implement reasonable accommodations for these students, while ensuring the quality of education provided. Each faculty has contacts for SSNs who can provide support and guidance for inclusive education ULB.”

Staff from Support for Students with Specific Needs regularly visit ULB libraries, proposing the implementation of solutions tailored to the previously identified needs of different user groups. As a result of such a visit last year, the Bibliothèque des sciences humaines was equipped with noise-cancelling headphones for use in the reading rooms and open study areas. In addition, library teams draw inspiration from one another: my interlocutor is considering purchasing isolating armchairs and enclosed study pods resembling phone booths, which have already been installed in the Health Science Library and the Architecture Library.

As for conducting user needs research involving the users themselves, it turns out that an excellent source of such insight for all ULB libraries are students known as “**jobistes**”. These are students employed as full-fledged staff members in all library branches. When new solutions are being developed, including those concerning user services and space design, they are consulted, and their opinions are doubly valued: both as insights from young LIS professionals and as active students.

### 3.14.1 Implemented solutions for increasing the overall availability of library services

The building is large, consisting of four floors. The signage system is excellent: getting lost in the library is virtually impossible. High-speed lifts have been installed. There is also a separate entrance with facilities for people with reduced mobility. The only barrier between the outside world and the library is the entrance gate, which requires a library card. The guards posted there check only whether visitors are bringing in food. Otherwise, users may enter the library with coats, backpacks, and bags. Accessibility is further enhanced by an electronic reservation system for reading room seats and group study rooms. This is particularly important because the library is crowded throughout the year: on the day of my visit, nearly all seats across the three floors of reading rooms, each of which is split into two levels (a lower level and a mezzanine) and offers open-shelf access, were occupied. Until recently, specifically until last year when the LIC opened, the library was the only study space of this scale in all of Brussels, attracting students from all nearby higher education institutions. The crowding was so intense that the library restricted access to ULB students only.

### 3.13.2 Implemented solutions of particular importance for neurodiverse users

- rest and sleeping area
- soundproof workrooms (up to 8 people)
- sound-dampening wall treatments
- subdued colour palette
- abundant natural daylight throughout
- absence of flickering screens
- artwork displayed in common areas and circulation spaces

### 3.14.3 Barriers in implementing accessibility solutions in library spaces

Difficulty in securing quiet study spaces for neurodivergent users during periods of heavy library traffic (practically full occupancy throughout the day).

### 3.14.4 Other remarks and observations

At the Bibliothèque des sciences humaines, as at VUB and LIC, I was able to observe how *blocus* works. My host explained that although the examination session officially starts on 24 January 2026, students are already receiving an increased number of continuous assessment tasks to complete and must also study intensively for their exams even while they still have classes. According to long-standing custom, they choose the library as their place of study, which means that nearly all seats are taken. It is a remarkable sight, and the pervasive silence (below 30 dB) is equally striking. My overall impression of this site is excellent. I could not find any single element which would repel me from working long hours in this space.

## 4. Conclusions

### 4.1 Key activities and practices in creating accessible spaces for neurodiverse users

To summarize and generalize, the most useful universal design solutions for neuroatypical users, are:

- creating quiet zones, allowing overstimulated users to rest,
- creating individual workspaces, allowing users to focus better and avoid being overwhelmed,

- using high-contrast signposts for easier orientation in the library and apps for spatial orientation, as well as sharing maps and apps for navigating libraries,
- providing access to audiobooks,
- using sound-absorbing textiles, increasing sound comfort in the library,
- implementing clean desk policy: only essential items are present on surfaces, striving to clear the library space of unnecessary stimuli and objects,
- during user events and library training, paying special attention to the way content is presented, e.g., preparing a presentation plan and schedule in advance, speaking and showing on a slide simultaneously (combining image and sound), simplifying colors and some messages.

#### 4.2 Potential areas for improvement in the functioning of university libraries - recommendations

- applying universal design approach in the process of planning and redesigning library spaces,
- providing sensory navigation tools, for instance tactile maps,
- integrating library services with services supporting the learning process,
- increasing the number of quiet zones and places enabling sensory regulation,
- developing strong cooperation between academic libraries and universities, especially with academic teachers working with neurodiverse individuals and with accessibility departments,
- developing a network of cooperation between academic libraries and professional associations: exchanging experiences and good practices, creating systems for lending resources and equipment and jointly developing solutions.



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