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Better Access to Academic Literature Towards a new Norwegian Model for Universally Designed Teaching Materials

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Better access to academic literature

Towards a new Norwegian model for universally designed teaching materials

Introduction

The purpose of this paper is to describe possible approaches to achieving universally designed teaching materials in higher education. In 2016 the Norwegian Ministry of Culture and the Ministry of Education and Research commissioned a survey on access to academic literature from The Norwegian Library of Talking Books and Braille (NLB) and Universell. This paper will look at key points on important developments in our environment as explored in the report, and present the analysis and recommendations that follow. Finally, the paper will discuss some possible strategies to meet the changes implied in the report.

Since this is a process quite recently initiated by the Norwegian government, this paper does not claim to be NLB's official strategy for the near future. However, we believe the issues discussed in this paper can be relevant and useful to many practitioners within the field of accessible text and teaching materials at this point in time, and we think it is important that agencies like NLB are on the ball so that we can influence the development in a positive way.

About NLB

First, we would like to present NLB and how we work today to ensure that students with print disabilities have accessible literature.

NLB is a state funded library under the Ministry of Culture, and bears the national responsibility for making literature accessible to people with print disabilities. NLB produces and lends out e-books and talking books, both with professional narrators and text-to-speech synthesis (TTS). We also run a print-on-demand braille service. In addition to fiction and non-fiction for all age groups, we also produce and distribute textbooks and article compilations in accessible formats for students at universities, university colleges and vocational schools. We have an annual budget of approximately 6 million euros. This enables us to both maintain a substantial production and to develop new technical solutions for our patrons. NLB employs a workforce of around 40 people. In addition, we utilise the talents of 55 freelance narrators.

Today, blind and partially sighted students are entitled to production of textbooks. This means NLB will produce all or parts of their curriculum on demand in a suitable format. Students with other print disabilities such as dyslexia or ADHD can borrow textbooks that already exist in NLB's archive. Currently there are 70 active students registered with a right to production of literature at NLB. We produce most of the academic literature with text-to-speech synthesis (in 2017 it was 92%), but some books will be deemed necessary to record with a human narrator. The number varies, but the production of human narrated textbooks has seen a steady decline, with only 33 titles in 2017.

NLB's production flow sees EPUB¹ as the source file for the production of all our formats. Occasionally NLB will get access to EPUB files from the publishers directly, but most of the time we will send OCR-treated² PDFs to sub-vendors in India who deliver marked-up EPUBs in return. Through a set of

¹ EPUB is an e-book file format that can be downloaded and read on devices like smartphones, tablets, computers and e-readers. EPUB is the most widely supported vendor-independent XML-based e-book format, and allows for a high degree of accessibility.

² OCR: Optical Character Recognition: electronic conversion of images of typed, handwritten or printed text into machine-encoded text.

automatic processes and some degree of manual work the EPUB can become a print-ready Braille file in PEF format³, a text-to-speech synthesis talking book, a record-ready project-file for a narrator, or it can be made available as it is, as an e-book.

Today, students with print disabilities contact NLBs student services directly. Students with right to production will order books from their curriculum, and to a large extent get to decide in which format. Most students prefer TTS both because of the shorter production time and because it gives them access to the digital text. The downside to these productions is the lack of alternative text to non-textual elements - image description is currently only incorporated in our human narrated talking books. If we record the talking book with a narrator, the production will meet more criteria for universal design⁴, but it will take longer, it will be costlier and it will not give the student access to the digital text.

Survey on access to academic literature

As mentioned, the Norwegian Ministry of Culture and the Ministry of Education and Research commissioned a survey on access to academic literature from a working group consisting of personnel from NLB and Universell. Universell is the national coordinator of accessibility of higher education in Norway, and is a state funded organisation under the Norwegian University of Science and Technology. NLB and Universell were asked to suggest concrete measures to ensure that anyone with a print disability can access academic literature. The survey focused on these questions: if we were to expand the right to production to include anyone with a print disability - a moderate estimate suggests this could mean five times as many students, what would the consequences be? Which units within the educational institutions would naturally play a part in making literature and teaching materials accessible? What would be a logical division of responsibility between NLB and those units? How could we best manage the logistics of this new situation?

The working group was asked to consider what NLB could learn from how other countries organise their work on accessibility, particularly our neighbours Denmark and Sweden, and also offer perspectives on how the Norwegian model could be structured differently to reduce the need for accessibility adjustments. The report should suggest and consider different solutions with regards to costs and expediency.

To ensure a comprehensive understanding of the current situation, the working group organised three separate questionnaires to obtain experiences from students, librarians and disability advisers at the educational institutions. The working group also visited our sister libraries in Sweden and Denmark, and contacted publishers, relevant NGOs and special interest groups to get their input.

General developments within higher education

The report (Ellefsen, Engh, Knarlag, Kummeneje, Nygaard & Olaussen 2017) describes some conditions that will affect students' access to academic literature both short- and long-term. It highlights developments within higher education curriculum, treaties on exchange of accessible literature, digitisation, mergers in the higher education sector and some changes to legislation regarding universal design and text. We will now take a closer look at these points.

³ PEF- Portable Embosser Format.

⁴ Difi - The Norwegian Agency for Public Management and eGovernment encourage conformance to the Web Content Accessibility Guidelines 2.0 from World Wide Web Consortium W3C as the standard for universal design regarding information and literature.

The report builds on several Norwegian surveys (The Norwegian Association of Higher Education Institutions, 2011; Schwach & Mæsel, 2013; Christie, Karlsen & Riis, 2014). Schwach & Mæsel (2013) find that printed books make up 75% of the titles in the curriculum, and 95% of the number of pages. The remaining percentage is mainly made up of individual articles and compilations put together at the educational institution. Schwach & Mæsel (2013) also point out that approximately 26% of the curriculum exists in a digital format, but do not specify whether the material is actually available to the student through services at the institution, nor whether the material exists in an accessible format. One of the Norwegian academic publishers claims that e-books are not very sought-after and that the printed book will continue to lead the market. However, one must keep in mind that there is an economic side to this for the publishers, and that the students might not be aware of how they could benefit from accessible formats.

Through various international treaties NLB can lend out accessible versions of academic literature produced in other countries, for example through the ABC Global Book Service. NLB will pay the membership fee for any of our patrons who wishes to access the American digital library Bookshare. Norway is planning to ratify the Marrakech treaty by 2019, and if/when big players like USA and EU ratify, it will be easier to make accessible foreign language materials available to Norwegian students. Exchange treaties, especially with English-speaking countries, are particularly important in higher education, where so much of the literature is in English. The survey from 2011 found that in Norway English materials make up 30% of the curriculum.

The increase in digitisation of society in general has the potential to bring about better accessibility. The effect will be even more beneficial if digitisation is based on principles of universal design. The e-book can serve as an example from within the publishing industry. Many publishers have embraced the EPUB format, which can greatly reduce the workload to make a publication accessible. The format is not inherently accessible but it makes accessibility possible. If publishers also take into account criteria for universal design, their publications can be born accessible.

Some educational institutions have made efforts to digitise compilations of articles, but the degree of accessibility varies significantly. Often staff will scan the compilation and make it available in PDF format, but without running it through OCR software, rendering it inaccessible to students who use assistive technology like screen readers or refreshable braille displays. One of the university libraries contributing to the survey reported from a project charting the possibilities of producing universally designed article compilations in-house. Their experience suggested it would be a resource-intensive task.

Articles from digital journals have only made up a modest percentage of Norwegian curriculums. Some articles have been available to students through subscription services at the university, but to varying degrees accessible through assistive technology.

Generally speaking, the educational institutions' in-house digital publishing services meet criteria for accessibility, but so far the amount of materials published here is limited.

The report also points to some challenges regarding the educational institutions legal limitations to buy and lend out e-books, that e-books are not inherently accessible, and that some e-books can have DRM⁵ protection that render them inaccessible to assistive technology.

⁵ Digital rights management (DRM) is a set of access control technologies for restricting the use of copyrighted works.

In Norway all educational institutions have a statutory responsibility to cater to students with special needs. Often there will be a team or person responsible for facilitating for accessibility at the place of study. In a short period we have seen many mergers in the Norwegian educational sector – 33 universities and higher education institutions have been reduced to 21. The report suggests that this will have consequences for how accessibility work is organised at the institutions.

The report refers to the new Equality and Anti-Discrimination Act, which came into effect January 1st this year. The changes to this law extends the scope of the paragraph concerning universal design of Information and Communication Technology (ICT) to include digital teaching materials through all levels of education. It states that universally designed ICT shall be the main solution, and that the right to individual adjustments should only function as a supplement where universal design for various reasons is not feasible. In the introductory provisions of the act, the section on purpose states: “This Act shall help to dismantle disabling barriers created by society and prevent new ones from being created”. We would like to draw your attention to the use of the term disabling about structures in society rather than the term disabled about people.

Although not part of the report, we would also like to mention the proposed European Accessibility Act, currently in its final stage of negotiation. The Accessibility Act sets out common accessibility requirements for certain products and services across the EU, the e-book being one of them.

[How does today's model for accessibility fare?](#)

The Norwegian model is based on NLB holding the national responsibility to produce accessible academic literature for print-disabled students. Librarians and disability advisers in higher education will guide the student to contact NLB's student services, who will serve the student throughout their education. Students who are blind or partially sighted are entitled to production of textbooks, while students with other print disabilities can borrow accessible literature from NLB's collection, but cannot order new titles. The report questions this division, and emphasises that the need for adjustments can be similar across diagnoses, and varying within the same. For example, persons with ADHD can describe difficulties understanding text visually, which is similar to descriptions given by many persons with dyslexia.

With mergers, organisations grow larger and are spread geographically further apart, across more campuses. A possible consequence can be that learning centre services are also split into smaller units and spread over a large geographical area. If the services are organised in a systematic and uniform way, mergers could mean a change for the better. There are, however, no formal requirements as to what services the institutions should offer, or how the services should be organised. This means that the level of ambition and the concrete content of the services are defined locally. The working group finds that this leads to varying quality of the services between and across institutions.

Some university libraries offer scanner stations, where the student can scan their own books and run them through OCR and TTS software. Many students express frustrations and report that they rarely choose to use the service. Students also stress that although articles and compilations exist in a digital format, they are often inaccessible to assistive technology. University librarians assist students in their search for e-books and electronic journals, but many stress that they lack the expertise to judge whether an e-book is accessible or not. In the survey, personnel at learning centres also report a limited understanding of Universal design in ICT and accessibility for students with print disabilities. Many campuses offer study skills courses, and can offer individual advice on planning and time management. Some learning centre staff also report that they have tried contacting publishers

directly to get hold of study materials in PDF or e-book formats, but describe the effort as time-consuming, difficult and often fruitless.

Recommendations

Before we take a look at the recommendations from the report, we would like to present a hypothetical example of a student experience. The student has a disability that makes printed text a barrier. At the learning centre the student meets an adviser who does not know enough about print disabilities, accessible literature and the possibilities assistive technology can offer. Engaging with the support service becomes a second barrier. The learning centre offers to show the student how to operate the scanner station and OCR-software, so that the student can make the text accessible in a digital format. So the student has now been asked to do the adjustments needed him- or herself. When the student clearly expresses that this is a time-consuming and difficult extra bit of work, even the measure we have put in place to help, has become a barrier. If we then imagine the student contacting NLB only to be told that their diagnosis does not qualify for the right to production of study materials, we know from the report that many voice their frustrations over being defined as “not disabled enough” to access NLBs services. The sum of all this is a series of disabling barriers for the student, and the paradox is that the text the student is trying to access has existed in a digital format at the publishers to begin with.

The report ends up recommending a change in the external conditions, a different approach, to achieve accessible academic literature. One of the suggestions is to impose a demand that Norwegian publishers must make available accessible e-books for all published titles. The educational institutions should be instructed to make article compilations in a uniform and accessible way. Libraries in higher education should demand accessible formats when subscribing to digital journals. The report stresses the importance of the Marrakesh-treaty and urges Norway to ratify swiftly.

Furthermore the working group recommends radically expanding the right to production of academic literature to encompass all students who qualify to borrow books from NLB whether they are enrolled at universities, university colleges and vocational schools, from one-year units to PhD. The working group proposes that the educational institutions are in charge of the individual service to the student, while NLB collaborates with the libraries at the institutions. Materials that are published through higher education publishing channels must meet criteria for universal design. NLB should make books and compilations of articles accessible to a standard that meet the needs of as many students as possible. NLB can make adjustments to fit the needs of an individual student, but if and how should be for NLB to decide. Course material should be made available to enable both students and disability advisers to utilise the possibilities in formats and assistive technology, including study skills using talking books.

The report concludes that the recommended model will lead to a significant increase in the number of students with a right to production, an increase in the number of services the educational institutions should offer, and an increase in the number of productions at NLB.

Possible strategies for the near future

If NLB as the report suggests opens up the right to production to five times as many students, a pressing matter will be how to handle a significant increase in production. And how can we meet criteria for universal design when we see that we cannot prioritise this fully within the current infrastructure?

Today, NLB and similar agencies work to retrofit publications with accessibility, we fix it in post-production. But if we can imagine a society where products and services are universally designed,

agencies like ours could concentrate on making special adjustments for the few occasions where the main solution is not sufficient.

With this in mind we find it exciting that the first thing the ministries do in response to the report is to initiate a dialogue between NLB and the publishers. They have clearly picked up on our signal that since the book at some point during production must have existed as a digital file, it is only natural to look into what can be solved at the source. Concretely the Ministry of Culture and the Ministry of Education and Research have asked NLB to meet with the trade organisation The Norwegian publishers association and look into what can be done to deliver born accessible publications.

That universal design with regards to text is starting to find its way into legislation, will hopefully have the effect that publishers will be held liable and will need to acquire new knowledge within the field. This puts agencies like NLB in an important position where we will be able to share our expertise to contribute to publishers exploiting all the possibilities in accessible formats like EPUB. We might have to take a more active role in establishing good practices, because guidelines in themselves “doth not a practice make”. It will take a broad and coordinated effort to guide these developments in a direction where the legislation works as intended; to build an inclusive society where everyone has equal access to information and literature.

How can we, as authorities in the field, best contribute to this development? It would make sense that NLB and our sister organisations assist publishers and content producers to organise their production lines so that accessibility is a built-in feature. Perhaps we should be offering courses to authors, illustrators and graphic designers to help them develop universally designed products. We can help build an awareness that online-resources need to be accessible and available also in the future, and we can try to make publishers see both the ethical and economic value of addressing a larger audience.

The work can be about offering librarians and disability advisers in higher education training on how to make articles, compilations and digital teaching platforms accessible. We can teach relevant personnel how to use assistive technology, so that they can offer support to students who experience technology as a barrier. We can offer courses on image descriptions for when publications are not in accordance with guidelines. When relevant personnel produce image descriptions we can both see to it that these are incorporated in an accessible version of the book, and also make sure the publisher keeps a record in the event of a future revision.

Agencies like NLB can offer insights to developers of technical solutions like EPUB readers, and make sure that the solutions can handle content in a way that benefits the users.

Many of the points above relate to developing course material. Agencies like NLB will have to document our expertise on accessible information and literature to agencies outside the specialist field in a user-friendly way. Such a process might even lead to a higher level of consciousness within our own field. Could it mean that our role in society is changing? May we have to prepare our organisations for new tasks?

Conclusion: a shift of perspective?

The report we have presented shows that many things within the Norwegian infrastructure for accessible academic literature does not work as intended. The educational sector is obliged through legislation to offer accessibility services to students, but we see that practice and quality varies.

A large group of students do not have immediate access to the literature they need, and rely on learning centres and agencies like NLB to make content accessible to them. We have seen that

students experience several barriers within the educational system. How can we dismantle these barriers?

Maybe we should promote a shift of perspective? Maybe it is time to let the old saying “if only we could get the files from the publishers” go, and instead show the publishers how to do it. As Caroline Manis and Huw Alexander (2018) point out in their case study from accessible publishing at SAGE, accessibility has long been associated with something secondary, an add-on that benefits a small group of users – a niche service. But if we can change the understanding of the term to mean a better user experience for everyone, accessibility will become something critically important which one should hurry to implement, it becomes an investment. If we continue retrofitting accessibility, making post-production adjustments for a group defined by disability criteria, one could ask whether we are sustaining an unnecessarily costly production line. These adjustments could benefit everyone, and should perhaps be part of the original work. By keeping up this practice, we also maintain the idea of otherness, which is a barrier in itself.

With born accessible publications, agencies like NLB could concentrate on being a real niche service, where we use our accessibility expertise to offer special adjustments to those students who for some reason cannot benefit from the main solution.

Society sees the value of inclusion and equality, and with new legislation they have taken measures to achieve universal design, also within the field of information and literature. We think that the most important task ahead will be for agencies like NLB to secure that development happens according to the intention of the legislation.

The legislation brings about an overlap in our objectives: we work to ensure everyone has equal access to information and literature, publishers will want to publish books that are accessible. Traditionally, our expertise has only been important to the group we have served, but now an entire industry could be interested to take part in it. If we stay alert, we will be able to contribute to establishing a beneficial interplay between relevant agencies, and position ourselves so that the hub of the accessibility ecosystem is where the competence lies. It could mean that we need to start preparing our organisations for new tasks, and perhaps we would benefit from seeing ourselves less as production environments and more as centres of expertise.

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