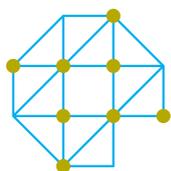


Vision document Educational resources in 2025

An optimal mix of educational resources
in 2025, with building blocks to help
compile and use this mix



Acceleration plan
Educational innovation
with ICT

 digital educational resources



Vision document Educational resources in 2025

An optimal mix of educational resources in 2025,
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Acceleration Plan for Educational Innovation with IT –
Towards digital (open) educational resources zone
Authors: Gerlien Klein, Gaby Lutgens, Lieke Rensink,
Robert Schuwer, Kirsten Veelo, Hilde van Wijngaarden



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Version: 2.0
19 October 2020



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Summary

The Accelerating together zone asked the Towards digital (open) educational resources zone to develop a vision for digital educational resources for 2025.

The vision is summarised in eight vision statements:

1. Each higher education institution has a vision regarding the acquisition, management, use, and sharing of educational resources that reflects its educational vision.
2. Staff members who are directly involved in education in the institution (lecturers and support staff) are aware of, support, and, where possible, implement this educational vision.
3. The appraisal system recognises and rewards lecturers who incorporate this educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes the open sharing and reuse of educational resources.
4. The choice of and demand for educational resources reflect the educational vision of the institution/department. The educational resources serve to achieve the educational vision.
5. Each institution has an organisational infrastructure in place that includes a support infrastructure to enable lecturers and students to compile and use their optimal mix of educational resources. This includes sufficient time for lecturers and support staff.
6. A technical infrastructure is in place – nationally or per institution – that allows user-friendly access to all digital educational resources for higher education through a single portal in the personal learning environment. This includes open, semi-open, and licensed educational resources (from publishers). User privacy is guaranteed and the institution has ownership of the user data.
7. Educational resources and licences are purchased jointly or by individual institutions, under terms and conditions developed by the individual institutions or collectively.
8. A national set of agreements is drawn up with suppliers of educational resources regarding privacy, standards, and user data. At a minimum, these ensure that institutions have access to data relating to the processes concerning access to and the use of digital educational resources.

Five building blocks are described that are needed to ensure that these vision statements become reality:

1. Vision and organisation
2. Financial model
3. National set of agreements with suppliers of educational resources
4. Technical infrastructure
5. Open educational resources

In this document, we describe the urgency, the opportunities, the current situation, and the reasoning behind the vision statements and the building blocks. This will ensure that the next steps that we take are on a firm footing, so that we can accelerate the optimal use of digital (open) educational resources.

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1 Introduction

The Towards digital (open) educational resources zone of the Acceleration Plan for Educational Innovation with IT aims to achieve the following ambition:

By 1 January 2023, lecturers and students in higher education institutions in the Netherlands are able to compile and use an optimal mix of educational resources.

This mix may include analogue, digital, open, commercial, and semi-open (open within a particular community) educational resources. Whether or not the mix is optimal is determined by the context: students, lecturers, the technical infrastructure, and institutional policy.

As a mix of educational resources makes it possible to compile and use educational resources that reflect the educational vision, an optimal mix contributes to the quality and accessibility of education. Another advantage is that digital educational resources can be accessed whenever and wherever they are needed.

Challenges

The education sector is faced with various challenges that affect the quality and accessibility of, and access to digital and analogue educational resources. Several developments are taking place simultaneously: paper is making way for digital, education is moving online, or becoming *blended*, and the platform economy is emerging. The current need for *emergency remote education* – largely online – shows just how essential good quality, accessible digital educational resources are for good quality education. Furthermore, *blended* learning, the desire to make students more responsible for their study programmes, and the shift to more flexible education require greater variety in digital educational resources.

Access to analogue educational resources – primarily library textbooks – is currently difficult, even though they have an advantage over digital educational resources for certain activities and students. Models that allow digital educational resources to be printed *on demand* or legally by students themselves therefore become conceivable.

Shift in power

These developments are causing a considerable shift in the balance of power in the 'educational resources chain'. There is a risk of education and the information that it requires being taken over by '*big deals*' – expensive commercial suppliers. In December 2019, a joint opinion piece from the vice chancellors of the Dutch universities was published in a Dutch newspaper¹. In it, they describe the risk of the *big five* or large tech companies assuming control of the educational infrastructure, and therefore the loss of control by academic institutions. Their conclusion highlights the urgency of ensuring that higher education institutions in the Netherlands work together in the areas of educational infrastructure and pricing agreements.

To ensure the independent dissemination of knowledge, for example, the education sector and institutions must maintain control of the data and the knowledge that is shared. A possible consequence of the development described above is that lecturers or universities will have to pay, or pay more, to access their own learning materials. This dependence on third parties, such as institutions and commercial publishers, is of course nothing new. Furthermore, publishers are in turn dependent on authors and lecturers. There is therefore '*a market as a nexus of treaties*', or a market of associated agreements.

Opportunities

As well as the challenges described above, digital educational resources also provide many opportunities. For example, digital educational resources enable greater interaction between content and student, as direct feedback is possible (e.g. *intelligent tutoring systems*). In the vocational training setting, *virtual reality* and *augmented reality* clearly benefit the learning process. Furthermore, *learning analytics* mean that the data obtained on how digital educational resources are used can help to develop personal learning trajectories.

Digital educational resources therefore make more inclusive education possible, due to the variety in the type of materials available. For example, educational texts can be read aloud for people with poor sight, or annotations can be added to digital content so that students can see and respond to each other's comments.

Open educational resources (OER) improve access to education as they remove financial barriers. Also, the ability to edit these educational resources means that they can be better adapted to local conditions. The amount of available educational resources also increases, making it easier to adapt materials to individual learning outcomes and didactic teaching

methods. In our knowledge economy, with its focus on lifelong learning, digital educational resources are therefore essential for achieving greater flexibility in higher education.

Stakeholder interests

Different stakeholders have different interests when it comes to the development of an optimal mix of educational resources.

1. Government

The Dutch government aims to ensure that as many educational resources as possible are open access, to increase access to knowledge, personalised education, innovation, and cost savings, and to avoid lock-ins with expensive commercial suppliers.

2. Higher education institutions (executive boards)

The universities (executive boards) support the government's ambition. For them, the cost aspect is an important issue. The funding available for educational resources varies by university, either charged to the faculties/departments or borne by the institution/faculty/library. The extra budget for digitalisation and compensation or penalties relating to copyright or reader agreements may also differ. Institutions need to be transparent about the cost of educational resources for their students, as described in the Teaching and Examination Regulations, and student satisfaction and the conclusion of the accreditation council are also important aspects when compiling educational resources. For example, the accreditation council may recommend the use of digital *tools* so that students can practice more and to enable formative assessment.

3. Lecturers and students

Lecturers, experts, community platform members, and students often have similar interests when it comes to educational resources:

- **Fit for purpose:** for lecturers, this means good quality and adaptable to different contexts such as the year, lecture or assessment type. Students need to be able to rely on the quality of the learning material and to know that it meets their needs. This could for example be supplementary material for students who need to improve their understanding or who require more breadth or depth.
- **Affordable:** for students, so that they are not excluded from the learning process because they cannot afford the required literature. Lecturers can become frustrated if students do not have the required learning materials because they cannot afford them, and therefore turn up to class unprepared.
- **Sharing and reusing:** by students and lecturers. This highlights the need for a properly managed infrastructure – by the university or university library – and collection acquisi-

tion and management – for example by libraries in cooperation with experts/community platforms. Lecturers are also rewarded for sharing and reusing educational resources, as well as for sharing research results (applies primarily to research universities).

4. Support staff

IT and virtual learning environment functional administrators, education application support staff, and educationalists are seeing an explosion in platforms and tools, increasing the costs of IT and making it even more difficult to manage. It is therefore important to evaluate the mix of educational resources and share knowledge on the benefits of the various platforms. This includes the didactic benefits, required technical support, and costs.

5. University libraries

With the increasing diversity and digitalisation of educational resources, university libraries are increasingly involved in providing content. However, they receive little guidance and budget for this, and therefore fail to make use of the opportunities available for collective purchasing and for providing access to, creating, and sharing educational resources.

6. Publishers

As more educational resources are digitalised, publishers are seeing their incomes drop and are looking for new business models.

The future of educational resources

Digital educational resources are available in an increasing variety of forms, such as PowerPoint presentations, knowledge clips, simulations, and, more recently, VR and AR applications. Even so, a cursory glance at the educational resources available shows that books – digital and non-digital – are still the most common form. It is unclear whether this will change very much in the coming five years.

A *futuring* study carried out in 2019 by the Towards digital (open) educational resources zone sketched the possible contours of education in 2035². The study sketched a scenario in which education is largely student-centred, no longer only takes place inside higher education institutions, and where there is a role for a wide variety of digital (open) educational resources. A recent publication, '*Empowerment hubs – the 21st century alternative to "schools" the world needs to create*', paints a similar picture³.

2 Ambition

To identify the steps that need to be taken to achieve the ambition of the Towards digital (open) educational resources zone, the Accelerating together zone would like to obtain more insight into the current situation and the future of digital educational resources. The ambition regarding vision development is therefore:

Develop a concrete vision of the ideal use of digital educational resources in higher education, including a road map of the steps to be taken in the next five years.

The following points should be noted:

1. Open educational resources (OER) may play a larger role in education in the future, which represents an opportunity.
2. It is unclear whether digital and non-digital textbooks will, in their current form, have a large role to play in future 'digital didactic teaching methods'. What will the future learning environment look like?
3. OER may have an important role to play in lifelong learning developments, but this can work both ways: lifelong learning may represent a boost for digital OER.

The following tips were also taken into consideration:

1. Pay sufficient attention to the needs of lecturers and students, and ways of encouraging them to share and use digital (open) educational resources.
2. Carefully examine the successes and failures of previous initiatives, and learn from them.
3. Do not try to find a single general solution but ensure focus by making choices: what is urgent, and which developments may pass us by?

Educational resources vision 2025 working group

This vision document has been drawn up by a working group in the Towards digital (open) educational resources zone. We outline a vision for educational resources in 2025 and describe a number of important building blocks that are required to achieve this. The zone's ambition, with its deadline of 1 January 2023, can be regarded as an interim outcome along the path towards the vision for 2025.

The working group members are:

- Gerlien Klein – Hanze University of Applied Sciences
- Gaby Lutgens – Maastricht University
- Lieke Rensink – SURF
- Robert Schuwer – Fontys University of Applied Sciences
- Kirsten Veelo – SURF
- Hilde van Wijngaarden – VU Amsterdam

3 Method

There are two components to the vision document:

1. **Vision development:** What, ideally, will the process of ensuring that lecturers and students can compile and use an optimal mix of educational resources by 2025 look like?
2. **Building blocks:** What is required for lecturers and students to be able to compile and use an optimal mix of educational resources?

Document analysis

The following documents were analysed for insight into the current situation:

- Evaluation report eStudybooks (SURF, 2020);
- Leermiddelen digitaal, tenzij (Digital educational resources, unless) (Hanze University of Applied Sciences, 2019);
- Feasibility Study Inclusive Access (SURF, 2019);
- Leermaterialen kiezen (Choosing educational resources). A study of how lecturers and students choose educational resources, by IVA Onderwijs, commissioned by the Towards digital (open) educational resources zone.
- Leren en de rol van leermaterialen in 2035 (Education and the role of educational resources in 2035). Results of a study commissioned by the Towards digital (open) educational resources zone (2019);
- Samenhang creëren in het aanbod voor digitale leermaterialen (Creating coherence in the digital educational resources offered) (SURF, 2019).

Survey and ResearchNed study

Additional information was obtained by conducting a short *survey* among a group of lecturers that included frontrunners and followers. Parallel to the vision development process, ResearchNed⁴ carried out a study to identify and analyse the current situation with relation to digital educational resources. ResearchNed incorporated the documents and working group survey results named above into their study. Close collaboration between Robert Schuwer (working group member) and Ben Janssen (lead researcher at ResearchNed) ensured that the results of the study were incorporated into the vision development process and building blocks. A summary of the results that have a bearing on the vision development process is provided in Chapter 4.

4 Analysis of the current situation

In this chapter, we summarise the results of the ResearchNed study that have a bearing on the vision development process.

Visualisation of results

ResearchNed used the following model (see figure 1) to visualise the results of their study. The results are presented in six dimensions:

1. Education strategy and policy
2. Culture and Human Resource Development
3. Organisation
4. Technology and infrastructure
5. Economics and finance – including costs and savings
6. Legal and regulatory

Each dimension is split into three levels:

1. The micro level of the actor – lecturer, student, and other individuals.
2. The meso level of the higher education institution, group of lecturers, students, staff members, or publishers, EdTech companies, and so on.
3. The macro level of the higher education sector and its context – the markets, institutions (e.g. Ministry of Education, Culture and Science (OCW), Association of Universities in the Netherlands (VSNU), Netherlands Association of Universities of Applied Sciences (VH), SURF), national community platforms of lecturers, and society.

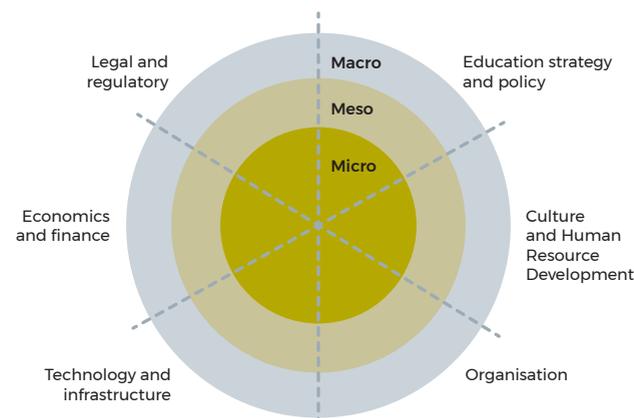


Figure 1 Visualisation model of the ResearchNed study results

4.1 Description of current situation: micro and meso levels

The surveys carried out by ResearchNed among lecturers and students on the use of digital educational resources painted the following picture.

Use and experiences among students

- **Use of digital educational resources: more often used at research universities (RU) than at universities of applied sciences (UAS); most used in science and technology**
Over two thirds of the students who attend a research university used digital educational resources either most of the time (about 50%) or almost all of the time (20%). This was considerably less at universities of applied sciences, where half of the students said that they used digital educational resources. However, at the universities of applied sciences, digital educational resources are most often used in science and technology subjects, where the difference between universities of applied sciences and research universities is small. The use is lower in other subjects, particularly at universities of applied sciences, and the difference between universities of applied sciences and research universities is larger.
- **Use by type of digital resource: most textbooks still analogue**
Students at research universities often use digital syllabi, papers, presentations and videos/knowledge clips. Most of these students say that they regularly use these materials, and almost every student uses them at least once a year. The use of online papers in particular is lower among students at universities of applied sciences. Digital textbooks are regularly used at both universities of applied sciences and research universities, although less often than other digital resources. Students at both types of university make little use of interactive games as a learning resource.
- **Preferences: little support for fully digital**
As far as preferences for digital or analogue educational resources are concerned, there is little difference between research university students and students at universities of applied sciences. About half of the students prefer a mix of analogue and digital. The preference for fully analogue is more common (roughly a quarter of all students) than the preference for fully digital, in which there is little interest. When asked about the preferred type of educational resource, the preference for analogue is even clearer. About half of the students – both at universities of applied sciences and research universities – said that they preferred to use analogue rather than digital educational resources.

- **Access: preferably through degree programme or institution rather than arranged individually**

Almost every student is able to access digital educational resources through the degree programme's virtual learning environment. Students at research universities often also use a platform run by the library/university. Access through a centralised platform is, however, less well organised for students at universities of applied sciences. These students are therefore more likely to go directly to the publisher's website or platform than students at research universities. Some students access educational resources through social media or study associations, but this is clearly a less common point of access to digital content.

Most students prefer to access digital educational resources through the degree programme – this applies slightly more to students at universities of applied sciences than to students at research universities. The remaining students are mainly interested in access through a central platform such as the university library, as this allows access to a wider variety of resources. A few students prefer to arrange their own access to digital educational resources. However, there are very few students who are convinced of the benefit of access through a study association, in addition to access through the degree programme or university portal.

- **Main considerations for purchase of educational resources: user-friendliness and price**
User-friendliness is the most important factor by far when deciding which educational resource to buy. The price and ease with which the educational resource can be purchased/accessed are also important or very important considerations for most students. About half of the students find it important or very important to make their own choices concerning the mix of analogue and digital materials. Also, most students (over 60%) find it important or very important to have access to physical educational resources. Furthermore, many students (about 40%) believe privacy to be an important or very important consideration when purchasing new educational resources. Concerns about the security of personal information can form a barrier to the purchase of a product.
- **Main barriers to purchase of digital educational resources: price and access/accessibility**
As privacy concerns are often important to students, this aspect must be properly considered. However, very few students see this as a barrier to purchasing a product in practice. Price, (limited) access/accessibility, and a preference for analogue resources are, however, given as important reasons not to purchase a product by a quarter to a third of students. For students at universities of applied sciences, the limited accessibility of and access to digital educational resources is more often a serious barrier than for students at research universities.

- **Impact of COVID-19 pandemic on use of digital educational resources**

As a result of the measures taken in response to the COVID-19 pandemic, many students – 37% at universities of applied sciences and 44% at research universities – have started to use many more digital resources to replace analogue resources. Some – about 20% at both types of university – say that this has not changed. The rest of the respondents say that they are using slightly more digital educational resources than before. About one quarter of students – at both types of university – also expect to make much more use of digital educational resources in the current academic year (2020-2021), while over 40% expect to make slightly more use. 30% of the students do not expect to use more digital resources than before.

On the whole, the results of the study show that – despite the COVID-19 measures in place – there is still no revolution taking place in the use of digital educational resources, certainly if we compare this to the increase in the use of online meeting and teaching tools. We do, however, see a clear, permanent impact on the use of digital educational resources.

Use and experiences among lecturers

The responses from lecturers were very unevenly distributed over the different types of university. Nevertheless, the results generally correspond to the conclusions of the interviews conducted in the same study. The results given below should, however, be interpreted with some caution.

- **Digital educational resources in compulsory and recommended course materials**

Very few e-books are included as compulsory literature – by less than half of the lecturers, and more often at universities of applied sciences than at research universities. Digital syllabi, guidelines, and similar educational resources are more popular – and their use is even quite high at research universities. One clear difference seems to be that literature lists used at research universities are much more likely to contain digital academic papers than literature lists used at universities of applied sciences.

Few lecturers include *open educational resources (OER)* on the compulsory literature list. It is worth noting that, although lecturers at universities of applied sciences do not often include digital papers and OER on the compulsory literature list, they are more likely to be given as recommended materials. Overall, the lecturers included in this study tend to often use digital resources: compulsory literature is almost always digital.

- **Use of digital resources by lecturers**

Lecturers are more likely to use digital educational resources to prepare or give lectures

than they are to include it on compulsory literature lists. For example, lecturers at universities of applied sciences often use digital papers themselves. Lecturers also use OER for their own purposes more than on the compulsory literature list.

- **Digital educational resources that lecturers do not use but would like to**

There are four types of digital educational resources worthy of mention that lecturers do not use or recommend, even though they would like to. The first of these, and the most commonly mentioned by lecturers at both types of university, is interactive gaming, which is currently barely used at all. E-books, OER, and digital assignments, quizzes and tests are also often mentioned as educational resources that lecturers would like to use, although little or very little use is currently made of them. Therefore, although little use is made of educational resources such as interactive games, the lecturers would like to do so.

- **Reasons for lack of use: lack of time, concerns about quality, and limited access/ accessibility**

The main reasons given by lecturers for not using digital materials even though they would like to are lack of time, concerns about the quality of the materials, and limited access/accessibility. In the case of e-books and interactive games, the main problems are lack of time, and limited access/accessibility. In the case of digital assignments, quizzes and practice tests, and OER, the main reason given is lack of time. Concerns about quality mainly play a role when deciding whether to use interactive games and OER.

- **Opinions vary concerning policy, vision, and facilities**

At both types of university, many lecturers criticise the lack of vision, the support provided for the use of digital educational resources through agreements made with educational publishers, and the transparency of and access to the range of digital educational resources. However, many other lecturers are satisfied on these points.

The research shows that there are more lecturers who believe that their university encourages the use of digital educational resources than lecturers who believe that their university has a clear vision concerning the use of these resources. We can therefore conclude that some lecturers believe that the use of digital educational resources is encouraged, even though the university has no clear vision or support infrastructure, such as agreements with publishers.

- **Impact of COVID-19 pandemic: increase in use of digital educational resources**

Finally, most lecturers – in agreement with the students – said that the measures taken in response to the COVID-19 pandemic mean that they are making more or much

more use of digital educational resources. Lecturers expect, more so than students, this trend to continue in the current academic year.

4.2 Description of current situation: macro level

The research conducted by ResearchNed shows that many other education sectors and countries are facing the same challenges as the higher education sector in the Netherlands, namely a decline in control, ownership, and market power in the digital (open) educational resources supply chain.

Collective purchasing in other countries

In some countries, such as the US, higher education institutions have been working together for some time to combine their purchasing power and therefore counter the market power of suppliers. This is often initiated by concerns about price increases and the quality and availability of the digital educational resources. Other countries focus on developing and compiling free educational resources, to provide students and the general public with optimal access to education. Responsibility for this is usually placed with the universities and lecturers, and paid for by the government (e.g. in Norway).

Success factors for greater control, ownership, and market power in the digital (open) educational resources supply chain therefore seem to be:

- Sufficient funding for centralised functions;
- Adequate, continued technical support;
- Distinctive features – transparency, OER, respond to gaps in the market;
- Offering combinations of accessible and affordable commercial and open educational resources;
- Long-term relationships and contracts with publishers;
- Open tenders – also for publishers – for content development;
- Collective purchasing.

Dutch business models for digital (open) educational resources supply chain

Various models are found in Dutch higher education institutions for a digital (open) educational resources supply chain. In many cases, a combination of models is used. The most common business model is one in which the lecturer stipulates which commercial educational resources – usually analogue – are required. The lecturer looks at what is available and the students purchase the required materials. They either buy a new book or try to find an alternative, such as a library book or a second-hand book. The transaction is therefore between the end user (the lecturer or student) and the supplier (the publisher).

In another business model, mostly seen in institutions that offer PBL, the lecturer compiles a reading list together with the library. The students may then make use of the educational resources, which are paid for by the university. In this case, the transaction is between the publisher or platform provider and the university.

Other variations are also seen in which the transaction is not between the individual user – the lecturer or student – and the supplier, but between the institution and the supplier. In other words, no longer *business to consumer* (B2C) but *business to business* (B2B). Both of these models may also include an intermediary party between the supplier and the user, such as the platforms BUKU and Kortext.

4.3 Conclusions: current situation

Students, lecturers, universities, publishers, distributors, and platform providers have very different ideas when it comes to the challenges, and therefore solutions, concerning access to and the use of digital educational resources in higher education. There is currently insufficient support, and certainly no urgency or general ambition, for the development of a collaborative chain approach.

Benefits of collaboration still unclear

Decision-makers are convinced that other partners in the supply chain do not recognise and understand their goals and interests. These convictions are so deep rooted because the benefits of collaboration are as yet unclear. As long as stakeholders do not see that each link has a role to play in the chain of providing and using digital educational resources, and what that role is, it is unlikely that a common ambition will develop to build new partnerships and models. Certainly not if these roles are not recognised by the other links in the chain, and if a fair price is not paid or received.

Place responsibility for conditions and standards with institutions

The situation could change very quickly if changes are made to the legal framework, such as permitting universities to charge students for the use of educational resources. Another change could be that higher education institutions work together to set conditions for commercial partners and publishers, by drawing up collective standards for the use of digital educational resources in education. Such conditions, which could also apply to the processing of personal data, would represent a step in the right direction as long as the control lies with the institutions.

Change in supply chain increases collective power

Examples from other countries and pilot projects such as the eStudybooks project show that a shift from B2C to B2B can increase the collective power of universities. This is more likely to be successful than when individual institutions (e.g. a library) or individuals in an institution (primarily lecturers) try to reach agreements on accessibility, conditions, and pricing.

Figure 2 visualises the current situation in two dimensions:

1. Licence type: *open licence* or *copyright protected*
2. Actor type: *individual* or *institutional*

The ovals describe the digital educational resources according to the two dimensions, with examples printed in blue. The initiatives assessed in the ResearchNed study are placed in the framework in black. The dashed lines show that the boundaries between the four quadrants should not be regarded as unassailable walls in the current situation.

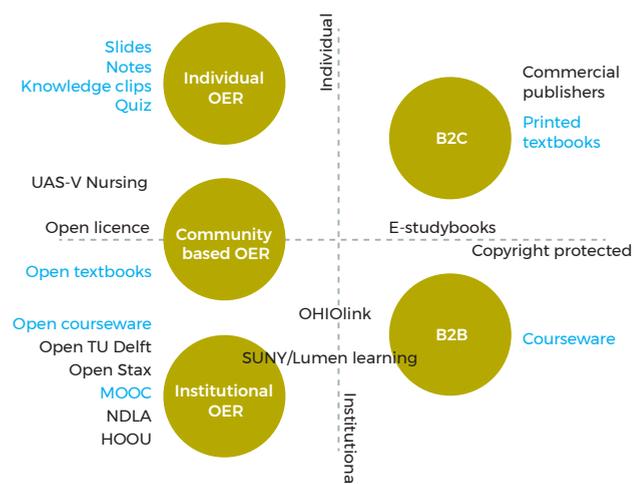


Figure 2 Educational resources by licence and actor type

Benefits of open educational resources

Including OER in the resource mix has various benefits:

- There are more resources available to a lecturer or student. This means that there are more options for tailoring learning materials to the specific requirements of the educational vision or didactic teaching method. Lecturers can also adapt the learning materials to their specific context.
- Organising OER community platforms can ensure that resources are kept up to date. It also encourages the collaborative development of resources, including between universities.
- At the meso and macro levels, a focus on OER can provide a counterweight to commercial materials – certainly with relation to the cost and data use issues associated with commercial resources.

For these benefits to be realised, OER need to be more widely adopted. To do this, we need at the very minimum:

- A quality assurance system so that lecturers can be sure of the quality of OER;
- An infrastructure to support lecturers in *instructional design*, IT and copyright issues.

¹ Developed in dialogue by Ben Janssen and Robert Schuwer, based on the ResearchNed report

5 Vision 2025

The vision must answer the following question:

What, ideally, will the process of ensuring that lecturers and students can compile and use an optimal mix of educational resources by 2025 look like?

To develop this vision and create a *road map* for 2025, the following principles have been drawn up, based on the results of the ResearchNed study (see Chapter 4) and the knowledge and experiences of the working group members.

Vision development principles:

1. The requirements and the process differ in each sector (universities of applied sciences and research universities) and in each academic discipline.
2. At a minimum, educational resources are easy to find, access, and use.
3. Educational resources can be accessed by every lecturer and student, without restrictions (including financial).
4. Educational resources can be incorporated into and, where possible, adapted to the specific learning context.
5. Educational resources can be easily integrated into the local platform/learning environment.
6. The quality assurance process is clear and transparent.
7. Lecturers and students encounter as few problems as possible in finding and accessing digital educational resources.
8. The privacy of lecturers and students who use digital educational resources is guaranteed.
9. Lecturers are encouraged and supported in the sharing and reuse of educational resources.
10. The universities have control of the user data.
11. The choice of educational resources is informed by the educational vision of the lecturer or university.

We have chosen to express this vision as a narrative (see Section 5.1), which describes what, ideally, the compilation and use of an optimal mix of educational resources by lecturers and students in 2025 will look like. The narrative has also been summarised as vision statements (see Section 5.2).

5.1 Situation in 2025: narrative

Vision for educational resources

To achieve good quality education, it is essential to align the learning outcomes, the assessment tasks, and the teaching and learning activities – also called *constructive alignment*⁵. It is easier to develop these elements if there is a clear educational vision at the institutional level; for example, which didactic teaching methods should be used – more teacher-centred or more student-centred? This vision has been developed at the meso or micro level for every institution by 2025, and determines the mix of educational resources chosen. This mix must make it possible to realise the required teaching and learning activities and corresponding assessment tasks.

Vision implementation

While developing the vision is the *first* step, its implementation forms the second step. Jeff Haywood² noted in his study *'The Changing Pedagogical Landscape'*⁶ how difficult it can be to implement changes that are imposed from above³. This is why the win-wins – if there are any – need to be described again for each step that is taken. It can help to focus on the interaction between the *top-down* and *bottom-up* approaches. For example, the educational vision and the educational resources vision that is derived from this could be placed in a more local context – that of the faculty or department. By 2025, every university has developed an educational vision that is supported by its lecturers, and that can therefore drive the mix of educational resources.

Support for lecturers and support staff members

Lecturers are encouraged to compile a mix of educational resources based on the educational vision. The aim is to make this process as easy as possible for them. An adequate support infrastructure has therefore been implemented by 2025, and is used by lecturers where necessary. This could include educational support (e.g. for the design of digital educational resources), IT and media support (e.g. for the production of VR material or videos), or legal support (e.g. for copyright issues regarding the sharing

and reusing of OER). It could also include support provided by the university library to ensure that resources are stored in a way that they can be easily searched and found.

Digital infrastructure

By 2025, it will be easy to compile and use a mix of educational resources in the lecturer's or student's personal virtual learning environment. From here, the educational resources should – through *single sign-on* – be easily searchable and usable. The educational resources may be developed within the institution, and could be a mix of open (available worldwide), semi-open (available within a certain group), and commercial resources (from commercial publishers). As soon as the editing of open and semi-open resources is made possible, lecturers and students will be able to do so as the tools will be available in the learning environment. This applies not just to content/sources, but also *courseware* such as interactive assignments, simulations, and quizzes.

Quality and recognition

A quality assurance system for educational resources will be in place by 2025. Lecturer community platforms and experts from outside the education sector will have a large part to play in this, in particular in the case of OER, which require regular reviews to remain up to date.

By 2025, the appraisal system will recognise lecturers who incorporate the institution's educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes both recognition of the quality of what is being shared, as well as the fact that lecturers are sharing and reusing materials. This could, for example, be incorporated into a system based on the current Association of Universities in the Netherlands (VSNU) *Recognition & Rewards* system.

Affordability

The costs of commercial educational resources must be realistic and feasible for students and lecturers. Under current legislation, it is not permitted to compel students to buy compulsory literature, but an alternative must be provided. Such an alternative is often lacking or difficult to realise in the case of commercial digital resources. In 2025, therefore, educational resources will be purchased by the universities, who are in a stronger position – for example, by collaborating with other universities to purchase a product as a country – to negotiate a better price with publishers. Universities may also use their budgets to develop, publish and maintain their own educational resources, under an open licence. The Norwegian *Digital Learning Arena*⁴ model could serve as an example.

² Of the University of Edinburgh

³ Haywood calls this the chalk-face level.

⁴ De Nasjonal Digital Læringsarena

Privacy

The privacy of lecturers and students who use digital educational resources must be guaranteed. In 2025, therefore, institutions have drawn up agreements with the parties involved, which comply with the GDPR and guarantee data protection for users. These agreements will also ensure that institutions have access to or own the user data provided by the educational resources, to improve teaching and supervision.

Ambitions of the Ministry of Education, Culture and Science

By 2025, the ambitions of the Ministry of Education, Culture and Science (OCW) relating to digital educational resources as described in the strategic agenda for 2019⁷ (p. 68) have been implemented:

“Educators are more able to innovate if they have access to a wide range of open digital educational resources. These resources include digital, open access textbooks and instruction videos, as well as advanced IT such as gaming, virtual reality, augmented reality, and artificial intelligence. By sharing digital educational resources openly on community platforms, educators can reuse one another’s resources and provide feedback to improve the materials.

Students too, working at different times and in different locations, need to be able to access digital educational resources. It is also important that the digital educational resources, learning environments and websites can be accessed by all students and staff, and therefore meet the applicable standards and guidelines.

The ambition from the previous strategic agenda – a significant proportion of educational resources are digital in 2025 – still applies, so that sharing and reusing educational resources becomes common practice among educators. This will have an impact on the educational resources market, which is currently dominated by commercial publishers.

→ To encourage the use and reuse of digital open educational resources, their publication will be made a condition for grants such as the Comenius grant. Should the Dutch Research Council (NWO) grants and other grants result in the development of educational materials, OCW expects researchers and educators to publish these as open educational resources. OCW will discuss this with NWO.”

5.2 From narrative to vision statements

The narrative in Section 5.1 can be summarised as the following vision statements. These statements are ordered in accordance with the framework applied by Research-Ned to describe the current situation (see Chapter 4).

No.	Level	Dimension	Statement
1	Meso	Education strategy and policy	Each higher education institution has a vision regarding the acquisition, management, use, and sharing of educational resources that reflects its educational vision.
2	Meso / micro	Education strategy and policy	Staff members who are directly involved in education in the institution (lecturers and support staff) are aware of, support, and, where possible, implement this educational vision.
3	Meso / micro	Culture and HRD	The appraisal system recognises and rewards lecturers who incorporate this educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes the open sharing and reuse of educational resources.
4	Micro	Education strategy and policy	The choice of and demand for educational resources reflect the educational vision of the institution/department. The educational resources serve to achieve the educational vision.
5	Meso	Organisation	Each institution has an organisational infrastructure in place that includes a support infrastructure to enable lecturers and students to compile and use their optimal mix of educational resources. This includes sufficient time for lecturers and support staff.
6	Macro / meso	Technology and infrastructure	A technical infrastructure is in place – nationally or per institution – that allows user-friendly access to all digital educational resources for higher education through a single portal in the personal learning environment. This includes open, semi-open, and licensed educational resources (from publishers). User privacy is guaranteed and the institution has ownership of the user data.

No.	Level	Dimension	Statement
7	Macro / meso	Economics and finance	Educational resources and licences are purchased jointly or by individual institutions, under terms and conditions developed by the individual institutions or collectively.
8	Macro	Legal and regulatory	A national set of agreements is drawn up with suppliers of educational resources regarding privacy, standards, and user data. At a minimum, these ensure that institutions have access to data relating to the processes concerning access to and the use of digital educational resources.

Table 1 Vision statements according to the ResearchNed framework

From current to future situation

Figure 3 visualises the relationship between the current situation and the future situation, based on the SENSE model[®]. In this model, a *road map* is drawn from the current, changing landscape to the planned landscape in 2025. For the sake of clarity, examples are provided for each element.

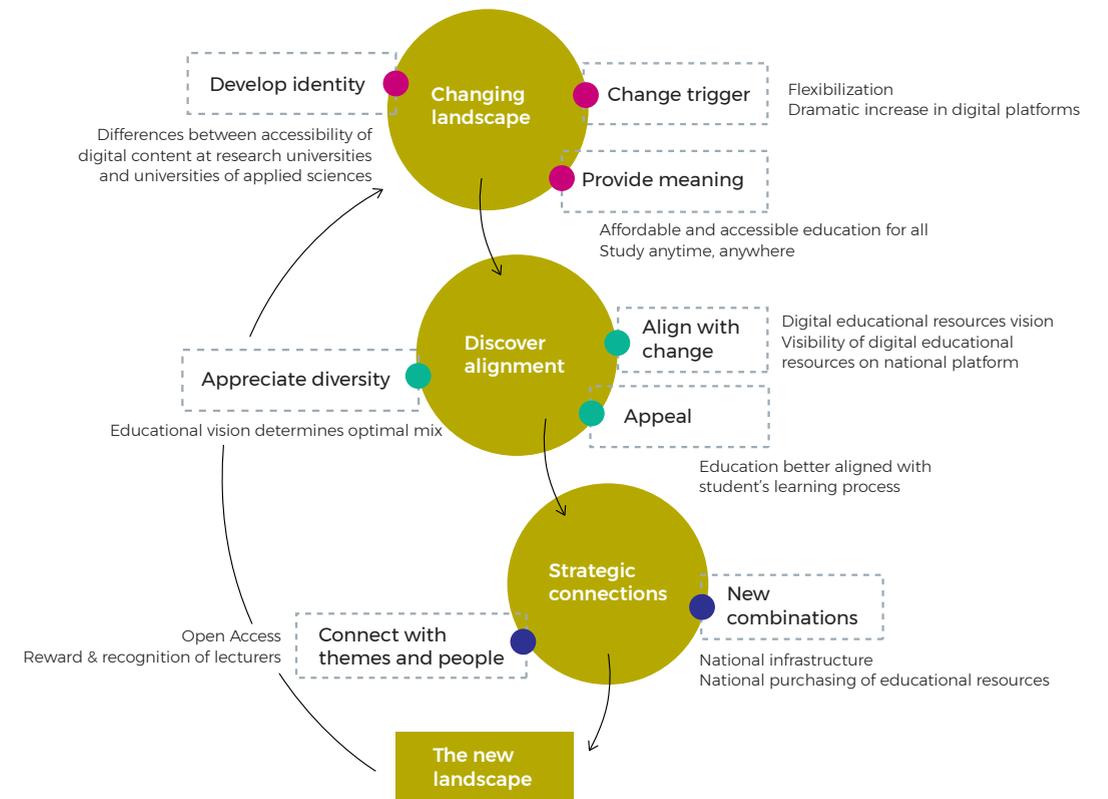


Figure 3 From current to planned digital (open) educational resources landscape

6 Building blocks for successful realisation

To achieve the planned situation by 2025, building blocks have been developed to ensure that the vision statements can be realised. These building blocks need to answer the question:

What is required for lecturers and students to be able to compile and use an optimal mix of educational resources?

We first describe the building blocks, then prioritise the activities that we believe are essential.

6.1 Building block: Vision and organisation

This building block is linked to the following vision statements:

Vision statement 1:

Each higher education institution has a vision regarding the acquisition, management, use, and sharing of educational resources that reflects its educational vision.

Vision statement 2:

Staff members who are directly involved in education in the institution (lecturers and support staff) are aware of, support, and, where possible, implement this educational vision.

Vision statement 4:

The choice of and demand for educational resources reflect the educational vision of the institution/department. The educational resources serve to achieve the educational vision.

Vision statement 5:

Each institution has an organisational infrastructure in place that includes a support infrastructure to enable lecturers and students to compile and use their optimal mix of educational resources. This includes sufficient time for lecturers and support staff.

Current situation

Most institutions have a vision of the education that they wish to provide, both at the institutional level and at the faculty, institute, or department level. However, a complementary vision for the compilation and use of digital educational resources is often missing. This is partly due to vested interests in the use of – often analogue – educational resources, at various levels and among various stakeholders, such as libraries, study associations, campus bookshops, and lecturers, who are often the authors of these materials. There is no general overview of or insight into the impact of these interests on the use of digital educational resources.

To give an example, the use of analogue educational resources requires little effort, due to the logistical processes in place in the institutions. Compared with this, the process of introducing digital educational resources is much more complex for lecturers, and therefore more time-consuming. The challenges in this process include copyright, privacy, and the risk of a *vendor lock-in*. Furthermore, existing agreements that apply to analogue educational resources cannot be simply transferred to agreements for digital resources, for example with relation to content policy and the educational resources supply chain, which includes purchasing, access, flagging, review, and redundancy.

As far as access to education is concerned, digital resources would seem to offer more opportunities than analogue resources for students with a disability or additional needs. This can also lead to more awareness of the way in which educational resources are developed and made available.

For students, both cost and necessity are important: if a resource is not needed for a test, they will make no or little use of it. Also, if students have problems accessing or using a resource the first time, for example because of problems with the platform and completeness, quality, or availability, it will be hard to convince them to try again. Lecturers who want to share their own resources or reuse those of others require specific support in this area.

Approach

An educational vision will be developed by each university and translated into a vision for educational resources. At a minimum, this meets the following requirements:

- Attention is paid to ensuring a clear and transparent quality assurance process for educational resources. This is particularly important with regard to OER, to remove concerns of students and lecturers regarding quality. This can be achieved by implementing a *peer* review process and a user evaluation system.

- It is clear which materials lecturers share and reuse, and how these materials are valued (e.g. extent and scale of sharing/reuse and satisfaction among *peers* and users). Lecturers and support staff may include these activities in their personal development and assessment schemes.
- There is greater *awareness* among lecturers and support staff of the association between educational resources and the educational vision.
- Measures are in place to ensure agreement between lecturers and staff concerning compilation of the optimal mix of educational resources, taking into account the educational vision and personal ideas.
- A support infrastructure is in place. This includes educational support, also called *instructional design*, procedural support (the educational resources supply chain and its use by actors in the education sector), and legal and IT support.
- A logistical infrastructure is in place, including agreements with publishers about access to analogue and digital educational resources. A multidisciplinary team can develop a process, or *workflow*, to support lecturers in compiling a mix of educational resources that they then offer to students – ideally within the learning environment. The technical infrastructure that is developed will also affect the organisation.

Within the Vision and organisation building block, one or more institutions – either universities of applied sciences or research universities – may follow the trajectory described above, with the support of SURF and the Acceleration Plan. The Towards digital (open) educational resources zone is currently developing a *toolkit* to support the transition to digital educational resources. The experiences of the institutions can form *good practices* for other institutions.

Principles

The following principles apply in this building block:

- The quality assurance process is clear and transparent.
- Lecturers and students encounter as few problems as possible in finding and accessing digital educational resources.
- Lecturers are encouraged and supported in the sharing and reuse of educational resources.
- The choice of educational resources is informed by the educational vision of the lecturer or university.

6.2 Building block: Financial model

One of the general principles of the use of digital educational resources is that the cost is reasonable and affordable. This leads to the following vision statement:

Vision statement 7:

Educational resources and licences are purchased jointly or by individual institutions, under terms and conditions developed by the individual institutions or collectively.

Financial challenges

A number of financial challenges that were mentioned earlier in this document are described here in more detail:

- Publishers are seeing their turnover drop and are looking for new business models. Educational resources are therefore becoming more expensive and may be subject to restrictions, and in some cases the publisher refuses to publish a digital version.
- It is difficult to obtain insight into the total cost of digital educational resources, due to the many forms of purchase/acquisition:
 - purchase of books/e-books by individual students, sometimes with a study association discount;
 - decentralised purchase of educational resources by faculties/departments;
 - purchase of second-hand books by students;
 - ‘illegal’ reuse by photocopying textbooks;
 - reuse of academic papers;
 - increase in e-books on loan from libraries.
- Students have to purchase one or more books, not all of which will actually be used.

A new model is therefore needed that provides students and lecturers with easy and efficient access to a wide range of learning materials.

Current situation

Each institution/degree programme produces a literature list that is published in the course handbook or the virtual learning environment. As this cannot be changed, it should give a good idea of the compulsory books and e-books. However, we often see that not all of the literature on the list is actually needed, and that some of this information takes a while to get through. New materials such as films and websites are also added through the virtual learning environment. Students can purchase the books and e-books, but as many as possible are also available in the university library. Whenever possible, the university libraries purchase all of the books and e-books on the reading lists, so that students do not have to buy them. This is in fact required by law, which states that an institution must offer a free alternative to the purchase of compulsory literature.

As far as e-books are concerned, it is often difficult, or sometimes impossible, to arrange access for students without restrictions on the number of simultaneous users, even though this is a requirement for learning materials. The result is that the cost of such e-books can often be huge. Even so, the number of e-books available through the universities is increasing, and the number of physical books on the literature list decreasing. A shift is therefore already taking place from individual purchase by students to purchase by the universities.

It may be possible to collate the literature lists on the basis of which the university libraries purchase educational resources for all the universities in the Netherlands. This would give an idea of the collective cost of educational resources, recognising that these lists are never fully complete. Based on this, an indication of the cost per student could be made for each degree programme.

Approach

As more e-books are being used by universities, there are more opportunities for collaboration between universities in the Netherlands, and for a new cost model. If institutions rather than individual students are responsible for buying e-books, better access and prices can be negotiated with publishers. A collective approach will also help universities to obtain a good deal with publishers.

A similar model has been experimented with in the eStudybooks pilot. However, this was not very successful as the students still had to pay to use the books. If the institution, through the university library, is responsible for this, the publisher can be sure of payment and a better deal can be negotiated.

One possible future scenario is that all the compulsory literature is provided in digital form to every student who is registered on a course through a national platform linked to the virtual learning environment. This could be organised by the libraries, by drawing up contracts with the publishers. If necessary, an aggregator – a company that provides a platform for access to e-books from different suppliers – can be used. The libraries could share the costs, similar to the model used for academic e-journals. Such a platform could be combined with a platform for OER.

Steps

For this model to be realised, the following first needs to be achieved:

- Insight into the current costs for the institutions and individual students.
- The possibility to reduce costs through centralised procurement.
- The willingness of publishers to make e-books available with no restrictions for

simultaneous use and at a reasonable price and, where possible, with automatic updates when a new version is published.

- Confidence in the security of the system. Publishers currently implement restrictions as they are worried that students will share materials without paying. However, this is no longer an issue if agreements are drawn up nationally, as every student has access and sharing is no longer necessary.

It may be possible to begin a pilot scheme with *one publisher*, to examine the feasibility of the model. Even though the eStudybooks pilot was not very successful, publishers may be more willing to cooperate if the platform is maintained and paid for by the libraries rather than individual students.

We expect international publishers to be more willing to take part in such a scheme as they already work with similar models in other countries.

The following questions need to be answered before such a pilot scheme can be put in place:

- Which publisher currently provides OER that are used by more than one university?
 - To answer this, an overview of the compulsory literature in each university is required. This could be provided by the university libraries.
- Which publisher is willing to enter into an agreement with a group of universities and to reduce the restrictions on access to its resources to a minimum?
- What can be done to convince universities to pay for this, rather than expecting individual students to pay?

Principles

The following principles apply in this building block:

- The requirements and the process differ in each sector (universities of applied sciences and research universities) and in each academic discipline.
- Educational resources can be accessed by every lecturer and student, without restrictions (including financial).
- Educational resources can be incorporated into and, where possible, adapted to the specific learning context.
- Educational resources can be easily integrated into the local platform/learning environment.
- The privacy of lecturers and students who use digital educational resources is guaranteed.
- The university has control and ownership of the user data.

6.3 Building block: National set of agreements

This building block is linked to the following vision statement:

Vision statement 8:

A national set of agreements is drawn up with suppliers of educational resources regarding privacy, standards, and user data. At a minimum, these ensure that institutions have access to data relating to the processes concerning access to and the use of digital educational resources.

Current situation

Lecturers need digital educational resources and supplementary materials to textbooks and other *courseware*. Publishers provide this through their own platforms and collect data on the use of their digital resources. This is valuable data for universities, lecturers, and publishers, and is stored both on the publisher platform and by the university. However, organisations in the Netherlands must do their best to ensure students' privacy and data security. This means that universities must obtain permission from individual students about which data may be used and stored.

With this in mind, a national set of agreements must be drawn up with suppliers of digital educational resources to ensure that lecturers and students can easily access all the resources that they need through a single portal – the personal learning environment. User privacy must therefore be guaranteed and ownership of the user data placed with the university.

Approach

A number of national initiatives are currently ongoing in the Netherlands related to the ambition to develop a national set of agreements with publishers and suppliers. Collaboration with these initiatives is being sought, with the aim to achieve synergy and consistency in the centralisation of tools for the creation, sharing, and publication of educational resources.

Data control is one of the key focal areas in the SURF 2-Year Plan 2021-2022. A joint vision is being developed by SURF for the safe, reliable, and privacy-sensitive use of education, study, research, and medical data. The processes by which SURF shares relevant knowledge and expertise are also being considered. The outcomes of these activities will therefore contribute to the development of a national set of agreements for educational resources.

The national set of agreements concerning standards for metadata, integration, and interoperability are similar to the standards already applied on the national SURF platform and the Towards digital (open) educational resources zone for sharing, searching, and finding digital educational resources. The national set of agreements also builds on the existing SURF legal standards framework⁹ – a model contract/data processing agreement plus data security guidelines that is used by universities to draw up agreements for privacy and security.

Steps

- The first version of the national set of agreements will be developed together with the above-mentioned initiatives.
- The national set of agreements will first be tested on a small scale in a *pilot* with three suppliers, and adapted based on the outcomes.
- Following the development of version 1 of the national set of agreements, responsibility for the national set of agreements will pass to SURF.
- The national set of agreements will be reviewed and updated once a year, together with the main stakeholders.
- Activities such as workshops or a *challenge day* will be organised to encourage the use of digital educational resources and to support implementation and further professionalisation. Both the universities and suppliers will take part in these activities.
- Knowledge development and dissemination will be organised at the national level.

Principles

The following principles apply in this building block:

- The requirements and the process differ in each sector (universities of applied sciences and research universities) and in each academic discipline.
- Educational resources can be accessed by every lecturer and student, without restrictions (including financial).
- Educational resources can be easily integrated into the local platform/learning environment.
- The privacy of lecturers and students who use digital educational resources is guaranteed.
- The university has control and ownership of the user data.

6.4 Building block: Technical infrastructure

This building block is linked to the following vision statement:

Vision statement 6:

A technical infrastructure is in place – nationally or per institution – that allows user-friendly access to all digital educational resources for higher education through a single portal in the personal learning environment. This includes open, semi-open, and licensed educational resources (from publishers). User privacy is guaranteed and the institution has ownership of the user data.

Current situation

SURF provides various services for a technical infrastructure for digital educational resources:

- Sharekit: for storing and sharing digital educational resources.
- As of 1 January 2021, a service for searching and finding OER.
- The CopyRIGHT tool: to advise lecturers on the use and reuse of copyrighted material, licences, and *open access* alternatives. SURF is developing this tool in collaboration with universities.
- SURF is exploring the possibilities of providing an infrastructure for *learning analytics*, to enable universities to process, analyse, and visualise study data from different platforms safely and reliably.

As well as developing IT facilities and innovations, SURF is also working together with education institutions to develop a knowledge agenda, to disseminate knowledge on OER and encourage its adoption in the Netherlands. For many years, such knowledge has primarily concerned the sharing and finding of OER but, since the launch of the Acceleration Plan and the Towards digital (open) educational resources zone, we are seeing a shift in focus towards a mix of OER, semi-OER, and commercial content. The SURF infrastructure was therefore extended in 2020 with added functionality for semi-OER.

The Towards digital (open) educational resources zone also attempted in 2020 to more precisely identify the needs of lecturers with relation to digital educational resources and the creation, editing, and sharing of collective materials. The ambition is to develop a set of *requirements* for the digital educational resources infrastructure, which the zone will implement starting in 2021. The zone is therefore responding to the more general need to develop a national infrastructure that lecturers can use to find, create, edit, and share various forms of content, either in an open setting or as a closed group. This content may be open, semi-open, or commercial.

Approach

Ensuring access to all digital educational resources through a university's virtual learning environment requires collaboration between various stakeholders and national data control and services. The national SURF system for sharing, searching, and finding digital educational resources (open, semi-open, and commercial) will therefore be extended with university systems and third-party systems. This will make it possible to put in place a single service that ensures that data can be exchanged between the various systems.

The universities and other parties (e.g. publishers and platforms such as BUKU and Kortext) are responsible for integration of the systems and data exchange. SURF will provide services at the national level for the implementation of standards, privacy, security, and system start-up support. The planned technical infrastructure for 2025 is shown in figure 4.

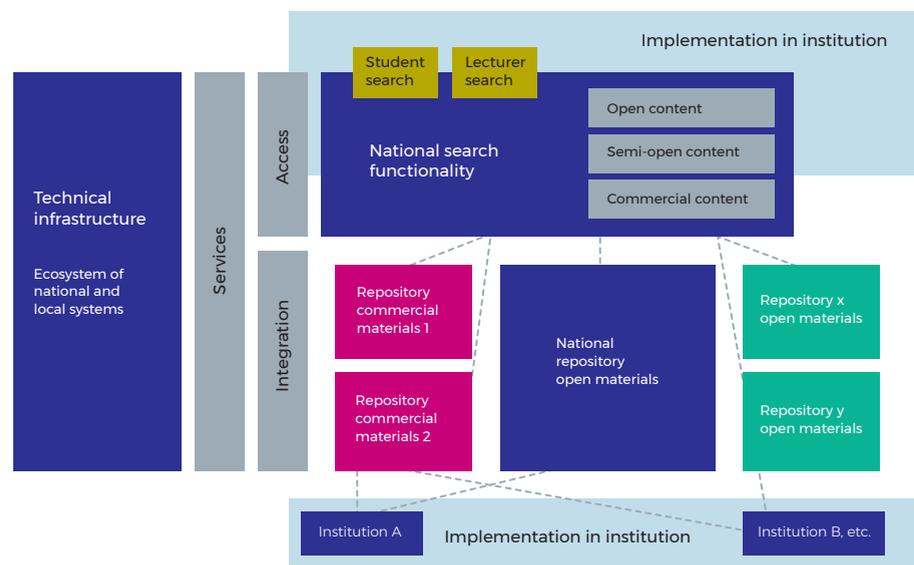


Figure 4 Planned technical infrastructure in 2025

SURF can also purchase existing systems for the creation and editing of digital educational resources. This will allow universities to make an informed choice between systems that meet the requirements and can be easily integrated into the present system. Examples are authoring tools and video software that can store, share, and play.

Steps

- Establish responsibilities and structure of national service.
- Obtain commitment from higher education institutions.
- Invest in infrastructure: develop a centralised portal for open, semi-open, and commercial content and an infrastructure for commercial content.
- Centralised purchase of existing systems for the creation and editing of digital educational resources.
- Provide support for integration of university systems with commercial systems.
- Stimulate and support implementation of standards relating to privacy, integration, data-interoperability, and metadata.
- Invest in adoption and implementation of required technical infrastructure in higher education institutions.
- Ensure national (and international) compatibility of standards.
- Ensure national (and international) compatibility of architecture.

Principles

The following principles apply in this building block:

- At a minimum, educational resources are easy to find, access, and use.
- Educational resources can be accessed by every lecturer and student, without restrictions (including financial).
- Educational resources can be easily integrated into the local platform/learning environment.
- Lecturers and students encounter as few problems as possible in finding and accessing digital educational resources.
- The privacy of lecturers and students who use digital educational resources is guaranteed.
- The universities have control of the user data.

6.5 Building block: Open educational resources

The principles that apply in the previous building blocks concern aspects such as accessibility, affordability, and the adaptability of digital educational resources. These aspects become particularly important with the permanent, widespread adoption of OER. This building block describes the activities that are required to achieve this widespread adoption. Note that this is not a goal in itself, but that it can help to achieve the following vision statements:

Vision statement 1:

Each higher education institution has a vision regarding the acquisition, management, use, and sharing of educational resources that reflects its educational vision.

Vision statement 3:

The appraisal system recognises and rewards lecturers who incorporate this educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes the open sharing and reuse of educational resources.

Vision statement 6:

A technical infrastructure is in place – nationally or per institution – that allows user-friendly access to all digital educational resources for higher education through a single portal in the personal learning environment. This includes open, semi-open, and licensed educational resources (from publishers). User privacy is guaranteed and the institution has ownership of the user data.

Vision statement 7:

Educational resources and licences are purchased jointly or by individual institutions, under terms and conditions developed by the individual institutions or collectively.

Vision statement 8:

A national set of agreements is drawn up with suppliers of educational resources regarding privacy, standards, and user data. At a minimum, these ensure that institutions have access to data relating to the processes concerning access to and the use of digital educational resources.

Current situation

The sharing and reuse of OER is not yet widespread in Dutch universities, and Schuwer & Janssen identified various reasons for this in their research study¹⁰. The main barriers named by educators to the adoption of OER are: lack of time, inadequate support for IT, legal, and educational aspects, and uncertainty about the benefits – *what's in it for me*.

The sharing of educational resources mostly takes place internally. Baas & Schuwer¹¹ also found in their study that the reuse of OER is not consistent. This results in inefficiency and missing out on opportunities to use the most suitable educational resources. The barriers named in this study, which overlap to some extent with those named by Schuwer & Janssen, are: poor findability, uncertainty about what is and is not permitted – *better safe than sorry* – and concern about the quality of OER.

The Open and Online Education Incentive Regulation, which provides funding for various OER projects every year, was introduced in 2015. The regulation initially focused on encouraging the development and sharing of OER, but the focus shifted in 2018 to sharing OER through community platforms.

SURF also runs an Open Educational Resources programme that focuses on the implementation of services and support instruments, often in the form of road maps, relating to the sharing and reuse of OER. The university libraries have joined efforts and set up an Open and Online Education working group to provide support in areas related to the traditional competencies of libraries, such as providing descriptions of and searching for OER, and copyright.

Approach

This building block can provide an alternative if the planned set of national agreements cannot be realised, or not to the satisfaction of the universities. The required activities can be described at the macro and the meso level:

Macro level

- Provide insight into the costs of digital educational resources, showing how OER can cut costs, despite the required outlay.
- Set aside part of the budget for the purchase of educational resources for OER creation, for example so that authors can spend time developing content. This could be based on the Norwegian *Digital Learning Arena* programme, as described by ResearchNed. The 'low-hanging fruit' is the educational resources for core subjects such as English, Dutch, statistics, research methodology, and mathematics.

- Encourage and support publishers to make digital educational resources available under an open licence. This should follow the *open access* approach, with gold, green, and diamond routes that each describe how authors or universities pay for the cost of publication.
- Ensure that OER – including *open access* papers and open research data – can be found and accessed through a national platform.

Meso level

- Universities develop a vision for OER that reflects their educational vision and as part of an overall vision for educational resources.
- If there are clear benefits to doing so, make sharing and reusing OER part of the innovation process, for example during a curriculum overhaul. This will encourage the natural adoption of the sharing and reuse of OER.
- Develop an appraisal system that recognises and rewards lecturers who incorporate the educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes the open sharing and reuse of educational resources.
- Involve support staff and organisations – policy officers, libraries, systems – and support them in their further professionalisation.
- Incorporate the skills required to share and reuse OER in the career development path of lecturers.
- Create and maintain a support structure for working with OER. This structure should also provide support for lecturers who create and share OER as part of a community platform.
- Universities must provide the technical facilities needed to support lecturers as they create, co-create, publish, and find OER.

Principles

The following principles apply in this building block:

- Educational resources are easy to find, access, and use.
- Educational resources can be easily integrated into the local platform/learning environment.
- The quality assurance process is clear and transparent.
- Lecturers and students encounter as few problems as possible in finding and accessing digital educational resources.
- Lecturers are encouraged and supported in the sharing and reuse of educational resources.
- The choice of educational resources is informed by the educational vision of the lecturer or university.

6.6 Other activities

It was not possible to develop a building block for one vision statement:

Vision statement 3:

The appraisal system recognises and rewards lecturers who incorporate this educational vision into their work – including an appropriate mix of educational resources – and who share this with their colleagues. This includes the open sharing and reuse of educational resources.

One way of realising this vision statement could be to bring this issue to the attention of the Association of Universities in the Netherlands (VSNU) *Recognition & Rewards* initiative. Note that this initiative is only for research universities; an alternative is required for universities of applied sciences.

6.7 Building block coherence and priorities

Interdependencies and overlap exist between the various building blocks. For example, the agreements made concerning digital educational resources (Set of national agreements building block) affect the organisation of national services for the creation, sharing, and finding of digital open, semi-open, and commercial educational resources (Technical infrastructure building block). Elements of the Open educational resources building block can also be combined with each of the other building blocks.

The interdependencies are also affected by the context. After all, the research university context differs from the university of applied sciences context, due to the greater use of academic *papers* as learning materials.

We believe that the following activities should have the highest priority:

- Set up national services for access to and integration with digital educational resources, such as purchasing and a technical infrastructure. Come to a set of agreements with publishers for collective purchasing and control of user data and personal data. Concerning privacy issues, join forces with the national working group with members from the Association of Universities in the Netherlands (VSNU), Netherlands Association of Universities of Applied Sciences (VH), Dutch Council for Secondary Education (VO-raad), Kennisnet, and SURF, which focuses on issues such as how to incorporate public values into contracts with suppliers of educational systems and research data.
- Aim for the increased adoption of educational resources, also as an alternative to commercial resources.

- Create an adequate infrastructure within universities to support lecturers. This means investing in multidisciplinary teams – including *instructional design*, IT, legal expertise, and the library – and in the deployment of the support structure.

These activities are selected based on the following arguments:

- The activities named above ensure the broad availability of digital educational resources – and therefore opportunities for flexible education.
- In the current situation, universities are at a disadvantage in their negotiations with publishers. Collaboration between universities at the national level improves this.
- The activities named above ensure that the conditions for success are put in place, such as adequate support and time for lecturers and support staff.

7 Conclusion

Involve, at a minimum, the Netherlands Association of Universities of Applied Sciences (VH), Association of Universities in the Netherlands (VSNU), Dutch Research Council (NWO), and Ministry of Education, Culture and Science (OCW) in the activities, to ensure an optimal outcome. We also recommend involving the senior secondary vocational education (MBO) sector, for example through the MBO Raad (MBO council). This sector is also currently developing plans for the implementation of digital educational resources. Working together on this may help to improve the connection between the senior secondary vocational education sector and universities of applied sciences.

It is also important to obtain the commitment of the boards of the various institutions, as this will ease the compilation and use of an optimal mix of educational resources that are already available in the individual universities and via the Acceleration Plan. This optimal mix can then be realised more efficiently, contributing to better quality education.

National cooperation can really make the difference, and can put the Netherlands on the international map as a leader in the development of digital educational resources. This could be formulated as an extra vision statement.

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The Acceleration Plan for Educational Innovation with IT is a four-year programme from SURF, the Netherlands Association of Universities of Applied Sciences and the Association of Universities in the Netherlands, that aims to bring together initiatives, knowledge, and experiences to realise ambitions for higher education at an accelerated pace. This is taking place in eight 'acceleration zones'. In the Towards digital (open) educational resources acceleration zone, eight universities are working to ensure that students and lecturers have the opportunity to compile and use an optimal mix of educational resources.



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