# 2015 OPEN AND ONLINE EDUCATION TREND REPORT

## PERSPECTIVES ON DEVELOPMENTS IN DUTCH HIGHER EDUCATION

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## PERSPECTIVES ON DEVELOPMENTS IN DUTCH HIGHER EDUCATION

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# FOREWORD

The trend towards digitisation long appeared to be having little impact on higher education despite the ongoing reinvention process sweeping every other sector – such as the publishing and music industries. The emergence of Massive Open Online Courses (MOOCs) from 2011 onwards represents a milestone in this regard. For many, MOOCs served as an initial introduction to the potential of open and online learning. Open Education, a movement that originally started some ten years prior, picked up a momentum that has been sustained to the present day.

For the fourth consecutive year, the Open Education Special Interest Group and SURFnet have prepared a trend report outlining the latest dynamic developments in the area of open content, open education and – as of this year – online (but not necessarily open) education. How is open education impacting campus education? Which new target groups are finding themselves drawn to open and online education, what are their specific needs, and how is the higher education sector responding to these demands? Effective online education requires valid online testing procedures. What are the available options in this regard? Is there demand for a nationwide infrastructure in support of open and online education, and – if so – what form should this take? How can learning analytics be applied in online education, and what are the relevant challenges in this regard? What are the key points on the international open education research agenda? What are the available platforms for online education? This trend report features a broad overview of perspectives from various experts, in the form of articles and brief intermezzos.

The open education movement is currently supported by the Dutch national government. The Ministry of Education, Culture and Science acknowledges the importance of open and online learning and has formulated various ambitions for the Strategic Agenda for Higher Education and Research 2015-2025. According to the vision formulated by the Minister, the Netherlands will play a leading global role in the open sharing of teaching materials by 2025. She is encouraging institutions to experiment and has indicated her willingness to address any legislation hampering further progress in this area. The Minister has called for the mutual recognition and peer review of open learning materials and online courses. She also acknowledges the physical impact of this growing trend towards open and online learning. As education becomes increasingly digitised and intensive, we will see a growing need for suitable teaching facilities. One of the articles in this trend report specifically addresses the measures needed to realise the Minister's ambitions for open and online education.

This trend report should serve as a source of information and inspiration to all those dedicated to innovation and quality improvement in the higher education sector. I hope you enjoy the read.

**Prof. Simone Buitendijk**
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# WHY OPEN AND ONLINE EDUCATION? ON 'BILDUNG' AND HUMAN CAPITAL

## INTRODUCTION BY THE EDITING TEAM

This is already the fourth edition of the trend report, so you could say that the report itself has become a trend! Since the first edition was published in 2012, a lot has happened in the field of open and online education. In this editorial, we would like to look back upon these developments as well as looking forward to the future. To do so, we have drawn inspiration from the earlier editions and the articles in this edition. We have also asked Ben Janssen (independent open education adviser), Fred Mulder (emeritus professor, UNESCO chair in OER) and Willem van Valkenburg (responsible for production & delivery of open, online and blended education for Delft Extension School) to share their visions of both the past and the future.

There is a long tradition of open education, both online and offline (Mulder, 2015). The adjective 'open' has a wide variety of meanings. The terms 'open', 'connected' and 'online' usually mean unrestricted free access and permission to reuse, revise and further distribute learning materials under certain conditions (Wiley, 2015). Both Janssen and Van Valkenburg have established that in recent years, a major shift has occurred within government bodies and education institutions with regard to the motivation to use open and online education. While the original motivations were ideological in nature, the use of open and online education today appears to be driven by more economic considerations, such as cutting costs. For example, a great deal of attention has been paid to MOOCs in order to efficiently cater to large numbers of learners. However, far less attention has been paid to factors such as the social role of open education and making higher education accessible to new target groups.

According to Janssen, this corresponds with a development that has been evident within the higher education sector for several decades. More and more, discussions about educational policy are restricted to the provision of labour into the economic and social process, also known as reinforcement of human capital. MOOCs and SPOCs fit perfectly into this narrow philosophy. The ultimate evidence of this development is Coursera's recent shift from the academic world to corporate learning. However, the philosophy within permanent education was that individuals had a right to education and the state was obliged to provide the infrastructure and resources to facilitate it. In the current paradigm of lifelong learning, individuals are expected to arrange the education for themselves and the state now seems to be in a position in which it has the right to force its citizens to participate in lifelong learning (Biesta, 2015).

However, this narrow philosophy appears to be falling out of favour. We are once again starting to talk about the developmental role (*Bildung*) of higher education, and an attempt is being made to broaden the objectives of education (for example, see Farrow & Deimann, 2013). Education is not just about the certificate you get at the end, it is about socialisation and personal development as well (Biesta, 2015). It seems that open and online education is following the demand for this broadening role and shifting the focus back onto personal development. Helping to boost the

quality of education now seems to be much more of a motivating factor, with the ultimate criterion now being "How much do students learn when they use forms of open and online education?".

Christien Bok (programme manager for Customised Education at SURFnet) believes that the tone has changed in the debate about online education. Substantial attention has been devoted to arranging 'digital engagement' between students and institutions, lecturers and fellow students. ICT can serve as the enabler of this engagement (Bok, 2015). However, Futurelearn's recent initiative, which aims to set up a MOOC-based programme for Syrian refugees in Lebanon and Jordan, is also in line with this broadening of thought. The MOOCs give refugees the opportunity for self-development, providing worthwhile activities to occupy their time and give them prospects of education, graduation and employment.

According to Janssen, open education should also recognise the variety of talents people have in order to realise a multiform programme of activities and to enable these talents to be developed. This is in line with the old adage that students should be in control of their own learning path and the institution should facilitate it (Bok, 2015). Open education may well be the perfect way to realise this broadening of educational philosophy.

Why use open and online education? It is a question we pose to ourselves on a regular basis. In the years to come, institutions will decide which particular activities they wish to develop and pursue in this area. The motivations will differ from institution to institution, and there is no single right answer. Mulder warns against the risk of seeing open education as a new doctrine that everyone should follow to the letter, as the existing educational models are still of great value. The challenge is to discover the added value of open education within each institution's own educational context and identify the aforementioned broadening opportunities. In this respect, Van Valkenburg believes it is important to avoid stifling the ideological drive with a pile of policy memoranda and budget restrictions. Let us not forget what it is all about, i.e. "educating the world!"

Finally, Janssen, Van Valkenburg and Mulder have several things to say about the role of the government. Recently, Minister Bussemaker published her strategic agenda entitled 'De waarde(n) van weten' ('The value(s) of knowledge', Ministry of Education, Culture and Science, 2015). In this agenda, she endorses the potential of open and online education for the improvement of educational quality. However, according to Janssen, the government can play more than just a facilitative role. Research by the OER Research Hub in the UK shows that a significant proportion of the people participating in open education on an informal basis would like to switch to formal education, but not necessarily at the same institution (Weller, 2015). As a result, the institution offering the open education cannot reap the benefits (in terms of increased intake). Institutions should be able to deliberately refrain from offering open education themselves and focus on matters such as awarding certificates for courses taken elsewhere. At the macro level, this kind of behaviour will not result in the broadening of open educational practices, and may even have an adverse effect. This broadening can be encouraged if the government advocates a national policy that obliges publicly financed institutions to offer open education. Only then will open education become part of the business model of public education institutions, enabling the ambitions in the strategic agenda to be pursued.

Mulder also mentions that Open Educational Resources (OER) can help the government to realise its three responsibilities with respect to education: access to education, quality of education and efficiency of education. Government bodies should therefore embrace OER as a 'no-regret option' (Mulder, 2015).

Institutions continually have to answer the question: "Why use open and online education?". The editorial staff hopes that this opinion piece and the articles in the trend report can inspire you in this task. Happy reading! Any reactions via SURFspace.nl will be greatly appreciated.

On behalf of the editorial staff,
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## Literature


- Biesta, G. (2015). Het prachtige risico van onderwijs. Phronese Publishing.
- Bok, C. (2015). No longer escape learning! Consulted on 5-10-2015 via https://www.surfspace.nl/artikel/1755-no-longer-escape-learning/.
- Deimann, M. & Farrow, R. (2013). Rethinking OERs and their use: Open Education as Bildung. The International Review Of Research In Open And Distance Learning, 14(3), 344–360.
- Ministry of Education, Culture and Science (2015). De waarde(n) van weten: Strategische agenda Hoger onderwijs en onderzoek 2015-2025. The Hague. Available via http://www.rijksoverheid.nl/documenten-en-publicaties/notas/2015/07/07/de-waarde-n-van-weten-strategische-agenda-hoger-onderwijs-en-onderzoek-2015-2025.html.
- Mulder, F. (2015). Open(ing Up) Education ... boosted by MOOCs? In C.J. Bonk, M. M. Lee, T. C. Reeves, T. H. Reynolds (Eds.). The MOOCs and Open Education Around the World. New York: Routledge Taylor & Francis Group. Available via http://www.eadtu.eu/documents/Publications/OEenM/Foreword_MOOCs_Book--Fred-Mulder_OU_Netherlands.pdf
- Weller, M. (2015). The ROI on open education. Available via http://blog.edtechie.net/oer/the-roi-on-open-education/
- Wiley, D. (2015). Defining the "Open" in Open Content. Available via http://opencontent.org/definition/

# BEYOND THE PIONEERING PHASE: MOVING TOWARDS THE ADOPTION OF OPEN EDUCATION

by **Robert Schuwer** and **Ulrike Wild**

MIT launched the global Open Educational Resources (OER) movement in 2001. The movement gained a major impetus in 2012 following the emergence of MOOCs: free online courses, often offered by leading research universities. Having taken their lead from the Open University of the Netherlands, Delft University of Technology and Leiden University, other higher education institutions in the Netherlands are now also taking steps to offer more open forms of education (Janssen, Jelgerhuis & Schuwer, 2014). We now have access to a wealth of research, experiences and best practices from around the world: the pioneering phase has come to an end.

This contribution explores the various concrete steps to be implemented by Dutch higher education institutions in order to facilitate the broad roll-out of open education, partly within the framework of the vision for the future defined by Minister Bussemaker in her 2015-2025 strategic agenda for higher education. We will outline the key impediments to large-scale adoption of open education and define the measures needed to realise our vision for the future

### The framework: 2015-2025 strategic agenda for higher education

Minister Bussemaker's 2015-2025 strategic agenda for higher education outlines her vision on the characteristics of qualitative higher education in 2025 (Ministry of Education, Culture and Science, 2015). The document identifies the following key aspects:

- the existence of small-scale learning communities;
- a rich learning environment for students;
- differentiated education;
- a tailored approach (students' personal play lists).

In our view, this vision should be based around the principle of small groups of higher education students jointly acquiring knowledge on specific subjects in a small-scale group-based setting. Some of these groups will be supervised by lecturers who structure their teaching activities along traditional lines, while others will learn on an on-demand basis or receive supervision from a lecturer that acts as a coach throughout the learning process. Lecturers should have an overview of the various learning materials available for their specific field of knowledge, and act as curators to ensure access to the best possible resources. They should apply both open and traditional materials, and know how to create a learning arrangement that is suited to the learning process and based on optimally aligned learning materials and teaching methods.

Over the course of their learning process, students will make up part of both online and offline learning communities that reflect their individual level and pace. All students are linked to a specific 'parent institution', from which they shape their individual learning pathways. These pathways can then be supplemented with elements from other knowledge institutions at home and abroad if the form of education provided by these institutions is more suited to the student's individual preferences or the student's own institution is not offering the desired knowledge.

The 2015-2025 strategic agenda for higher education outlines two clearly-defined ambitions in the area of open education. "I aim to ensure that all Dutch higher education institutions have made their teaching materials available in open format by 2025 (Open Access to Higher Education), propelling the Netherlands to a leading global position." A subsequent section of the document goes on to state: "As a part of this process, we must also ensure that the various Dutch higher education institutions recognise each other's MOOCs and Open Educational Resources." These clearly defined ambitions in the area of open and online education are not an end in themselves, and should be regarded as a precondition for the realisation of the aforementioned vision. The sharing of learning materials will help increase the amount of available high-quality materials, thus facilitating the realisation of a rich learning environment and increasing opportunities for customised education. Open education can also contribute to the realisation of other policy goals formulated in the strategic agenda, such as the further internationalisation of education. *The Small Private Online Course* 'Sharia in the West' offered by Leiden University is a good case in point. Open education can also contribute to the further professionalisation of lecturers, through participation in both open courses on educational subjects and *communities of practice* arising from the sharing of learning materials. This process is described in schematic form in figure 1. The large-scale adoption of open education is thus a precondition for realisation of the ambitions outlined in the strategic agenda.

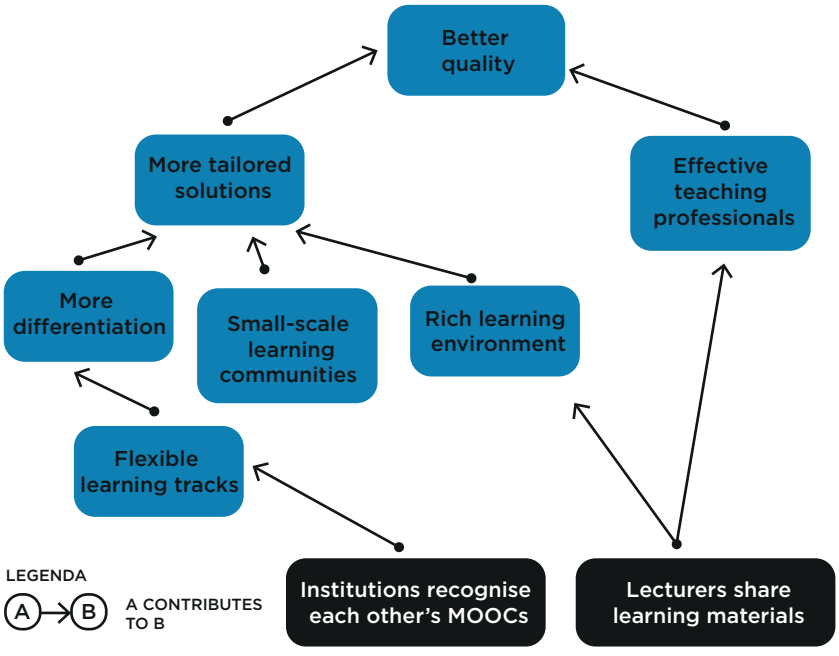


**Figure 1.** The influence of open education ambitions on the quality of education.

### Impediments to the adoption of open education

Unfortunately, the large-scale adoption of open education is also being hampered by various impediments. According to various studies (McGill et al., 2013; Richter et al., 2014; Hodgkinson-Williams, 2010), the institutions' efforts to stimulate adoption are being thwarted by various causes at strategic, tactical and operational level.

- At strategic level:
  - o issues surrounding business models;
  - o issues surrounding awareness of the potential of various open education formats;
  - o insufficient strategic vision on education, resulting in a lack of support from the institution, too little time to adjust OER to the individual context and a lack of synergy with existing working methods.
- At tactical and operational level:
  - o issues surrounding copyright and open licences;
  - o a lack of digital skills amongst lecturers and staff members.
- At operational level:
  - o the findability of OER;
  - o the quality of OER (especially in terms of determining suitability for the institutional context and identify the measures needed in order to adjust OER to reflect relevant requirements);
  - o human factors, such as reluctance to share, a lack of faith in the quality of own learning materials, *not invented here*, unclear incentives and a lack of awareness of the possibilities and advantages of OER amongst lecturers.

The various strategic workshops on open education organised by SURF in 2013 and 2014 on behalf of Dutch higher education institutions confirm these research results. Janssen et al., 2014 also listed the following factors:

- Higher education institutions fear that the ongoing trend towards globalisation as a result of OER and MOOCs will result in a loss of regional identity.
- Open education's impact on the accreditation process is still a great unknown: should the successful completion of a MOOC result in the award of credits? How should institutions calculate the number of contact hours for open education courses, especially with regard to the online component?

Many Dutch education institutions seeking to publish open courses (in either standard or massive format) do not have access to the larger-scale international platforms. This represents an impediment, partly because the MOOCs have played an especially important role in communicating the pros and cons of open education to higher education institutions over the past few years. On the other hand, it remains to be seen whether this will significantly disadvantage higher professional education institutions in practice. Due to their specific characteristics, (a regional focus, practice-driven Dutch-language education) the majority of higher professional education institutions will generally emphasise the reuse of open education rather than focusing on in-house publication (Duisterwinkel et al., 2014).

### Action plan for the promotion of open education adoption

The international open education movement is currently assessing various strategies towards the large-scale adoption of OER and other solutions. For a clear analysis of the current state of affairs and proposals for future measures, see Allen et al. (2015). The movement recognises that the large-scale adoption of OER hinges upon three specific elements: user awareness of and motivation to use OER; an infrastructure providing the content and tools needed to find, use

and adjust this content; the communities and systematic support needed in order to ensure the sustainability of OER.

As regards the situation in the Dutch landscape of higher education, we believe the following steps will be required in order to alleviate the aforementioned impediments.

### 1. Formulate an open policy at both national and institutional level

UNESCO's Paris OER Declaration previously described the importance of national open policies on the adoption of OER. As recent developments have shown, such policies can help stimulate the adoption process. Examples include Slovenia, Poland and Scotland. The Dutch government's 2015-2025 strategic agenda for higher education offers an initial impetus for the development of open policies. This impetus can be further elaborated to describe concrete measures for the resolution of legal impediments (such as the contact hours principle and efforts to increase access to joint degrees).

However, institutions will also have to formulate individual strategies that outline their motivation for offering more open education and describe their strategies to this end in greater detail. The number of Dutch institutions – especially in the higher professional education sector – to have elaborated and communicated detailed strategies in this area is currently still limited. Efforts to formulate an open policy will help to address any impediments at policy level, contribute to the mutual recognition of open education performance through the award of credits and help raise awareness of open education amongst lecturers. In our view, institutions will have to appoint visible figureheads in order to effectively communicate these open policies.

### 2. Create a platform for the sharing and reuse of open educational resources

The provision of tailored (differentiated) education and a rich learning environment can be facilitated by ensuring a diverse range of learning materials which can then be supplemented with additional services by the individual institutions. This could include additional working groups, study coaches, assessments and project activities organised by the institutions on the basis of existing learning materials (in both open and traditional format).

The establishment of a platform for the sharing and reuse of open educational resources would help improve findability, while offering greater certainty in terms of quality and usability. Minister Bussemaker makes the following reference to this activity in the 2015-2025 strategic agenda for higher education: "As a part of this effort, I will be working to assess how a national or international platform for the sharing, modification and use of teaching materials could contribute to the realisation of this ambition" (Ministry of Education, Culture and Science, 2015). The term 'this ambition' refers to the effort to stimulate widespread sharing of learning materials.

The need for such a platform was repeatedly highlighted by representatives of both higher professional education institutions and research universities during the user needs study on cross-institutional services conducted at the behest of SURFnet in the spring of 2015 (Van Aetsveld, 2015). According to a recent study on the requirements for such a platform commissioned by SURFnet, the aspect of user-friendliness is crucial to lecturers (Schuwer, 2015a). Furthermore, the platform should offer clear added value over solutions such as Google. Finally, the success of any such platform will depend on the existence of a user community: the improved efficiency yielded by a community working to maintain and update learning materials will make it easier to share these materials in a sustainable manner; furthermore, a user community will help to stimulate the adoption of open educational resources and further improve their quality (Downes, 2007; Schreurs et al., 2014; De los Arcos et al., 2014).

Education institutions will have to make a number of crucial choices in this regard: It can be helpful to distinguish between two types of learning materials:

1. Cross-institutional open online learning materials and basic knowledge courses (especially broad, basic first-year subjects), which can be studied either independently or within a group setting. These materials will help to free up the time and manpower needed to offer tailored services. The incentive scheme launched by the Ministry of Education, Culture and Science could focus on this aspect in order to achieve this goal over the coming years.
2. Research universities and universities of applied sciences can then emphasise their areas of specialisation in the subjects offered during subsequent phases. Institutions can accentuate their individual profiles by developing and providing courses (either in the form of finished or semi-finished products) in their leading areas of specialisation. Demand for Dutch-language learning materials may be higher amongst higher professional education institutions, while research universities may wish to present themselves on a more international level through use of English-language materials.

Dutch institutions already meet the technical requirements for a cross-institutional service platform. The Netherlands has already introduced a standard for metadata for learning materials (NL-LOM), and a *harvester* for metadata (Edurep). Any future national platform should be based on these standards in order to ensure optimal efficiency by building on existing structures, and should lend added value to international platforms such as Ariadne and Globe through use of the underlying open standards.

### 3. Build sustainable support structures for lecturers

Effective support can serve to resolve a great deal of the impediments experienced by lecturers seeking to share or reuse open educational resources ('alleviating the lecturer's workload') (Schuwer, 2015b; Conole, 2012). In this case, the term 'effective' should be taken to mean *just-in-time* and *just-enough*. This could include the realisation of an easily accessible knowledge database, or services related to the sharing and reuse of open educational resources. These activities can be organised at both local level (such as the creation of metadata from learning materials published by a library) and cross-institutional level (such as a national *clearing house* offering advice on *copyright clearing* for reusable sources).

The aforementioned user needs survey conducted by SURFnet also identified demand for the establishment of and support from learning communities designed to share knowledge, information and experiences on open and online education. Efforts must also be made to expand lecturers' existing knowledge of open education. This can be achieved through both specific awareness campaigns organised within and between institutions, and the development of professionalisation activities (within the context of university teaching qualification programmes, for example). Any such efforts should also emphasise the reuse of open educational resources rather than exclusively focusing on their publication.

### 4. Ensure sustainable collaboration between institutions

In our view, the effective implementation of the aforementioned three action points will require intensive collaboration between institutions at both national and international level. This collaboration should yield mutual agreements on the recognition of open education; these agreements should define which party will be responsible for developing which learning materials (action point 2); the procedures for implementing other institutions' open education in one's own curricula;

and the procedures by which students can create their own cross-institutional learning pathways. The VSNU, the Netherlands Federation of University Medical Centres and the Netherlands Association of Universities of Applied Sciences should play a leading role in this effort in order to ensure the involvement and commitment of all institutions. In our view, such a joint approach can be implemented regardless of the existing differences between higher professional education institutions and research universities (regional versus global focus and emphasis on Dutch-language education within the higher professional education institutions). After all, these differences will only affect the content of activities at the various institutions, rather than the actual approach.

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## Literature


- Allen, N., Browne, D., Forward, M., Green, C. & Tarkowski, A. (2015) Foundations for OER Strategy Development. Open working document. https://docs.google.com/document/d/1IYDeAmw3aMxuqpfEr_7BEwM5FJiqqX1S4dzPJZQqwTY/edit#heading=h.v6hj5wzh384y (viewed on 11-9-2015).
- De los Arcos, B., Farrow, R., Perryman, L.-A., Pitt, R. & Weller, M. (2014). OER Evidence Report 2013-2014. OER Research Hub. http://oerresearchhub.org/about-2/reports/ (viewed on 12-9-2015).
- Conole, G. (2012). Integrating OER into Open Educational Practices. In: Glennie, J., Harley K., Butcher N., & van Wyk T. Perspectives on open and distance learning: Open Educational Resources and change in higher education: Reflections from practice. UNESCO, Vancouver. Pp. 111-124. ISBN 978-1-894975-53-7.
- Downes, S. (2007). Models for sustainable open educational resources. Interdisciplinary Journal of Knowledge and Learning Objects, vol. 3, pp. 29–44.
- Duisterwinkel, H., Gorissen, P. & Schuwer, R. (2014). Open en online onderwijs in HBO en WO: never the twain shall meet? In: Jelgerhuis, H., Riksen, D. & Schuwer, R. (eds). *Thema-uitgave open en online onderwijs, editie didactiek*. SURF, Utrecht.
- Hodgkinson-Williams, C. (2010). Benefits and Challenges of OER for Higher Education Institutions. Report Commonwealth of Learning, Zuid Afrika. http://oldwebsite.col.org/SiteCollectionDocuments/OER_BenefitsChallenges_presentation.pdf (viewed on 14-8-2015).
- Janssen, B., Jelgerhuis, H. & Schuwer, R. (2014). Supporting Open Education Policymaking by Higher Education Institutions in the Netherlands: Lessons Learned. Proceedings OCWC Global Conference, 23-25 April 2014 Ljubljana, Slovenia. http://conference.oeconsortium.org/2014/wp-content/uploads/2014/02/Paper_37-Supporting-Open-Educational-Policymaking.pdf (viewed on 14-8-2015).
- McGill, L., Falconer, I., Dempster, J.A., Littlejohn, A. and Beetham, H. (2013). Journeys to Open Educational Practice: UKOER/SCORE Review Final Report. JISC. https://oersynth.pbworks.com/w/page/60338879/HEFCE-OER-Review-Final-Report (viewed on 14-8-2015).
- Ministry of Education, Culture and Science (2015). De waarde(n) van weten: Strategische agenda hoger onderwijs en onderzoek 2015-2025. Den Haag. Available at https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/beleidsnotas/2015/07/07/de-waarde-n-van-weten-strategische-agenda-hoger-onderwijs-en-onderzoek-2015-2025/strategische-agenda-hoger-onderwijs.pdf.
- Richter, T., Kretschmer, T., Stracke, C., Bruce, A., Hoel, T., Megalou, E., Mazar, I. & Sotirou, S. (2014). Open Educational Resources in the context of school education: barriers and possible solutions. European Scientific Journal 10(19).
- Schreurs, B., Van den Beemt, A., Prinsen, F., Witthaus, G., Conole, G. & De Laat, M. (2014). An investigation into social learning activities by practitioners in open educational practices. IRRODL 15(4).
- Schuwer, R. (2015a). Delen van open leermaterialen, vraag en aanbod. SURFNet, Utrecht. https://drive.google.com/file/d/0B1JyYu3vQZVuT01wOHN4WHlZRlE/view (viewed on 11-9-2015).
- Schuwer, R. (2015b). Hbopener: naar een open hbo-curriculum. Lectorale rede, Fontys Hogescholen, Eindhoven. http://bit.ly/hbopener (viewed on 12-9-2015).
- Van Aetsveld (2015). Final report on user needs study on cross-institutional open and online education services. SURFnet, Utrecht.

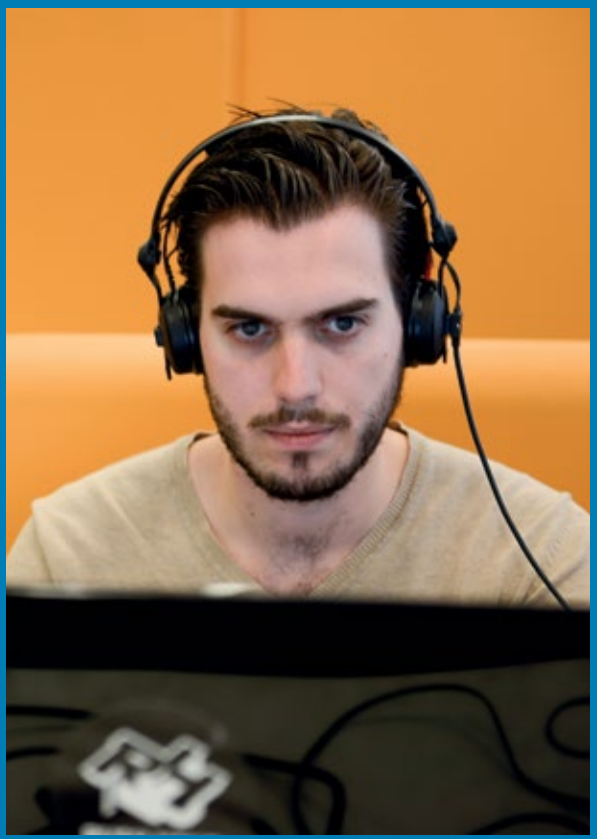
INTERMEZZO

# OPEN AND ONLINE EDUCATION INCENTIVE SCHEME

by **Janina van Hees** (SURFnet)

An annual incentive scheme is being implemented from 2015 through 2018 as a part of the Open and Online Education programme. The Minister of Education, Culture and Science introduced the scheme in order to provide higher education institutions with the necessary financial support to experiment with open and online education elements. These experiments should contribute to the quality, accessibility and efficiency of higher education and to improved study success rates. SURF plays a leading role in implementing the programme.

The first round of the incentive scheme generated a great deal of interest, resulting in the submission of 45 project proposals. An assessment committee under the supervision of SURF's Scientific Technical Council assessed the applications. The following eleven proposals were formally approved, representing a total funding amount of 830,000 euros.



**How could this benefit other parties?**
The teaching materials developed as a part of these funded projects will be made available on the basis of open licences and may be used freely by other education institutions. See www.surf.nl/stimuleringsregeling-open-online-onderwijs for fact sheets on each of the projects on page 17. These fact sheets also feature clear descriptions and announcements for use by other parties, and an overview of contact details for the various project leaders.

**Overarching research**
A joint research team established by the Open University of the Netherlands and Utrecht University is currently conducting overarching research under the auspices of the Netherlands Initiative for Education Research (NRO). The NRO study will involve a comprehensive analysis of the various incentive scheme projects. The findings will be combined with the results of fundamental research in the field of open and online education, conducted on the basis of other sources. The study aims to find out how open and online education can contribute to the improvement and innovation of higher education.

**Second tranche**
Applications for the second tranche of this incentive scheme are currently being accepted. The project proposal submission deadline is 15 December 2015.

**Further information:**
www.surf.nl/stimuleringsregeling-open-online-onderwijs or via janina.vanhees@surfnet.nl.

INTERMEZZO

# OVERVIEW OF ACCEPTED PROJECTS UNDER THE INCENTIVE SCHEME IN 2015

**Codarts Rotterdam – Online music theory education**
The music theory education provided by Codarts Rotterdam is currently highly time-, location- and lecturer-dependant. Codarts is striving to make this education more efficient and accessible through the application of blended learning.

**Erasmus University Rotterdam – Flipping the Master**
Erasmus University Rotterdam is working to structure the education preceding its postgraduate medical training programmes along more efficient lines. The institution will be transitioning to a 'flipping the classroom' approach, whereby knowledge-based education is provided online and students are offered more room to explore subjects in-depth during face-to-face education.

**NHL University of Applied Sciences, The Hague University of Applied Sciences – Thinking, doing, sharing**
The NHL and The Hague University of Applied Sciences are currently developing two online courses in the area of public administration innovation. These courses will offer public sector professionals an opportunity to exchange knowledge on social changes and their implications on government performance with representatives of the education sector.

**Tilburg University, Open University of the Netherlands – Data Science for the arts and social sciences**
This MOOC on the basis of automatically generated feedback teaches arts and social sciences students how to process and analyse large research databases.

**Delft University of Technology – From campus students to professional learners: Flexible learning paths in Responsible Innovation**
Delft University of Technology aims to make its knowledge on responsible innovation available to both students and professionals. The two groups follow different learning pathways. In order to accommodate these differences, the university will be developing flexible online content on responsible innovation that caters effectively to both target groups.

**University of Amsterdam – Open Online Course in Big History**
In an effort to meet the burgeoning demand for 'big history' education, the University of Amsterdam is currently developing a universally accessible open online course. The course will be based around knowledge clips developed by experts from the field. Other institutions will be free to adjust the course materials to their own specifications.

**Leiden University – On Being a Scientist**
Scientific standards and values cannot be learned from a book. Leiden University is addressing this hiatus by developing an online course entitled 'On Being a Scientist'. The course will centre around film drama clips and offer education developers the tools they need to create such materials.

**Leiden University and Maastricht University – Topic Oriented Open Learning (TOOL) Anatomy.info platform**
The Anatomy.info platform is an initiative by Leiden University Medical Centre (LUMC) and Maastricht University aimed at offering universal access to the sort of anatomical content that is currently exclusively featured in costly atlases. This will offer students easier access to high-quality content and improve learning efficiency.

**Utrecht University – Open and Personalised Statistics Education**
Utrecht University aims to develop open, personalised statistics modules for Bachelor's students. The university plans to offer personalised online learning arrangements, enabling its students to improve their statistics skills and clear any backlogs.

**Wageningen UR – Open and online course in System Analysis and Sustainability**
The system analysis approach plays a crucial role in research on the optimisation of global food supplies. Wageningen UR is currently developing an online course (SPOC and MOOC) in an effort to disseminate knowledge on system analysis more broadly and effectively.

**Wageningen UR – Open and online course in Food Safety**
The issue of food safety is a source of many common misconceptions. Wageningen UR is currently developing an online course (SPOC and MOOC) in an effort to disseminate knowledge on this subject more broadly and effectively amongst students and other interested parties.

# OPPORTUNITIES TO EMBED OPEN AND ONLINE EDUCATION IN CAMPUS EDUCATION

by **Martijn Ouwehand** and **Judith van Hooijdonk**

Although OER were already introduced by MIT some fifteen years ago, it was not until the emergence of MOOCs in 2012 that open and online education truly took flight. Following initial announcements from research universities and universities of applied sciences seeking to join the major MOOC platforms or to offer MOOCs, the Open and Online Education incentive scheme in 2014 proved a major impetus for further development. A total of no less than 45 project proposals were submitted, of which 11 were finally approved by the Ministry of Education, Culture and Science.

Although we have since discovered that MOOCs in themselves do not offer the necessary potential to thoroughly transform education (Watters, 2015), we are seeing a substantial movement in the area of online education that also extends to the Netherlands. Thanks to features such as the frequent use of video in the form of short knowledge clips and web lectures, MOOCs serve as a source of inspiration for the wide range of blended learning and 'flipped classroom' concepts. However, it is important to ask ourselves which factors are currently motivating the higher education sector to adopt open and online education and take stock of the relevant trends. We will be exploring these aspects from the perspective of our own higher professional education and academic education practice.

### In-house development versus reuse

Firstly, we can distinguish between two different perspectives on open and online education: 'in-house development' versus 'reuse'. Global MOOCs attracting large numbers of learners within a short space of time (or students interested in the subject matter on offer) have captured the imagination. The in-house development of teaching materials that can then be made available to other parties would thus seem an obvious choice. The accessibility of open and online education reflects the mission statements of numerous higher education institutions: providing a greater number of people with professional training and education. The global appeal of MOOCs offers higher education institutions an opportunity to raise their profiles and solidify their reputations. Yet in-house development is no longer the only available option when it comes to optimising the potential of open and online education.

With a growing amount of open licensed teaching materials and MOOCs now accessible to global audiences, one might also ask why such resources are not reused more frequently. Which opportunities do these existing teaching materials have to offer in terms of campus-based education? If leading institutions are offering online and offline education at the highest level, we must ask ourselves whether it is viable for other institutions to develop their own courses on the same subjects, or whether it

might be more opportune to reuse existing materials. The availability and accessibility of open and online education may well enable us to invite the world's most prominent lecturers to visit our own institutions at low costs. Van Damme (2015) even goes so far as to suggest that MOOCs' potential to thoroughly transform education cannot be fully exploited until open and other forms of teaching materials and education are integrated more thoroughly into our campus-based education.

### Trends in the Dutch landscape of higher education

An assessment of the eleven approved projects submitted as a part of the incentive scheme shows that the majority are not focused on the reuse of existing materials developed by other parties. Most projects aim to independently develop and offer MOOCs or blended learning courses for specific target groups, and subsequently provide access to other participants. Some projects will involve the development of OER.

In addition to expanding their reach and raising their profiles, the institutions currently adopting open and online education are also driven by the prospect of improving the quality of education, both campus-based and otherwise. The majority of projects seem to focus on efficient utilisation of the time and energy spent on developing open and online teaching materials. This trend is becoming increasingly common at institutions around the world, such as Duke University (Manturuk & Ruiz-Esparza, 2015). Institutions are developing online variants based around their own range of programmes in order to raise their national and international visibility while helping to improve internal quality.

The convergence between these objectives is certainly not illogical. After all, the development of open education (especially MOOCs and open video lectures) requires significant investments in terms of time and financial resources, prompting the need to find multiple uses for the resulting teaching materials (Stansbury, 2015). For instance, institutions are increasingly applying open teaching materials initially developed for new target groups in their own campus education. Campus education at the University of Amsterdam is increasingly structured along 'flipped' lines thanks to the use of in-house MOOC video productions. Amongst other outcomes, the development of MOOCs is yielding high-quality videos that can partially replace the transfer of knowledge in education (when supplemented with interactive lectures) (Zand Scholten & Van Hees, 2014). This trend is also becoming increasingly prominent at Delft University of Technology. The ongoing development of open and online education also frequently leads to the adjustment of campus education course design, on the basis of concepts such as 'flipping the classroom' (Ouwehand & Jacobi, 2014).

Although open and online education is currently being applied to campus education, the reuse of materials developed at other institutions is still relatively uncommon. However, this should not be taken to mean that the Dutch higher education sector is entirely unfamiliar with this approach. For example, the 2014 Open Education Trend Report (SURF, 2014) describes the example of Leiden University, which applied a MOOC developed by Van der Bilt University as a part of its campus-based education for honours students. Similar experiences have also been gained in the higher professional education sector. Fontys School of ICT applies MOOCs developed by Udacity in several of its standard minor programmes. The aforementioned examples concern lecturers using MOOCs as a part of their campus-based education. In another form of reuse, students can also take the initiative to do a MOOC. For example, a student at Zuyd University of Applied Sciences took four MOOCs offered by the University of San Diego as a part of the flexible study components available to all students (see box), a practice also common in other countries. As Friedman (2013) previously indicated, Harvard Business School has discontinued its introductory Accounting course since students have opted to take the subject online at Brigham Young University.

### 'Outside In': students in search of MOOCs

The minor component offered by Zuyd University of Applied Sciences allows students to opt for either a course from the own degree programme, an institution-wide course or courses offered by an external institution. Participation is subject to the precondition that the education must be completed within a specific timeframe, and should represent a total of 15 credits. This is generally the case at all official minors currently being showcased by Zuyd University of Applied Sciences. However, students seeking a MOOC because this more accurately reflects their personal learning styles and other preferences will have to be a bit more tenacious and display the necessary flexibility to compose a programme with balanced, high-quality content that matches the criteria of their degree programme. Students must also be willing to pay for their own certification process – a total of four 50 Euro fees, in this case. Other preconditions include:

- a MOOC that accurately describes the required number of study hours and provides accountability for the quality of educational content and testing;
- a driven academic career counsellor;
- a supportive management team;
- a cooperative examinations board.

The example being showcased by Zuyd University of Applied Sciences concerned a student at the ICT faculty seeking to take four MOOCs on bioinformatics from the University of San Diego. The examinations board set a number of preconditions: all education had to be provided by a renowned university, while the student would be required to present official certificates and submit a paper on the subject studied. Following extensive brainstorming and negotiations, the examinations board and student reached an acceptable compromise that was both inspirational to the student and served to guarantee the necessary quality standards. The tailor-made programme currently appears to have been successful, although evaluation interviews are still to be held with the parties concerned. However, the process did involve a great deal of effort. In practice, various MOOC components were postponed and certificates were submitted beyond the relevant deadlines. As a result, the student's planning schedule had to be regularly adjusted.

Institutions are also proving willing to let others reuse the open and online education and teaching materials developed by themselves. In some cases, they even encourage such reuse. For example, Delft University of Technology is offering all teaching materials from its MOOCs under a Creative Commons licence and publishing these resources on its OpenCourseWare-website. Annemarie Zand Scholten of the University of Amsterdam on the use of independently produced MOOC videos: "The videos can be freely used under the Creative Commons licence. (...) I wholeheartedly support reuse within and outside of the university." (Van Trigt, 2014, p.8) However, institutions that basically support the reuse of their materials are still frequently apprehensive when it comes to online publication. For example, The Hague University of Applied Sciences is currently building an OER repository with the initial aim of making teaching materials available within the institution. SURF recently even conducted an assessment aimed at identifying a suitable platform for the sharing of teaching materials in line with the requirements and wishes of five higher education institutions (Schuwer, 2015A).

So why is the reuse of existing teaching materials increasingly less common? Which impediments to reuse can we currently identify?

## Impediments and barriers

**• 'Not invented here'**

The limited appeal of internal reuse may well be attributable to the aspects of institutional profiling and reputation. As one would expect, institutions seeking to improve their competitive position will be more likely to present materials that reflect their own focus areas and policy spearheads. The recognition of education and teaching materials associated with the reputation of other institutions offers little potential in terms of raising one's own profile. The 'not invented here' syndrome may well be having a major impact at the level of both institutions and individual lecturers.

**• Sense of urgency and costs**

Furthermore, Dutch higher education institutions may also feel there is no rationale or necessity for the use of teaching materials developed by other institutions. For example, we are seeing a growing number of large-scale projects in the United States, including initiatives in the area of open textbooks (Tidewater Community college, BCcampus, and a very recent project by the University of Maryland). This development is attributable to the high cost of commercial books on the US market. As a result, the available teaching materials must be made to last longer. This is having a negative impact on the quality of education. OER offers greater flexibility and equal or higher quality at lower costs, thus representing a viable alternative. It remains to be seen whether abolition of the basic student grant in the Netherlands will result in developments similar to those seen in the United States.

We might also do well to question the efficiency of constantly redeveloping the basic courses offered by multiple institutions and – potentially – an entire field of study. Several participants attending the evaluation meeting on twelve strategic open and online education workshops in 2013 and 2014 expressed their support for the joint, cross-institutional development of open teaching materials and courses. As the meetings showed, successful initiatives are more common within specific fields and specialisations than they are at institutional level. Cross-institutional cooperation within specific fields may thus prove a more effective way of promoting open and online education. Examples include the joint development of open and online education for deficiency courses.

Other impediments to the reuse of open and traditional education and teaching materials may include (Jisc, 2015; Schuwer, 2015B):

**• Lack of familiarity with available materials**

Despite the growing amount of available open and online education and teaching materials, it remains difficult to find a comprehensive overview of the various subjects and teaching materials. Furthermore, the open component is still far from universally accepted. Here in the Netherlands, OER still enjoys far lower name recognition than MOOCs. Furthermore, the teaching materials used in MOOCs are still not widely available under open licences. This situation is limiting the opportunities for reuse and complicating matters from a legal perspective. Determining what is and is not allowed is often a complex process.

**• Quality**

The quality of the available education and teaching materials may also vary significantly. As a result, individual lecturers find it difficult to conduct accurate quality assessments. Furthermore, poor findability and lack of visibility within the available range also diminish the likelihood of reuse.

**• Time it takes to search OER**
Ultimately, the search for suitable, qualitative education and teaching materials also takes time. This raises the question as to whether the time spent searching for and evaluating teaching materials outweighs the efforts needed to develop them in-house. SURF (2015) recently commissioned a national exploratory study aimed at assessing libraries' role in open and online education. The areas of expertise traditionally associated with libraries (information skills, copyright, the sharing and storage of content, knowledge sharing) are becoming increasingly relevant. Libraries could work with the education sector to further promote and develop open and online learning, while stimulating the reuse of teaching materials.

**• Usability within the own context**
In addition to the 'not invented here' syndrome, the context within which the education or teaching materials are to be reused is also relevant. Teaching materials are generally developed within a specific context and for a specific purpose. This purpose is generally so specific that the resulting materials are less usable to other parties. On the other hand, efforts to adjust teaching materials for reuse will make them less effective within their own context (Wiley, 2015).

In addition to these operational impediments, the adoption of open online education is also being hampered by various issues at policy level. This lack of vision on open education, accreditation issues arising from the deployment of MOOCs and lack of a clearly-defined earning model were all identified as key impediments over the course of the strategic workshops (Janssen et al., 2014). Legal provisions such as mandatory contact hours and the location principle are also limiting the use of MOOCs in campus-based education and impacting the further development of open and online education.

## Alleviating the lecturer's workload

Although this list of potential impediments to reuse may seem long, each of these factors can be addressed. Christien Bok, ICT and Education programme manager at SURFnet: "The key ingredients for integrating online education into campus education into a successfully blended concept seem to be: lots and lots of time and support for lecturers." (Bok, 2015)

The main solution may prove to lie in a cultural shift. In addition to its practical potential, openness is ultimately a mindset based around the concept of sharing. Naturally, this will require a cultural shift.

## Opportunities for the future

Thankfully, there are also arguments supporting the use of OER. In his inaugural lecture, Schuwer (2015B) provides a moral argument in supplement to the cost-related motives and profiling aspects mentioned in this article: publicly-funded teaching materials should also be publicly available. He also argues that open publication will increase transparency in terms of the potential of the relevant degree programme or faculty, offering students a clearer picture of the content and quality of their future programmes.

It is also important to keep in mind that reuse is not a matter of 'plug and play'. Education and teaching materials cannot simply be 'plugged in' to automatically reflect the user's specific context. Ultimately, the reuse of teaching materials developed by other parties will require adjustment of the entire course design (Sloep,

2014). Furthermore, a great many OER and MOOCs are in English. Thankfully, a small-scale student survey conducted by Fontys School of ICT's Open Educational Resources (OER) research group showed that this does not represent a major impediment to students (Groenemeijer et al., 2015). The strategic workshops also showed that higher professional education institutions are fearful of losing their regional identity as a result of the growing global trend towards open and online education. Nevertheless, we believe the many lifelong learning programmes set to launch in the higher professional education sector offer major opportunities for the future of open and online education. These programmes involve the blended development of education in collaboration with the business community and social organisations.

### Reflections

The reuse of teaching materials is yet to become widespread within the Dutch landscape of higher education. Although the in-house development of open and online education is mainly suited to the unique programmes that define an institution's individual profile, reuse may well offer major benefits despite such barriers. High-quality education is becoming increasingly accessible. Our students have access to the full range of available high-quality courses, and we cannot blame them for becoming more discerning as a result. Readers will undoubtedly be familiar with the following quote by Thomas Friedman (Friedman, 2013): "When outstanding becomes so easily available, average is over." Perhaps we should ask ourselves whether it is still viable to develop basic courses in-house. Perhaps we would do better to transition towards the reuse or recognition of high-quality basic courses. Simply asking this question out loud remains challenging, and may seem a little far-fetched given the current state of Dutch higher education. Nevertheless, global developments are unfolding more rapidly than we may realise. If we fail to address the question of reuse now, we may find ourselves ill-prepared for future developments in the longer term. If nothing else, the ambitions formulated by Minister Bussemaker (Ministry of Education, Culture and Science, 2015) offer starting points for the open licence-based sharing and exchange of all teaching materials by 2025. We would also like to take this opportunity to call on institutions to recognise each other's MOOCs. This would represent a major step towards facilitating reuse, although the actual process will still require a great deal of effort.

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## Literature


- BCcampus (2015). Open Textbook Project. Available at http://bccampus.ca/open-textbook-project/.
- Bok, C. (2015). No longer escape learning! (Blogpost). Available at https://www.surfspace.nl/artikel/1755-no-longer-escape-learning/.
- Friedman, T.L. (2013). The Professors' Big Stage. Available at http://www.nytimes.com/2013/03/06/opinion/friedman-the-professors-big-stage.html.
- Groenemeijer, M., Schuwer, R. & van Stam, H. (2015). MOOC's in het hbo: wat vinden studenten daarvan? Geaccepteerd voor Proceedings NIOC 2015, Enschede.
- Janssen, B., Jelgerhuis, H. & Schuwer, R. (2014). Supporting open education policymaking by higher education institutions in the Netherlands: Lessons learned. Proceedings OCWC Global Conference, 23-25 april 2014 Ljubljana, Slovenia.
- Jisc (2015). Overcoming barriers and finding enablers. Available at https://www.jisc.ac.uk/guides/open-educational-resources/overcoming-barriers-and-finding-enablers.
- Manturuk, K. & Ruiz-Esparza, Q.M. (2015, August 3). On-campus impacts of MOOCs a Duke University (Blogpost). Available at https://www.educause.edu/ero/article/campus-impacts-moocs-duke-university.
- Ministry of Education, Culture and Science (2015). De waarde(n) van weten: Strategische agenda hoger onderwijs en onderzoek 2015-2025. Den Haag. Available at https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/beleidsnotas/2015/07/07/de-waarde-n-van-weten-strategische-agenda-hoger-onderwijs-en-onderzoek-2015-2025/strategische-agenda-hoger-onderwijs.pdf.
- Ouwehand, G.M. & Jacobi, R. (2014). Integratie en hergebruik van open education in het formele onderwijs. In SURF, Trendrapport Open Education 2014 (pp. 41-46). Available at http://www.surf.nl/binaries/content/assets/surf/nl/2014/trendrapport-open-education-2014-nl.pdf.
- Schuwer, R. (2015A). Delen van open leermaterialen, vraag en aanbod. Available at https://drive.google.com/file/d/0B1JyYu3vQZVuT01wOHN4WHlZRlE/view.

- Schuwer, R. (2015B). Hbopener: Naar een open hbo-curriculum (inaugural address). Eindhoven: Fontys.
- Sloep, P.B. (2014). Een didactiek voor open en online onderwijs. In SURF, Thema-uitgave open en online onderwijs: Editie didactiek (pp. 15-18). Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2014/thema-uitgave-open-en-online-onderwijs---editie-didactiek.pdf.
- SURF (2014). Trendrapport Open Education 2014. Available at https://www.surf.nl/binaries/content/assets/surf/nl/2014/trendrapport-open-education-2014-nl.pdf.
- SURF (2015). De rol van de Bibliotheek in open en online onderwijs: Een verkenning. Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2015/rapport-rol-bibliotheken-web.pdf.
- Stansbury, M. (2015, August 11) 5 Massive MOOC lessons learned by colleges and universities (Blogpost). Available at http://www.ecampusnews.com/top-news/massive-mooc-lessons-318/.
- Tidewater Community College (2014). Z-Degree. Introducing the Nation's First Textbook-free degree, the business administration associate of science degree. Available at https://web.tcc.edu/academics/.
- Trigt, M. van (2014). Welke mogelijkheden biedt de integratie van open en online onderwijs in het campusonderwijs? Een verkenning van kansen. In SURF, Thema-uitgave open en online onderwijs: Editie didactiek (pp. 5-10). Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2014/thema-uitgave-open-en-online-onderwijs---editie-didactiek.pdf.
- University of Maryland (2015). Embedded digital resources are in, traditional texts our at UMUC. Available at http://www.umuc.edu/globalmedia/embedded-digital-resources.cfm.
- Van Damme, D. (2015). OER and the innovation of learning (PowerPoint). Available at http://www.slideshare.net/oeconsortium/keynote-open-education-global-conference-banff-23-april-2015-final.
- Watters, A. (2015, August 23). The MOOC revolution that wasn't (Blogpost). Available at http://kernelmag.dailydot.com/issue-sections/headline-story/14046/mooc-revolution-uber-for-education/.
- Wiley, D. (2015, April 15). Forgetting our history: From the reusability paradox to the remix hypothesis (Blogpost). Available at http://opencontent.org/blog/archives/3854.
- Zand Scholten, A. & Van Hees, J. (2014). "Jullie hoorcollege is voortaan online!": Ervaringen van de Universiteit van Amsterdam met het vervangen van de hoorcolleges door een MOOC. In SURF, Kansen voor het campusonderwijs: Thema-uitgave open en online onderwijs (pp. 15-17). Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2014/thema-uitgave-kansen-voor-campusonderwijs.pdf.

INTERMEZZO

# INTERNATIONALISING STUDENTS IN THEIR OWN COUNTRIES

by **Hendrik Jan Hobbes** (EP-Nuffic)

In February 2015, Nuffic published a report on the potential for offering students an international experience at their host institution in the Netherlands. According to the outcomes, many institutions are currently still exploring the options while their lecturers do not always feel up to the challenge. As a part of the 'Internationalisation at Home' (IaH) initiative, various online projects aimed at stimulating collaboration between students from various countries are currently being established.

International and intercultural competences are a necessity rather than a luxury. This applies to all students, including those that do not go abroad as a part of their studies. In order to address this need, higher education institutions offer a range of 'Internationalisation at Home' activities: English-language components, international curriculum subjects or international projects. A large portion of these activities will already be familiar: the reading of foreign literature and deployment of foreign lecturers and Dutch lecturers with experience abroad.

Internationalisation of the curriculum is less widely accepted. This concerns the joint development of curricula as well as virtual mobility and online projects. The potential of these developments is still relatively untapped, although we are seeing a surprising number of initiatives in the area of virtual mobility. These are generally comprised of two variants: joint education (such as MOOCs) and collaboration on online projects.

Thanks to teleconferencing, students can debate one another from any location, and attend international guest lectures. This method is also used to improve English language skills, and applied in online negotiation and simulation games. Institutions are currently developing a wide range of initiatives in this area. For example, Leiden University organised a pilot to assess the potential of SPOCs (Small Private Online Courses) in 2014. In contrast to MOOCs, these courses are structured on the basis of limited enrolment, pre-selected participants, limited group sizes and intensive supervision.

Other examples include The Hague University of Applied Sciences, which set up a course on online entrepreneurship and marketing in collaboration with two institutions from Finland and Turkey in 2012, based on a mix of blended learning, virtual mobility and physical mobility. Tilburg University developed the 'Link Class' project: students consult and collaborate with their Peruvian counterparts to create a product in virtual teams.

Although the range of virtual mobility formats is still limited, the ongoing initiatives are both innovative and qualitative. These initiatives also tend to be recent, and developments in the field are continuing at a rapid pace. This type of IaH will undoubtedly come to play an increasingly important role in the internationalisation of higher education.

**Further information:**
www.nuffic.nl/nieuws/nuffic-news/kenniscirculatie-over-internationalisation-at-home-van-start/

# REACHING NEW TARGET GROUPS THROUGH OPEN AND ONLINE EDUCATION

by **Paul van Keeken**, **Renée Filius**, **Ulrike Wild**, **Nicolai van der Woert** and **Marjon Baas**

Open and online education can be effectively applied to 'new' target groups in both the undergraduate and postgraduate segments. Amongst other resources, these target groups require tailored, flexible education formats, individual learning pathways, more accessible lifelong learning programmes and the opportunity to keep abreast of rapidly developing fields. This article describes institutions' efforts to adapt to these developments on the basis of one case study from the higher professional education sector, and two case studies on education at research universities.

## Investing in suitable education for new target groups

According to the specially-themed 'Reaching new target groups' edition (SURF, 2015), the higher education sector has ample reasons to invest in new target groups. Rapid social changes are creating demand for new skill-sets, also referred to as '21st century skills'. As the various articles in the specially-themed edition demonstrated, the higher education sector will have to adjust in order to meet the demands of its new target groups: education will have to become more flexible. As the articles also underline, both education institutions and the business community agree blended learning will be crucial in future. The availability of up-to-date content that enables businesses and their employees to keep up with rapidly evolving developments will be more relevant than extensive degree-oriented programmes. Collaboration and joint development of open and/or online education will allow for the reduction of costs and sharing of knowledge. Online and open education allows for a more accessible and effective lifelong learning process.

## A multitude of questions, a diverse range of answers

The higher education sector can help address a wide range of questions. Which target groups are there, and what are their learning needs? Which didactic approaches are best suited to these needs? Will we be seeing more à la carte education? Does postgraduate open and online education require a different form of didactics than undergraduate education? Do universities of applied sciences and research universities apply a different approach in this area?

This article seeks to address these questions on the basis of case studies at Wageningen UR, Elevate Health (University Medical Centre Utrecht) and HAN University of Applied Sciences. As it turns out, there is a wide range of different approaches and blends, with varying degrees of openness. Both universities of applied sciences and research universities are reaching new target groups by offering increasingly 'à la carte' education. This format reflects the needs of both learners and the professional field. Whereas the research universities featured in these case studies are more focused on course or degree-oriented education tailored to the needs

of the learner, the higher professional education institutions tend to cater to the wishes of employers and employees. Most importantly, however, flexibilisation and modularisation are proving crucial in the effort to reach new target groups through open and online education.

### Wageningen UR case study

Wageningen UR has a clearly-defined mission: improving global quality of life through its knowledge of the natural environment and natural processes within the domain of healthy nutrition and living environments. We are dedicated to ensuring that our knowledge reaches a broad range of target groups around the world. In service of this ideal, our institutional profile is based around the concept of an academic education ecosystem. This offers more possibilities than a traditional university with a physical campus: our education will also increasingly focus on target groups that do not attend campus and students that wish to acquire academic knowledge without necessarily wanting to obtain a degree certificate. Wageningen UR will thus be focusing on the development of both accredited online BSc and MSc programmes and online modules and courses (resulting in the attainment of credits) and the development of a range of open and online courses (MOOCs).

The first two online Master's programmes started in September 2015, with a total of 45 participants. The majority of students are combining the online Master's with a job and/or are bound to a specific location due to family-related circumstances. We will be offering more online MSc programmes in Wageningen UR's core focus areas over time. This will also benefit our on-campus students: as more courses become available in online format, students will be able to shape their study pathways more flexibly and adjust their study pace to their own individual learning style more effectively.

The open and online courses (MOOCs) developed in Wageningen are made available through edX as a part of Wageningen UR's objective to disseminate its knowledge to a large group of interested parties around the world. The research university will be using several of the MOOCs currently being developed as refresher courses for incoming students or 'standard' courses in the range of available education for on-campus students. In future, we aim to enable students to acquire knowledge that is not available within the institution by means of MOOCs or online courses offered by other research universities. This will facilitate the further differentiation of our learning pathways, allowing students to design their own individual programmes from their host institution.

When combined with subjects offered in open and online format, this should eventually result in a certificate with defined credit value. The cumulation of certificates with credit value will also enable students to enrol in BSc and MSc programmes. This solution will be especially useful to lifelong learners seeking to refresh or expand their knowledge and maintain their employability. Students will be able to opt for either a full academic degree or individual certificates.

We have invited institutions from around the world to organise their own additional education services such as working groups, additional lectures and assessments on the basis of our MOOCs. In the process, they will become 'educational hubs' for the knowledge developed here in Wageningen. This can be especially useful to emerging economies. Conditions for the use of non-open materials in online courses can be regulated by means of licensing agreements. For example, the 'food systems' course based on a MOOC developed in Wageningen could be made available to students at universities in Africa, who would then learn under the supervision of local lecturers capable of adjusting course content to reflect the local context.

The campus is and will remain the 'richest' learning environment, allowing for personal interaction and mutual inspiration. Existing online materials can be applied to intensify our focus on concepts such as blended learning and the 'flipped classroom', in order to free up capacity for more in-depth exploration of specific subjects, debate and project-based learning. Online students, professional learners and MOOC students will also be invited to take part in on-campus summer schools, practical lab training, conferences, hackathons and boot camps in order to get a taste of the 'Wageningen' experience and the inspiration that comes with personal interaction. A smart, flexible organisational structure will allow almost all students to acquire the specific knowledge and skills that simply cannot be learned online.

## Elevate Health case study

Elevate is seeing a rise in global demand for affordable high-quality undergraduate and postgraduate education. In parallel to this development, students' expectations in terms of the accessibility and user-friendliness of education are also rising. If the education sector is to meet these demands, it will have to intensify its focus on social interaction, personalisation and 'deep learning' in the years to come.

**Various types of open and online education**
Online open education is experiencing a boom. All leading international institutions are currently investing in various forms of this new teaching format. Utrecht University and University Medical Centre Utrecht have decided to establish a platform for small-scale online education under the name 'Elevate Health', or Elevate for short. The platform is accessible to higher education institutions around the world seeking to offer – generally for a fee – SPOCs: Small Private Online Courses. Elevate also develops open and online education that is then offered free of charge in the form of MOOCs through the Coursera platform. The platform develops this education in collaboration with Utrecht University and the University of Amsterdam.

**New target groups**
Elevate was established in order to make higher education (and research results) structurally available to target groups that are currently still unable to access these resources. Elevate's target groups consist of professionals that opt for online learning due to the logistical challenges of combining a busy practice, family life and commuting, Master's students seeking affordable higher education and course participants from low and middle income countries. The price of this education can be lowered in these countries by charging higher fees to participants in Western nations.

**Social interaction**
The aspects of interaction and dialogue are key to online academic education. Students learn how to develop critical thinking skills and link their own knowledge to new concepts by juxtaposing different opinions. Online education thus requires an intensive focus on the optimisation of interactions with lecturers and fellow students. As a result, the aspect of interaction plays a prominent role in course design. There is also a range of available tools that can be applied in support of this process. These resources are expected to evolve over the years to come, making it easier to surmount technical obstacles as students become more accustomed to digital communication.

**Personalisation**
Participants in postgraduate education and other forms of teaching value flexibility. As a result, intensive attention is devoted to the aspect of 'user-friendliness' and the personalisation of teaching materials. For example, students can already choose

whether they wish to attain their learning objectives by reading an article, watching a video or taking a multiple-choice test. In future, robotisation and the smart use of learning analytics may yield even more opportunities for personalisation.

**'Deep learning'**
Several decades ago, students would visit their professors in person, ensuring a genuine 'deep learning' process. However, lecturers operating within the framework of online learning often opt for an approach that results in 'superficial learning', such as the memorisation of factual knowledge. Although factual knowledge represents an important basic foundation, deeper forms of learning – such as the process of establishing connections and critical thinking skills – are also crucial. When it comes to online education, these types of learning tend to take different forms than they would in the case of their campus-based equivalent. In many cases, lecturers are still uncertain what approach to take or opt for the same time-consuming methods they would use in campus-based education. The latter option is simply not tenable in the longer term, especially in view of the expected increase in online student numbers. In an effort to address this situation, Elevate is working to identify strategies that enable students to achieve the same level of 'deep learning' without causing lecturer contact hours to rise at the same rate as student numbers. The preliminary outcomes of this study were published in September 2015.

**Improving accessibility**
Elevate is a not-for-profit not-for-loss initiative: any profits will be spent on research projects aimed at improving healthcare in low and middle income countries. Elevate also participates in the development of education for these countries, such as the recent development of a MOOC on Ebola. The aim is to connect a growing number of institutions and provide global access to the same high-quality affordable education available here in the Netherlands.

## Case study: Master's in Neurorehabilitation & Innovation at HAN University of Applied Sciences

The non-subsidised two-year Neurorehabilitation & Innovation Master's programme (MNR) provided by HAN University of Applied Sciences offers students from paramedical and nursing professions the skills they need to become experts in their field. Neurological disorders are frequently complex, and require collaboration between a large number of occupational groups. This, in turn, requires an effectively organised care system. Furthermore, the care sector is developing at a rapid pace. Staff members with a MNR Master's degree are assigned to coordinate the provision of care and implement healthcare reform and innovation.

MNR caters to a diverse range of target groups, each with their own diverse characteristics, motivations and wishes. Various MNR projects have been initiated as a part of the HAN-wide 'Working and learning' project. Key words include flexibilisation, modularisation, continuous learning tracks and tailored education. The deployment of open and online education is a crucial factor in the success of these educational innovations.

All projects are ultimately aimed at creating an open online Neurorehabilitation working and learning community. This will also comprise a continuous learning track tailored to lifelong learning, enabling students and professionals, managers, researchers and lecturers to jointly bridge the gaps between research, education and the professional practice. Open also means participants do not necessarily have to be enrolled at a HAN degree programme. The HAN already has some of the necessary ingredients for this working and learning community: in addition to MNR, the

institution boasts all the relevant nursing and paramedical Bachelor's programmes, a multidisciplinary minor in Neurorehabilitation and a Neurorehabiltation research group. Table 1 provides an overview of the various innovations at HAN and outlines the role of open and online education.

The didactic concept has remained unchanged at the request of both students and lecturers. MNR already applies online working methods such as virtual action learning and peer-to-peer review. Students and lecturers appreciate these working methods, but view live interaction with lecturers and fellow group members as a major benefit during their personal and professional development.

Tailor-made solutions are oriented towards the broader working and learning community, and are also designed to facilitate professionals working in the field rather than exclusively focusing on education. The motto is: 'Degree programmes for jobs, educational services for careers'.

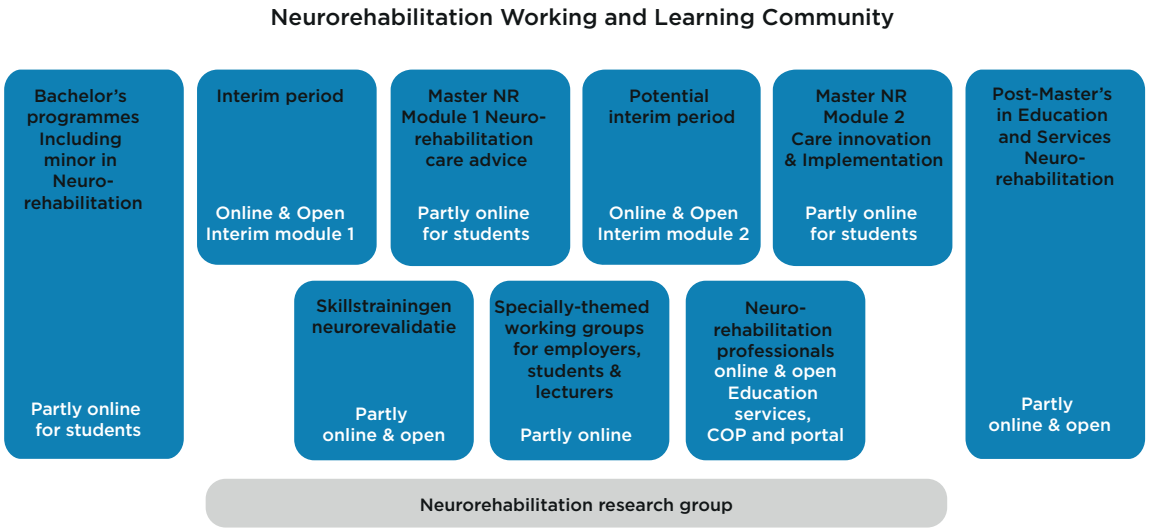


**Figure 1.** The Neurorehabilitation working and learning community at HAN University of Applied Sciences.

## Literature


- SURF (2015). Specially-themed edition on Open and online education – Reaching new target groups. SURF, Utrecht, 2015. Available at https://www.surf.nl/kennis-en-innovatie/kennisbank/2015/thema-uitgave-open-en-online-onderwijs-editie-nieuwe-doelgroepen-bereiken.html

| Target groups, characteristics and learning needs | Solutions | The role of open and online education |
|---|---|---|
| **Bachelor's students** seeking to continue their studies immediately found themselves hampered by the required two years of work experience. As a result of this requirement, students from the HAN minor in Neurorehabilitation barely transferred to the MNR Master's programme. | • Flexible intake: The Master's in Neurorehabilitation & Innovation currently comprises two one-year modules.<br>• Abolition of work experience requirement for the first module, work placements – with alumni where possible – will also suffice. Students enrolled at the minor in Neurorehabilitation can transfer immediately.<br>• Module 2 will require employment in the field and work experience, with the option of a tailored interim period.<br>• Academic career counselling is more effectively harmonised with the overall educational continuum within the framework of lifelong learning. | Case studies on the profession and professional practice in relation to the programme, students are introduced to the Master's in Neurorehabilitation & Innovation through study trials that are partially offered in open online format. |
| **Hesitant prospective students** are uncertain about the level of the Master's and required combination of working and learning. This target group wishes to transfer to shorter learning tracks whereby they complete part of the curriculum and get a socially relevant certificate in order to gain experience. They can subsequently choose to either continue or discontinue their studies. | | |
| **Students** want to see blended learning applied within the modules. | • They prefer and value face-to-face education over other forms and view the online component as a supportive element. | Online virtual action learning, peer-to-peer review, the freedom to add course materials, electronic learning environment (closed). |
| **Students** in the periods between the minor in Neurorehabilitation and the Master's in Neurorehabilitation & Innovation and the periods between the two MNR modules want to remain involved and interested rather than give up. | • Two appealing interim modules offering students an opportunity to prepare for the upcoming module at any time and location. | Interim modules offered in 'flipped classroom' format, online, partially open. |
| **Alumni** want personalised training and coaching, and are seeking to learn how to strategically position themselves within an institution and deal with changing legislation and regulations and the easy accessibility of new knowledge. | • Working groups based around collaboration between alumni, managers and lecturers; exchange of knowledge on themes related to degree programme content and the professional practice.<br>• Post-Master's range of education and services in collaboration with alumni and employers.<br>• Community of Practice comprising open online components and face-to-face meetings. | Open and online: professional portal (Community of Practice comprising evidence-based guidelines, clinimetrics, literature, projects and fora. To be supplemented with online expert consultations and patient demonstrations at a later stage).<br>Range of post-Master's courses, of which some components are offered in open online format and some are face-to-face. |
| Co-creation with **managers and administrators**. Harmonisation of substantive programme aspects with wishes formulated by the professional field. | | |
| Targeted professional skills retraining for **professionals** with a minimum of absence time. | • Post-Bachelor's courses for nursing staff and paramedics. | Online theoretical components in the form of knowledge clips and 'flipped classroom' learning. |

**Table 1.** Innovations at HAN University of Applied Sciences and the role of open and online education in this process.

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INTERMEZZO

# OER MAPPING: VISUALISATION RESEARCH DATA AND OTHER KEY DATA SETS

by **Nicolai van der Woert** (Radboudumc)

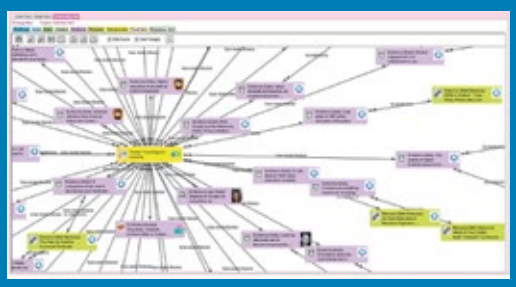
Various parties around the world are currently gathering and visualising data on open education projects, OER and MOOCs. This data concerns sources, quantities, usage, demographic information, research results, learning analytics and more. Amongst other sources, the information is obtained from research, open data and crowd sourcing. A kaleidoscopic overview.

The Open Educational Resources Research Hub (OER Research Hub) is focused on research. The overarching question is: "How does OER impact learning and teaching?"

The data visualisation can be accessed through four portals: OER Impact Map, OER Evidence Map, OER Policy Map, and OER Projects Map. Results can be filtered on the basis of result areas.

OER worldmap gathers information on initiatives, projects, organisations, services and individuals engaged in OER by means of crowd sourcing. The latest initiative: OER stories.

OLnet Open Learning Research is an international research hub. This resource also comprises an 'Evidence Hub for Open Education', offering a 'living' map with a wide range of questions and answers on open education. Users can interactively browse key challenges, issues, potential solutions, research claims, evidence, resources, organisations and users.



INTERMEZZO

The eMundus project offers a global OER map with successful examples of international cooperation on the basis of open education (MOOCs, virtual mobility and OER).

eMundus is based on a relational database that can be queried from multiple perspectives. The results can be viewed in the form of a map of the world, a list of countries or an overview of existing OER initiatives. Various graphs and data views can be accessed by means of filters.

The POERup-project inventoried a collection of OER policies until June 2014.

The results can be accessed through a wiki database and various interactive maps.

The Serendipity website allows users to search for multiple entries with a search engine on the basis of semantic search and linked open data (the linked open courseware data faceted search engine).

The Map of OER Interest offers a geographical interface to the relevant information. Users can also search for OER and open courseware.

# EFFECTIVE ONLINE EDUCATION REQUIRES VALID ONLINE ASSESSMENT PROCEDURES

## COULD ONLINE PROCTORING OFFER THE ANSWER?

by **Marja Verstelle** and **Marinke Sussenbach**

Online education has become a more trusted format over the past few years. A growing number of leading universities are now offering fully accredited programmes online in addition to their range of MOOCs. This is ideal for working graduates seeking to keep up with the latest developments in their field, groups of regular students spending time abroad on a work placement or pre-Master's students. This range of online programmes requires a valid online assessment protocol. Online assessment should allow us to determine whether the student is actually the person taking the test and verify that he or she is doing so without unauthorised assistance. Online proctoring can offer a solution in this regard, but is still far from commonly accepted in the Netherlands. Is this hesitance justified? And does online proctoring offer the best possible solution in terms of online assessment?

### How does it work?

Online surveillance, generally referred to as online proctoring or e-proctoring, comes in three different forms: live, via retroactive assessment of taped tests and automated proctoring. The process starts with authentication. Students log in and are connected to an online proctor via their webcams. They are then required to display their ID and answer a number of questions. In some cases, the proctor will require the student to offer a 360-degree view of the room. In other cases, students may also be subjected to a biometric verification procedure. This procedure might be based around the student's unique typing pattern, whereby he or she would then be required to type the same sentence at each testing moment. Once the authentication procedure has been completed, the online proctor will monitor the testing process in order to ensure that the student is completing the questions without unauthorised assistance. In the case of live proctoring, the proctor may issue a warning where necessary. In the case of retroactive proctoring on the basis of a taped test, the proctor will review a video at high speed. This process is frequently outsourced to low-wage countries. In the event of suspected irregularities, the proctor will flag the test. The third method, automated proctoring, involves automatic monitoring and identification of any potential irregularities by the computer. The examinations board of the university itself will be responsible for issuing a final assessment in all cases (live, retroactive review of taped tests and automated proctoring). In most cases, institutions will outsource the proctoring process to specialised companies that take charge of the entire procedure, from scheduling of the examination with individual students through the flagging of suspected irregularities.

### Preconditions

Students must meet various preconditions in order to qualify for online proctoring. The most important of these conditions are: a lockable PC, laptop or tablet; a stable Internet connection; a closed room with a 'clean desk' and no intrusions from house mates; acceptance of the use of camera monitoring or video recording. These preconditions limit the application of online proctoring. The student will assume responsibility for the equipment and room. Some students lack the necessary equipment, while the average student room will not be suited to this purpose. These preconditions must be clear to the student before he or she enrols in an online course.

Some of the aforementioned limitations are being resolved through increasingly innovative solutions. For example, new technologies allow for students in regions without stable Internet connections to keep working when their connection is interrupted. The recording on the local PC will continue in the background and can then be automatically sent to the proctor once the connection has been re-established. Solutions have also been developed to address the issue of toilet breaks. Tests can be offered in segments, enabling students to take a sanitary break after completing each individual component.

The aspect of camera monitoring has raised more questions than any of the other preconditions. How long will the recordings be retained and how will the proctoring company safeguard the students' privacy? Students are entitled to peruse the proctoring company's privacy policies (a recent article in The Chronicle offers some insight into the working methods applied by such firms). Studies have also shown that some students find camera monitoring to be a distracting factor; other studies contradict this finding (Fask et al., 2014; Case & Cabalka, 2009). This is undoubtedly related to the individual proctoring service; according to a recent New York Times article, students feel such services occasionally overstep the mark. The article describes an automated proctoring solution that requires students to remain seated in the same position for the entire duration of the test, whereby they constantly see themselves in a small on-screen window. Some universities in the United States seek to accommodate students who find this practice distracting by offering physical exam halls as an alternative.

### Costs

Examinations currently cost around 20 Euros. Some US universities charge these costs on to their students. This precondition must also be made known to the students before they enrol in an online course.

### Uptake

The underlying technology is (and will probably always remain) under development. MOOC providers broadly apply online authentication to secure the awarding of verified certificates; participants or their employers are willing to pay a fee of around 50 dollars. Online authentication and proctoring are becoming an increasingly integral part of online accredited education. According to a survey amongst US institutions offering remote education, (2013 Student Authentication and Online Proctoring Report) 67% of respondents reported they were currently applying some form of online authentication or proctoring. The University of Amsterdam is currently applying online proctoring as part of a pilot project with an international pre-Master's target group, while Delft University of Technology (see box), Utrecht University and Wageningen UR are doing the same for online postgraduate education.

E-proctoring is currently applied in online education. In the Netherlands, this form of proctoring is exclusively used outside of the traditional programmes. We should ask ourselves whether e-proctoring can also offer an alternative to the digital testing of large groups of on-campus students, currently being accommodated by the higher education sector through the construction of increasingly costly exam halls. Large-scale online proctoring as an alternative to the exam hall does not seem to offer a feasible alternative at present. This is due to students' difficulties in meeting requirements in the area of equipment and testing locations, and the currently unquantifiable risk of fraud.

### What are the alternatives to online proctoring?

Those enrolling in an online course or programme have made a conscious decision based on flexibility in the area of time and location: the ability to learn at the institution of one's choice, from one's own country or alongside a busy career. If we aim to cater to this international postgraduate target group, we will have to facilitate 'anytime, anywhere' testing. Are there any viable alternatives to online proctored testing? The most basic alternative would be for online students to book a flight and take the final test in the relevant institution's exam hall. This phenomenon is not uncommon in the case of MOOCs. Open universities have been offering a more customer-friendly alternative for many years, facilitating examinations at specialised commercial testing centres around the world. In a third alternative, examination facilities can also be offered through fellow education institutions.

### Online proctoring or alternative assessment methods?

The various available publications on online proctoring consistently emphasise increasingly stringent monitoring and technical security. However, a focus on the most suitable assessment methods will yield equally positive results. In the words of one respondent: "Security & authentication technologies can and will be defeated (not just for online courses). Course assessments should be carefully designed by instructors to measure the authentic learning ability of each user (i.e. writing samples, essays, short answers-all of which should require critical thinking on the spot and in a limited timeframe) such that they will prove as valid online as they are in the face-to-face classroom." (2013 Student Authentication and Online Proctoring Report)

Online proctoring basically substitutes the invigilator in the exam hall by an online colleague. Instead of engaging in an 'arms race' of increasingly stringent monitoring procedures, we can also take this opportunity to improve the quality of assessment and learning by reconsidering which aspects of the curriculum we want to test and how we aim to test them. Instead of a single 'guillotine-like' testing moment at the end of each course, ICT offers a growing array of possibilities to conduct more regular assessments in new formats, yielding improved learning outcomes. These include serious gaming, adaptive learning and 'continuous assessment'.

### Research

The amount of available research on online proctoring is still limited, and generally consists of pilot study evaluations. The findings tend to vary. Whereas some case studies conclude that online proctoring has a negative impact on students due to higher levels of distraction, stress, technical problems and the inability to ask for explanations on potentially ambiguous exam questions (Fask et al., 2014), other studies do not identify any significant differences (Case & Cabalka, 2009).

### Online proctoring pilots at Delft University of Technology

Delft University of Technology aims to meet the growing international demand for lifelong learning. The institution is offering high-quality education – on a fully online basis where possible – through TU Delft Online Learning. The ability to administer various types of summative digital tests in a secure online environment had long proved an elusive missing link in the process. Demand and need for flexible tailored education has increased over the past few years. The emergence of MOOCs has helped to break open the market for *specialized tracks* in the online course segment. In another interesting development, online proctoring can help add value to non-accredited courses such as MOOCs and the associated specialised tracks. A good example in this would be the edX Global Freshman Academy.

We expect to see a growing number of students participate in online courses and tracks within and outside the context of degree programmes. This option should especially be popular amongst professionals in need of flexibly designed short-term learning tracks that offer all the advantages of online learning and reflect the professional environment. Online proctored exams will be key in this regard.

### Pilot projects

Delft University of Technology is currently focusing on an 'audit and review' method known as Remote Proctor Now (RPNOW). Crucially, the system is available on a 24/7 basis. This flexibility is essential, as participants are located in different time zones. The first phase involved the resolution of various technical issues relating to bandwidth and different webcam types. In the current phase we will gain practical experience and determine how we can service various target groups (working professionals, undergraduate students) and embed the system within the organisation. Rather than the system itself, its effective integration into the university represents the most important innovation: this process should be designed to inspire sufficient confidence in the system's quality and reliability. A working group comprised of various stakeholders (such as the examinations board and lecturers) has been established to this end, and will be addressing questions such as:

1. How will we incorporate the various time zones into our examination policy?
2. What happens if the examinations board decides a student has committed fraud on the basis of the images, and the student appeals against this decision?
3. Should students be allowed to use a notepad or calculator on their PC?
4. To which forms of assessment is online proctoring suited?
5. Should online proctoring be subject to more or different preconditions than face-to-face proctoring?
6. Which administrative burdens will this involve?

The start of the 2015-2016 academic year will see the launch of small-scale online proctoring at various online Master's courses such as Aerospace and Civil Engineering. In parallel to this development, a test panel partly composed of students will assess whether the system is performing adequately and whether any additional preconditions will have to be applied in the event of fraudulent behaviour. For example, we have opted to develop additional video tutorials on conducting an effective desk room scan and expanded our standard RPNOW policy. We will be assessing the system's performance over the coming period and determining whether the convenience of home testing continues to outweigh the number of required safety checks.

Some studies compared online proctored examinations with testing in exam halls. Interestingly enough, online proctors may be quicker to detect fraud than invigilators in the exam hall (Case & Cabalka, 2009). All findings are contextual: related to the relevant test, target group and proctoring solution being used. Nevertheless, these studies do help to offer clearer insight into the effects of online proctoring and may even clear up some common misconceptions.

### How does the Dutch higher education sector feel about online proctoring?

Most examinations boards, lecturers and institutions are justifiably sceptical about the validity of this assessment method (Siemens, 2015). After all, the value of our degree certificates is at stake, and fraud can cause major reputational damage to both the relevant institution and the online education sector in general. This reticent attitude cannot be resolved until online proctoring has become a more familiar and accepted phenomenon. On the other hand, online testing will be crucial in ensuring the international competitiveness of our online programmes. We tend to forget that invigilators in the exam hall are also incapable of preventing every form of fraud. If nothing else, though, we are familiar with this form of monitoring. Further progress will thus require greater familiarity with online proctoring.

### How do we proceed from here?

The LinkedIn OPE (Online Proctoring Europe) group is one example of an appealing collaboration. The above section describes various pilot projects by Dutch research universities; their valuable experiences deserve to be widely evaluated and shared. SURFnet and the Digital Assessment Special Interest Group can play a key coordinative role in offering more insight into online proctoring and instilling confidence in potential users. We would like to invite everyone currently involved in digital assessment and online education to jointly focus on the following six aspects:

1. Organise research projects in order to provide greater insight into online proctoring and instil confidence. How great is the likelihood of fraud? This aspect could be researched by means of a comparative study involving fraudulent mystery guests participating in both written examinations at exam halls and online proctored
   examinations.
2. What about the relevant legislation and regulations? Does this allow for online proctoring, and – if so – under which conditions? Will there be any need to adjust the relevant regulations? Which aspects will have to be enshrined in the teaching and examination regulations?
3. Offer insight into the solution providers. Which providers are currently active on the market? Which technological solutions are they offering, and what are their pros and cons? How reliable and adequately trained are the online proctors offered by the key providers, and which procedures have these companies put in place to ensure their quality?
4. Offer insight into business cases. Which aspects do you focus on when selecting an online proctoring provider? Which organisational costs can institutions expect to incur? How do the costs/benefits compare to the alternatives described above?
5. Which assessment forms are suited to online proctoring, or can offer an alternative to online proctoring? Challenge institutions with an incentive scheme to explore these questions.
6. Share organisational best practices: how should online proctoring be organised, what should you communicate to students, which conditions should students be expected to meet?

## In conclusion

We started this article by asking whether the cautious acceptance of online proctoring was justifiable. In our view, online proctoring for the time being mainly offers a solution for the providers of online education. Those seeking to attract an international target group with online programmes will also have to offer online assessment: the alternatives tend to be too expensive for students (airline tickets) or require too much organisation (whereby the programme is forced to organise on-site assessment for each student). Online proctoring technology has now developed to a stage where it can offer a reasonable degree of certainty. However, fraud can never be ruled out entirely. Suppliers will continue to develop increasingly sophisticated solutions. Carefully designed assessment procedures can offer even greater certainty. Continued collaboration will yield clearer insight into the pros and cons, limitations, opportunities and alternatives to online proctoring. MOOCs, courses for professionals and pre-Master's tracks that are not linked to any formal degree certificates offer an ideal opportunity to gain further insight into online proctoring on the basis of evaluation and research.

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## Literature


- Alderson, J. (2015). The Developing Market for Online Proctoring. http://www.eduventures.com/2015/08/the-developing-market-for-online-proctoring/.
- Case, R., Cabalka, P. (2009). Remote Proctoring: Results of a Pilot Program at Western Governors University. 25th Annual Conference on Distance Teaching & Learning. http://www.uwex.edu/disted/conference/Resource_library/proceedings/09_19933.pdf.
- Cluskey Jr., G.R., Ehlen, C.R. & Raiborn, M.H. (2011). Thwarting online exam cheating without proctor supervision. Journal of Academic and Business Ethics, Vol. 4, p1. http://www.txstate.edu/honorcodecouncil/Student-Resources/Additional-Resources/contentParagraph/0/document/Integrity%20of%20online%20exams.pdf.
- Fask, A., Englander, F. & Wang, Z. (2014). Do Online Exams Facilitate Cheating? An Experiment Designed to Separate Possible Cheating from the Effect of the Online Test Taking Environment. Journal of Academic Ethics. Vol. 12, Issue 2, pp. 101-112. http://link.springer.com/article/10.1007%2Fs10805-014-9207-1#page-1.

INTERMEZZO

# BATTLE OF CONCEPTS

by **Hester Jelgerhuis** (SURFnet)

SURF organised a Battle of Concepts in the spring of 2015 in an effort to challenge students and young professionals to submit creative answers to the following question: "How can we apply new or existing ICT applications more intelligently in order to personalise higher education?" A remarkably large percentage of the submissions revolved around concepts relating to freely accessible online education and the sharing of learning materials.

**From the ambitious to the practical**

For example, a large number of proposals addressed the need for an online education learning platform, offering students access to online courses from other Dutch research universities and universities of applied sciences. This concerns both subject-related courses and courses centred around skills or personal development. Such solutions would enable students to select courses offered by either their own institution or an external institution, and attend these at a time and location of their choosing. They would also allow students to make use of restricted or freely accessible web lectures, e-books, digital testing and other facilities. A large percentage of the submitted ideas revolved around supporting students in the process of learning from and with each other. Many proposals also described a personalised learning environment that can be shaped by individual students to reflect their preferences and needs. Finally, participants also submitted ideas for smart tools and apps that facilitate the studying process, varying from scheduling apps to apps that link the user to fellow students on the basis of their interests or questions (e-matching).

**The best concepts**

A jury including representatives of the ISO and LSVb student unions selected the ten best concepts from a total of 45 submitted proposals. In an effort to inspire as many people as possible, SURF has published all proposals (on the basis of CC0-licensing) and the jury report. The box on page 43 features various proposals relating to online education and the sharing of learning materials.

**More information:**

- http://www.battleofconcepts.nl/battles/SURF/SURFnet_31-05-2015
- https://www.surf.nl/kennis-en-innovatie/innovatieprojecten/startdatum-2015/proeftuin-innovatieve-ict-toepassingen/battle-of-concepts/index.html

INTERMEZZO

# SUBMITTED PROPOSALS FROM THE BATTLE OF CONCEPTS THAT RELATE TO ONLINE EDUCATION AND SHARING TEACHING MATERIALS

**SOL – SURF Online Learning Environment (1st prize)**
This concept describes a thought-provoking vision of the future, in which students are able to follow courses at all Dutch research universities and universities of applied sciences by means of an online learning environment. The new system would allow them to compose their own curricula from a supra-institutional range of online education. They would then receive a certificate featuring the relevant institution's quality mark for each successfully completed course.

**Blink (2nd prize)**
The Blink application enables students to seek and find assistance and ask each other questions (both online and offline).

**Bijlesplein (top ten)**
This digital tutoring platform offers students learning materials on specific skills or subjects in which they wish to be 'tutored' and the opportunity to get feedback.

**Uni360 (top ten)**
Uni360 offers students online lectures, interactive exercises, tests, assignments, information sources and a tutoring network, enabling them to study 'any place, any time, any way'.

**Online Study Bank**
The online study bank allows students, lecturers and staff to share learning materials, news and assignments, while 'subscribing' to various subjects of choice.

**Online learning, offline support**
A focus on web lectures, self-study questions and digital testing allows for face-to-face education, evaluation and tailored supervision.

**Get feedback**
This online platform is aimed at Dutch higher education students, offering insight into the current level and any aspects requiring further attention through targeted feedback.

**ClassesGlasses**
Students can attend lectures at any time of their choosing thanks to the use of Oculus virtual reality glasses.

**Flipped Classroom**
This proposal describes an online platform enabling students to follow their own individual tracks with additional support available where necessary.

**SPS – StudyPartnerSystem**
The StudyPartnerSystem is an online network that serves to connect students from various degree programmes, enabling them to collaborate and exchange knowledge.

# WHERE IS THE DUTCH OER LIBRARIAN?

by **Hilde van Wijngaarden** and **Frederike Vernimmen**

A growing portion of teaching materials are available online. How is this development affecting the role of libraries at research universities and universities of applied sciences? Although some libraries in the Netherlands are already seeking to tailor their services to reflect this new trend, most are still working to develop an appropriate response. So far, their support activities have been oriented towards 'online' rather than 'open' teaching materials. In the United States, libraries play a prominent role in the area of OER support. However, this support appears to be limited to the domains traditionally associated with libraries: content and collections. Library support for blended learning and the creation of interactive learning materials is somewhat less advanced. Which differences and similarities can we identify between the Dutch and American situations, and which US examples would be worth emulating here in the Netherlands? Does the Netherlands need an *OER librarian*?

### How are Dutch libraries contributing to open and online education?

In early 2015, SURF commissioned a review of Dutch higher education libraries in conjuncture with SHB (the Samenwerkingsverband Hogeschool Bibliotheken or University of Applied Sciences Libraries Partnership) and UKB (the consortium of Dutch university libraries and the Koninklijke Bibliotheek (National Library)) (SURF, 2015). A well-attended specially-themed meeting was organised on the subject in March of 2015. As it turned out, views on the exact definition of open and online education varied. In order to ensure the consistency of all terms used in this article, we will be adhering to the recent conceptual framework published by SURF (see box) (SURF, 2015).

#### Online education, open education and OER

Online education is defined as education whereby all or at least 80% of all learning materials, tools and services are made available online. Open education can be categorised on the basis of three different dimensions of openness:

1. available free of charge;
2. freely accessible (no entry requirements, no closed paywalls, etc.);
3. free to edit (with learning materials published on the basis of an open licence).

OER are free learning materials that can be freely used and reused. The copying, editing and distribution of these materials is permitted (subject to certain conditions) through the use of an open licence, such as Creative Commons. OER may consist of individual learning materials such as web lectures or articles, as well as composite learning materials such as open courseware or MOOCs.

The extent to which Dutch research universities and universities of applied sciences have developed policies in the area of open and online education varies greatly from institution to institution. Views on the libraries' potential roles and services in support of digital learning also vary. Unlike many other institutions, Delft University of Technology has genuinely enshrined open and online learning in its institutional policies and clearly defined the role of its library. For example, the library is responsible for managing the open courseware website – used to store materials after the MOOCs have concluded – as a part of its duties in the MOOC development process. Support activities by the library thus reflect the institution's strategic choices.

Most other libraries support the open and online education process on the basis of their allocated – more or less traditional – role or requests from teaching staff, rather than adhering to any specific institutional strategy.

### Traditional library services

According to the SURF review, the ongoing development of OER is lending new relevance to the libraries' traditional tasks and inherent strengths. These include providing access to, creating metadata from and indexing of teaching materials, providing advice on copyright fees and licences and helping users improve their information skills while searching for, selecting and using online education. Almost all libraries offer support in these areas and are working to convert their own workshops on information skills into online tutorials under the Creative Commons licence. For example, Maastricht University has developed an online information skills module under the Creative Commons licence in collaboration with lecturers from the Faculty of Health, Medicine and Life Sciences. The new module will help students learn the skills they need to find suitable material in various OER sources.

### A new role for the library

The latest innovations in education and research are also giving rise to other – less traditional – educational roles, which are being adopted by some libraries and ignored by others. These include the management of video and publication platforms or comprehensive electronic learning environments such as those found at Maastricht University Library (Lutgens & Noteborn, 2014).

We should also highlight a number of examples from the current practice. In the same vein as traditional cutting files, libraries can store and describe all available online teaching materials within a specific field (content curation) or work with lecturers to seek out online materials. The library at the University of Twente is helping to build a repository for online teaching materials and has launched a 'digital learning resources helpdesk' project for students and lecturers (with a focus on OER and MOOCs) in collaboration with the Centre for Educational Support.

The library's role can also shift towards the support of content creation. Examples include studio facilities offering lecturers practical support in the creation of videos, web lectures and knowledge clips, as is the case at Rotterdam University of Applied Sciences and Windesheim. Some libraries also facilitate experiments with these technical aids or other e-learning tools, or provide advice on their practical application in the day-to-day teaching practice. The Maastricht University Library is conducting various experiments in collaboration with the faculties and EDLAB as a part of the 'EdICTed' initiative. These experiments extend to aspects such as the educational use of smart glasses, online feedback and grading tools. Rotterdam

University of Applied Sciences has established a Digital Learning Lab, while the library at the Amsterdam University of Applied Sciences will be launching an e-learning support (ELS) project in the short term.

However, some libraries feel such activities fall outside the scope of their responsibilities and prefer to play a more traditional role. In some cases, libraries are hesitant to assume responsibilities more traditionally associated with lecturers. After all, the lecturer plays a leading role in the shaping of education. According to a brief inventory amongst Dutch lecturers, the library is generally not always the most obvious port of call for advice on the use of open and online education or the online publication of their own materials.

### Which measures are libraries in the US taking in support of open and online education?

November 2014 saw the publication of a blog on the Open Education Conference in Washington DC (Van Wijngaarden, 2015). We will now compare Van Wijngaarden's impressions of OER librarians in the United States with the situation here in the Netherlands.

Several university libraries in the US currently play the role of OER librarians: librarians charged with providing advice on and access to OER. Students purchasing books at the start of their degree programme can consult this official for advice on open alternatives. Students and lecturers seeking more in-depth materials for specific courses can visit the OER librarian for tips. Lecturers that are working to prepare courses and wish to gain inspiration from their colleagues can also consult the OER librarian for advice on comparable courses that can be used during their lessons. The process is a two-way street: lecturers and students seeking to provide open access to their own materials can seek advice on publication formats, projects and funding for open textbooks and open licencing. Although this role is certainly not commonplace yet in the United States, a growing number of OER librarians are increasingly communicating with and supporting one another.

This position is currently still largely non-existent in the Netherlands, where libraries do not necessarily play a role in the process of supporting and promoting OER. Despite such examples of libraries cautiously moving towards a more supporting role in the area of open teaching materials, the idea of a Dutch OER librarian (still?) seems relatively far-fetched.

### How can we explain the differences between the Netherlands and the US?

The lack of such a role in the Netherlands can be attributed to various key differences with the situation in the US. The first of these differences between the Dutch and American education sectors lies in the aspect of costs. University education is an extremely costly affair in the United States. Students pay high tuition fees, and expensive teaching materials only add to the cost of their studies. Open alternatives can thus help reduce these high costs and ensure that higher education remains accessible.

A second difference lies in the aspect of scale: the average US university library is far greater than its counterparts in the Netherlands. A library with a staff of 200 is normal by American standards, whereas a facility of this size would be considered extremely large in the Netherlands. These US university libraries still employ a large number of librarians charged with traditional library services: searching and finding,

collecting and creating metadata. These staff members have taken on the labour-intensive tasks associated with searching for and finding OER.

Finally, we should emphasise the difference between sourceware and courseware. Dutch libraries are often largely focused on the collection for background information and research purposes (sourceware) rather than the prescribed study materials (courseware). US OER librarians tend to be far more directly involved in the process of preparing and providing access to mandatory study materials. Dutch libraries are increasingly opting not to apply this strict distinction. The university library in Maastricht creates e-readers at the request of lecturers (this service includes the verification of copyrights in preparation for inspections by Stichting PRO) and makes them available to students within the electronic learning environment at individual course level. The library at the Amsterdam University of Applied Sciences is leading a project aimed at the creation of interactive digital readers. As a result of this process, traditional readers are gradually transforming from volumes of articles into online courses with quizzes and video clips.

As long as libraries continue to apply this distinction, librarians may well fail to give OER the attention it deserves: after all, this type of material is not viewed as part of the library collection. There are, in other words, plenty of reasons why OER librarians are scarce in the Netherlands. More importantly, though, we should ask ourselves whether this situation needs to change.

### Do we need OER librarians in the Netherlands?

The deployment of OER librarians as a part of the effort to improve findability and use of open and online learning materials has had a major impact on educational support at US universities. Nevertheless, their work seems to be largely centred around ‘traditional library services’. US libraries still devote limited attention to the embedment of blended learning, the educational use of video and other innovative developments currently being gradually adopted in the Netherlands, as well as other didactic scenarios.

### Libraries can play a greater role!

With the emergence of blended learning, online courses and the general digitisation of our education, lecturers in the Netherlands could certainly do with a little help. Creation and the use and reuse of content requires a great deal of time and effort. A new information flow has recently emerged: in addition to the flow from sender to recipient, we now also have to process interactions between lecturers and students. For example, blogs with reactions, Facebook notifications and comments in response to articles may be included in the available course materials. This raises issues in the area of licences, findability, metadata creation, storage, sustainable management and copyright. These are the types of questions library information specialists are ideally positioned to address. Although this educational innovation offers libraries an ideal opportunity to prove their added value, OER librarians in the US are largely failing to focus on this aspect.

However, we could certainly look to our US colleagues when it comes to the aspect of ‘open’. Most Dutch lecturers are still highly reluctant to share their own learning materials. Although some research universities and universities of applied sciences are working to make their materials openly available, the majority are still developing policies and strategies to encourage and support the open sharing of material, as the previous trend reports have highlighted from various perspectives.

Assuming research universities and universities of applied sciences want to adopt open education, we should ask ourselves which role libraries can play in this process. This could take various forms: The information specialist can assist during the creation of new materials and provide advice on licences in order to facilitate the careful sharing of materials. Libraries could also take responsibility for the management and sustainable accessibility of teaching materials. An active role by information specialists could help convince lecturers to participate. As soon as lecturers start sharing, a larger volume of higher quality materials will become available. This will facilitate better education that reflects the needs and possibilities of our day and age, which – lest we forget – is the driving force behind all our efforts.

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## Literature


- Lutgens, G. & Noteborn, G. (2014). Partner in Onderwijsinnovatie, UB Maastricht in Online leeromgeving. Informatie Professional, 07/14, 18–20.
- SURF (2015). Conceptual framework for online education. Available at https://www.surf.nl/kennis-en-innovatie/kennisbank/2015/begrippenkader-online-onderwijs.html.
- SURF (2015). De rol van de bibliotheek in open en online onderwijs. Een verkenning. Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2015/rapport-rol-bibliotheken-web.pdf.
- Wijngaarden, H. van (2015), De OER librarian. Blog Surfspace dd. 27-11-2014. Available at https://www.surfspace.nl/artikel/1716-de-oer-librarian/

INTERMEZZO

# PRACTICAL AIDS: CONCEPTUAL FRAMEWORK FOR ONLINE EDUCATION AND INFOGRAPHIC

by **Hester Jelgerhuis** (SURFnet)

So what do we actually mean by the term open and online education? This question prompted SURFnet to organise a 'definition session' in collaboration with ten experts from the field. The participants concluded that the current jargon can be confusing, and formulated the need for a conceptual framework and step-by-step plan to further explore the possibilities of online education.

**Conceptual framework**

This conceptual framework describes various key concepts in the area of online education, with an emphasis on the 'open' dimension. This concerns concepts such as OER, blended learning, web lectures, MOOCs and 'flipping the classroom'. In addition to brief definitions, often derived from internationally accepted definitions, the framework also explains various concepts in greater detail and provides links to sources offering further information. The objective is to provide a common conceptual framework and clarify the frequently confusing professional jargon.

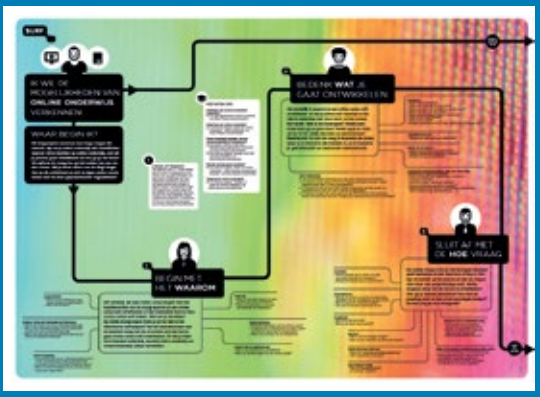
**Infographic on online education**

The infographic (in the form of a poster) was developed for higher education staff members and contains two elements: a step-by-step plan for further exploration of the potential of online education, and a diagram outlining the various ingredients of this teaching format. The step-by-step plan on the front of the poster will help those seeking to develop online education explore three key questions: why do you want to opt for online education, what will you be developing and how will you be approaching this process? Each question is elaborated into a series of sub-questions that jointly comprise a useful guideline for the design of online education.

The reverse side of the poster features various 'ingredients' that can be combined to create a personalised online course. This will consistently involve a combination of learning materials (such as web lectures or e-books), apps, ICT and tools (such as social media or the learning platform) and services (either based on human efforts or automated services such as supervision and automated feedback). These 'ingredients' can be viewed from various perspectives.

1) To what extent do we wish to offer these learning materials, tools and services in **blended** form: which components will be offered online, and which will be provided in face-to-face format?
2) To what extent will the learning materials, tools and services be **open**: which components will be made freely accessible at no charge on the basis of an open licence?
3) To what extent do we wish to apply **existing** learning materials, tools and services or – alternatively – opt to develop new ones?

- Conceptual framework: http://tinyurl.com/o3vkgqy
- Infographic on online education: http://tinyurl.com/oejshor



# FROM LECTURER PROFESSIONALISATION TO EDUCATION DEVELOPMENT

by **Janina van Hees**

This year, SURF has inventoried how ICT lecturer professionalisation is organised in the Dutch higher education sector and which themes are addressed. For the purposes of this article, an examination has been conducted into the reference points that the research report offers with respect to open and online education.

### Research structure

Researchers Ineke Lam and Riekje de Jong of Utrecht University have collected data from ICT contact persons and contact persons who are responsible for teaching qualification programmes at a total of 35 research universities and universities of applied sciences. Firstly, they painted a rough picture of the way in which lecturers' ICT skills are incorporated in professionalisation policy. Subsequently, based on the data from the inventory, nine good practices were established.

### Open and online education as a theme in lecturer professionalisation

Amongst other issues, the study (Lam & De Jong, 2015) examines the boundaries of the theme of ICT and education within the lecturer-professionalisation process. An interesting conclusion is that more than half of the institutions who have responded to the survey, say their institution has included blended learning as a theme in the teaching qualification programmes. By contrast, OER and MOOCs are included in the training much less frequently. Another notable factor was that 'flipping the classroom' and digital feedback are more frequently incorporated into training at universities of applied sciences compared to research universities (see table 1).

### Priorities for 2015-2018

In addition, a survey was conducted into ICT & education themes that are central to the surveyed institutions in the period 2015-2018. The information gathered from this survey is displayed in table 2.

This table shows that within universities of applied sciences, blended learning and digital learning & working environments are the most frequently mentioned subjects. At all of the research universities surveyed, the themes of digital learning & working environments and digital testing were on the future agenda. Web lectures, blended learning, 'flipping the classroom' and online learning are also high on the priority list. OER and, in higher professional education, MOOCs are mentioned far less frequently.

| Designing education | hbo (higher professional education) (n=17) | wo (academic education) (n=11) |
|---|---|---|
| digital learning and working environment/ virtual learning environment | 12 | 8 |
| blended learning | 11 | 7 |
| online learning | 8 | 5 |
| open educational resources | 4 | 2 |
| MOOCs | 4 | 0 |
| other | 6 | 4 |
| **Teaching and supervising students/provision of education** | | |
| blended learning | 14 | 7 |
| flipping the classroom | 13 | 4 |
| digital feedback | 11 | 0 |
| web lectures | 6 | 5 |
| other | 12 | 8 |
| **Testing & assessment** | | |
| digital portfolio | 11 | 3 |
| digital testing | 9 | 7 |
| other | 13 | 4 |

**Table 1:** ICT themes included in the teaching qualification programmes.

| ICT priority topics in 2015-2018 | hbo (higher professional education) (n=21) | wo (academic education) (n=14) |
|---|---|---|
| blended learning | 17 | 12 |
| digital learning and working environment/VLE | 17 | 14 |
| digital testing | 13 | 14 |
| flipping the classroom | 12 | 11 |
| web lectures | 11 | 13 |
| online learning | 10 | 11 |
| open educational resources (OER) | 8 | 5 |
| MOOCs | 7 | 10 |
| other | 4 | 5 |

**Table 2.** ICT and education themes that are central to institutions in the period 2015-2018.

Comparison of the subjects and the priorities shows that the themes relating to open and online education play a more important role in the institutions' future agendas than in the current list of lecturer-professionalisation themes. For example, respondents from 11 of the 14 research universities indicated that 'flipping the classroom' will be an important theme in the coming period. However, table 1 – which displays the current ICT themes included in the courses – shows that this theme is incorporated into the current training programmes much less frequently. This also applies for the themes of web lectures and MOOCs. Presumably, the professionalisation agenda has become somewhat outdated. Reassessment of the training programme in the short term could therefore be useful.

### Concrete development of education is more important than training

The report then presents nine good practices for ICT lecturer professionalisation at the institutional and programme level. One of the most interesting concluding observations indicates that concrete development of education is in fact more important than training: "A number of good practices advocate a professionalisation concept that mainly consists of lecturers helping each other to develop ICT-integrated education, assisted by both ICT- and educational support officers. The professionalisation concept therefore consists of collaborative development or co-creation rather than 'training'. This therefore shows a development towards professional learning communities."

Are these kinds of learning communities for lecturers a trend within lecturer professionalisation? Right now, there is not enough evidence for this. However, the report does indicate that these learning communities may be a promising concept and could also be a key factor in successful further training of lecturers in the use of open and online education.

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### Literature


- Lam, I. en De Jong, R. (2015). Van docentprofessionalisering naar onderwijsontwikkeling. Inventarisatie van de status quo van ICT-docentprofessionalisering'. Utrecht 2015, p. 13. Available at https://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2015/rapport-inventarisatie-ict-docentprofessionalisering.pdf.
- In the autumn of 2015, Ineke Lam and Riekje de Jong are expected to publish a discussion paper on this theme. This paper will be published in SURF's Knowledge Base.

INTERMEZZO

# EUROPEAN AND WORLDWIDE MOOC PROJECTS

by **Fred de Vries** (Open University of the Netherlands)

Since the rise of MOOCs, grateful use has been made of national and European programmes for purposes such as elaborating educational concepts and evaluating the use and influence of MOOCs. A huge number of projects and initiatives have already been launched in Europe alone.

**EMMA**
The EMMA project offers an aggregated overview of European MOOCs, offered in multiple languages. Large-scale pilots have been organised with innovative educational approaches. The project not only focuses on research university providers, but also students who can create their own MOOC using a toolkit.

**MOOCKnowledge**
Together with the Institute for Prospective Technological Studies (IPTS), researchers at three research universities – of which one is the Open University of the Netherlands – are conducting a three-year longitudinal study by means of a standardised questionnaire into the long-term effects of MOOCs on, for example, the labour market.

**OpenEDU**
This project is also the brainchild of the Institute for Prospective Technological Studies ('A Study on Strategies for Opening Up Education') and emphasises the importance of a framework for open education that pays attention to both teaching and technology in addition to accreditation and business models.

**HOME Higher Education Online: MOOCs the European way**
This project, organised by various open universities, promotes the quality, diversity and application of OER in MOOCs. Special attention is paid to business models that could be elaborated by universities and that boost the educational quality of MOOCs. The project stems from the OpenUpEd initiative, which establishes quality requirements for MOOCs that match those set for regular education.

**MOOCs4all**
The MOOCs4all project aims to make MOOC development even more accessible by offering practical and cost-saving tips.

The global initiative **OERu** is still going strong OERu, the OER university, is a non-profit philanthropic initiative operating alongside the well-known commercial providers of MOOC platforms. With OERu, the openness of the education provided is a high priority.

With regard to licences, Creative Commons operates an open policy network on open-licence issues.

The OER Worldmap focuses on boosting accessibility of reusable OER. This may seem redundant, but the emphasis is usually on making teaching materials available yourself rather than using someone else's materials within educational resources such as MOOCs.

For anyone interested in keeping up to date with European developments in the field of MOOCs as part of the open education movement, the European Commission's website OpenEducationEuropa, would be a good place to start.

And to keep up to date with global developments, you can also visit the Open Education Consortium's Open Education Information Centre.

# CONNECTING VARIOUS FORMS OF OPENNESS: SEEKING A STRONGER VALUE PROPOSITION

by **Nicolai van der Woert, Robert Schuwer** and **Martijn Ouwehand**

In addition to open education, open access, open source software and open innovation, the open movement has also developed other varieties of 'openness'. Although many types of 'openness' exist, they are all based on the same basic principles. At major open education conferences such as OpenEd2014, OER'15 and Open Education Consortium Global Meeting 2015, it was clearly evident that people are beginning to realise how the connection of various 'open' areas can provide considerable added value, enabling innovation, improvement of quality, expansion of knowledge domains and development of new insights. The next steps in the development of open education require connection with other types of openness (Allen et al., 2015). This issue is therefore high on the agenda of the Unesco OER Chairs Meeting.[1]

In an OpenEd '14 keynote, John Wilbanks discussed important growth impulses for open source software that can be realised by connecting with other forms of openness. His educated guess was that this would be conducted in an analogue manner within open education, and this may possibly be the only way in which open education can develop further.

But what value does a more integrated approach to openness add? And what would we miss out on by not adopting this approach? In this article, we will answer these questions in relation to open education and open science, as these are the most important fields for education.

### Origins and core values

By now, there is a large number of open fields, collectively known as the 'open movement'. This movement stems from open source software in the 1980s, which in turn originated from the 'free software movement'[2] in around 1983. All of these fields are based on broad accessibility and the ability to use, reuse, revise and share – free of charge and under certain conditions – for various purposes such as improvement of efficiency and quality. As an example, Table 1 displays the basic principles of open source software and the OER movement, as interpreted by David Wiley. The table clearly shows the similarities whilst simultaneously giving specific details relating to the field of education. In 1998, inspired by open source software, Wiley created a proposal for open licences for learning materials. This proposal was partly incorporated into the Creative Commons licence structure.[3]

| Basic principles of open source software | Basic principles of OER |
|---|---|
| 1. Free distribution<br>2. Source code is available and distributable<br>3. Derived works<br>4. Integrity of the authors source code<br>5. No discrimination of persons or groups<br>6. No discrimination against fields of endeavour<br>7. Distribution of licence<br>8. Licence must not be specific to a product<br>9. Licence must not restrict other software<br>10. Licence must be technologically neutral | 1. Retain - the right to make, own, and control copies of the content (e.g., download, duplicate, store, and manage).<br>2. Reuse - the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video).<br>3. Revise - the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language).<br>4. Remix - the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup).<br>5. Redistribute - the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend. |

**Table 1.** The basic principles of open source software and OER.

## Open education and open science

The basic principles of openness have been properly observed in the field of science as a result of hard work to make scientific information available and to share it. Open access, open journals, open data, and open research have resulted from this, which can be categorised as open science. Figure 1 gives an overview of the themes that can be classified as open science and what elements they consist of.[4]

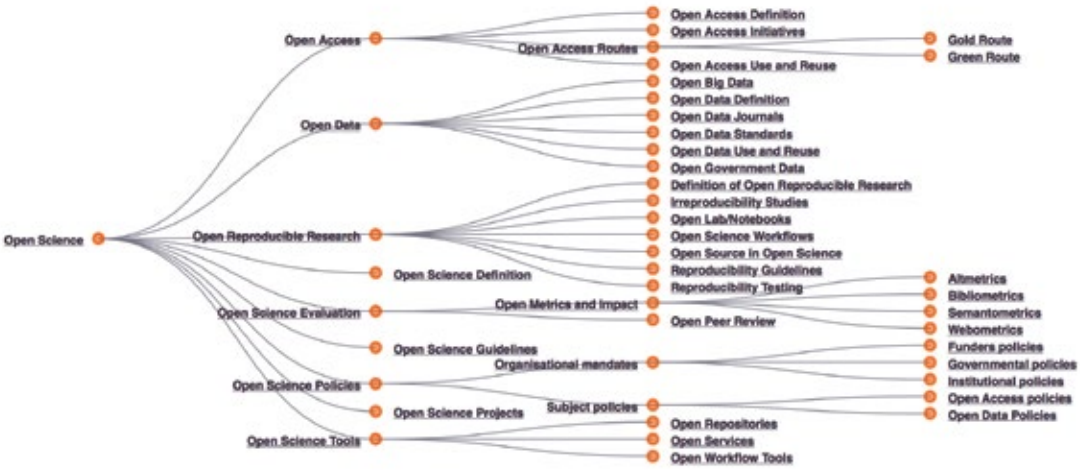


**Figure 1.** Overview of open science.

The open education movement began to grow in around 2005. Its initial focus was on open educational resources (such as open courseware), and later the focus shifted to the application of these resources (open educational practices, open courses, incorporation into existing education, tapping into new target groups, testing, certification and accreditation, open learning pathways). Figure 2 displays the coherence between open education and open science. In areas where elements of both fields overlap, it can be beneficial to view these as connected elements. The figure displays three types of overlap.

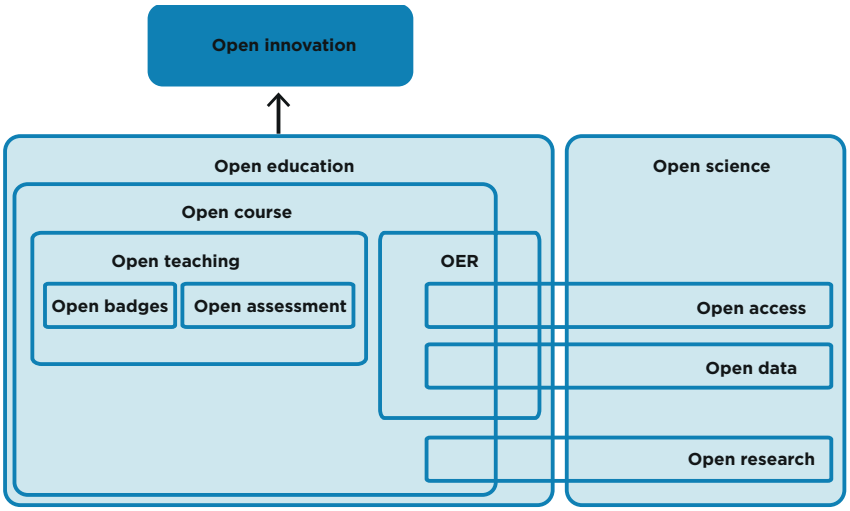


**Figure 2.** Relationship between open education and open science.

## OER, open access and open data

For higher education courses, learning materials often consists of academic publications. In this sense, open access papers can be considered a special form of OER (Anderson, 2013). Repositories of open data offer various opportunities for open education.[5] They can relate to educational data collected by institutions or the government. Analysis of this data gives greater insight into the educational process and can therefore be valuable to students (enabling them to make better informed choices during their studies), institutions (e.g. via benchmarking) and government bodies (as input for policy decisions).[6]

Sets of open data can also be used as learning materials, e.g. for analysis by students or for use in statistics courses. Histropedia.com is a great example of this. Based on open data/wikidata and Wikipedia articles, this website enables history to be visualised in a timeline and allows lecturers and students to construct their own timeline.

## Open courses and open research

According to Wikipedia, the definition of open research is: "To make clear accounts of the methodology freely available via the internet, along with any data or results extracted or derived from them. This permits a massively distributed collaboration, and one in which anyone may participate at any level of the project." The collaboration mentioned in this description can also take place by granting users of an online course access to elements of open research, or allowing them to contribute to it. An excellent example of the latter is the 'Solar Energy' MOOC by Delft University of Technology. The data that participants in this course provided regarding the quality and cost price of their local electricity supply and the number of hours of

sunshine have given the lecturer a large research database.[7] A MOOC by the OER Research Hub[8] gives clear explanation of the forms that open research can take and their significance for research into OER and open education.

### Open education and open innovation

In 2003, Henry Chesbrough described open innovation as a form of innovation that transcends the boundaries of the organisation conducting it. This either involves usage of knowledge from outside an organisation (usually in the form of collaboration) or sharing of knowledge with the outside world. In practice, from the perspective of an education institution, this means reusing OER within campus education or making OER available to others. With regard to adoption of open education, education institutions can learn from the experience of other types of organisation with open innovation. Conversely, forms of open education can be a tool with which organisations can realise their ambitions with regard to open innovation (Schuwer, 2015). One example of this is the use of a MOOC by the oil company Total in order to share their knowledge of oil extraction with the outside world.

### Enablers of open education and open science

Earlier, we have shown how various types of 'openness' within and between education and research can reinforce each other. However, other forms of openness are necessary to facilitate the existence and development of open education and open science. Figure 3 displays a number of these forms of openness, which can be viewed as enablers of open education and open science. We will explain a number of these.

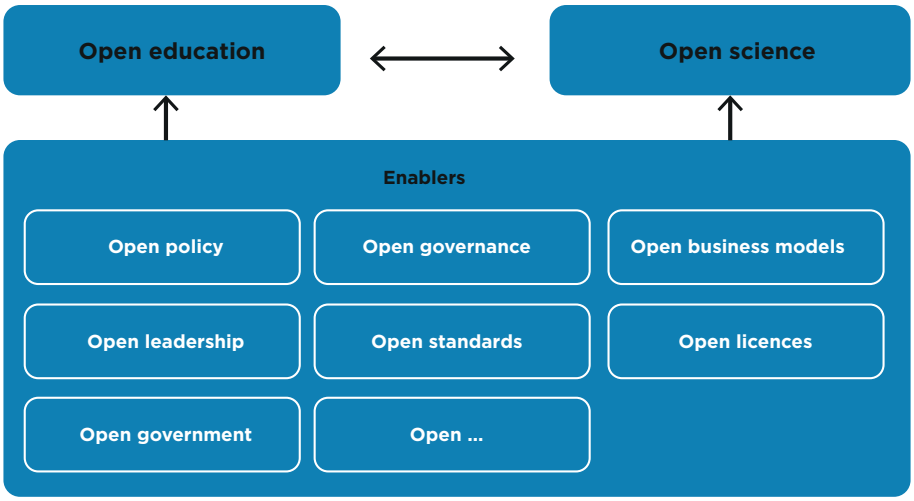


**Figure 3:** Open enablers of open education and open science.

### Open education, open policy and open leadership

The increasing impact and degree of distribution of OER and open education has highlighted the need for open policy. Open policies promote access to – and open licencing of – government-funded resources. Open policy can maximise the impact of public investment in science, data, education, libraries, archives, museums, software and other tools by means of efficient use and reuse of these resources for the benefit

of the public. For this purpose, Creative Commons' Open Policy Network has spent several years preparing its knowledge bank to be connected and disseminated for the purposes of open policy. The mission of this network is formulated as follows: "As open advocates, organisations and policy makers recognize the potential for open policies to significantly increase the amount and quality of publicly funded education, research, data, and software, there is a pressing need to provide them with support so they can successfully create, adopt and implement open policies. Open policies promote open licensing of resources financed through public funding in order to maximise the impact of the investment."

The development of open leadership – a vital element for organisations working with open education – has been a recent focus within open education. For example, the annual Standing Conference of Presidents (SCOP) of the International Council for Open and Distance Education (ICDE, the global organisation of open distance education institutions) examined this theme in 2013.[9] The most important finding was that managing an institution in which openness is a leitmotif requires a different type of leadership. In the Institute for Open Leadership, which is part of the Open Policy Network, these leaders in the fields of education, science and public policy are trained in the values and implementation of openness with regard to licences, policy and practical applications. Experienced open leaders pass on their knowledge to the new generation and provide coaching.

### Open education, open governance and open government

Governance in higher education focuses on the manner in which institutions are formally organised and what tactical and operational consequences this has. The rise of OER, open courseware and MOOCs has significantly changed these organisational structures. Open forms of education and other students are calling for different ways of organising educational processes, examination regulations, scheduling, the role of lecturers, educational logistics etc. In the search for effective, efficient and sustainable open governance models, vanguard institutions are gradually finding their way.

Open governance can also play out at the national level, giving it a direct link to open government. Governments from around the world are making the step to openness (see the Open Government Platform). The objectives for this include boosting the position of citizens in relation to the government, enabling participation, increasing transparency and public accountability and improving effectiveness and services. For example, the combination with open education is manifest in programmes such as Opening Up Slovenia or Opening Up Education Europe, within which government policy is combined with measures and projects for realising open education. Another example is an online EU policy consultation among scientists and academics in order to gather input on the desired direction of open education policy (Hylén et al, 2012). Governments are also increasingly working together in open government partnerships in order to achieve policy objectives for open education (Allen & Gondol, 2015).

### 'Openwashing'

The open education movement has a growing number of users and followers. However, it also attracts parties with more private and commercial intentions. In recent years, the term 'openwashing' has been increasingly used (Finley, 2011). Openwashing can be compared with greenwashing, which is when environmentally unfriendly products are positioned as green and eco-friendly in order to boost sales (Weller, 2014). Via openwashing, commercial and private products are labelled as having a more open character despite failing to comply with the openness criteria

established by the open movement. Openwashing practices can therefore be described as tainted, misleading and confusing.

For example, many different parties publish MOOCs under the banner of open education, yet do not enable sharing and revision. It therefore does not comply with the openness criteria applicable to OER. There are also businesses that offer so-called open education, but seek payment for one or more services relating to this education.

To enable coherent development of the open movement in all of its forms and combinations, it is therefore important to establish a coherent set of basic principles: when can you call something 'open', and which forms of openness does the movement recognise? However, a warning must be issued here: by being too much of an 'open purist' and shutting out commerce and the business world, we run the risk of missing out on opportunities for innovation (open or otherwise) and new product combinations. We should therefore seek the right balance between idealism and pragmatism.

### Are we heading towards an open culture?

The question for now is whether the entire open movement is on the path towards becoming an increasingly coherent whole, i.e. an open culture, resulting from new combinations of various contributing knowledge areas, all of which are based on common principles such as sharing, innovation, quality improvement and enhancement of efficiency. These combinations provide the coherence and added value required for further evolution, innovation and growth. In Figure 4, this is displayed in a simplified form.

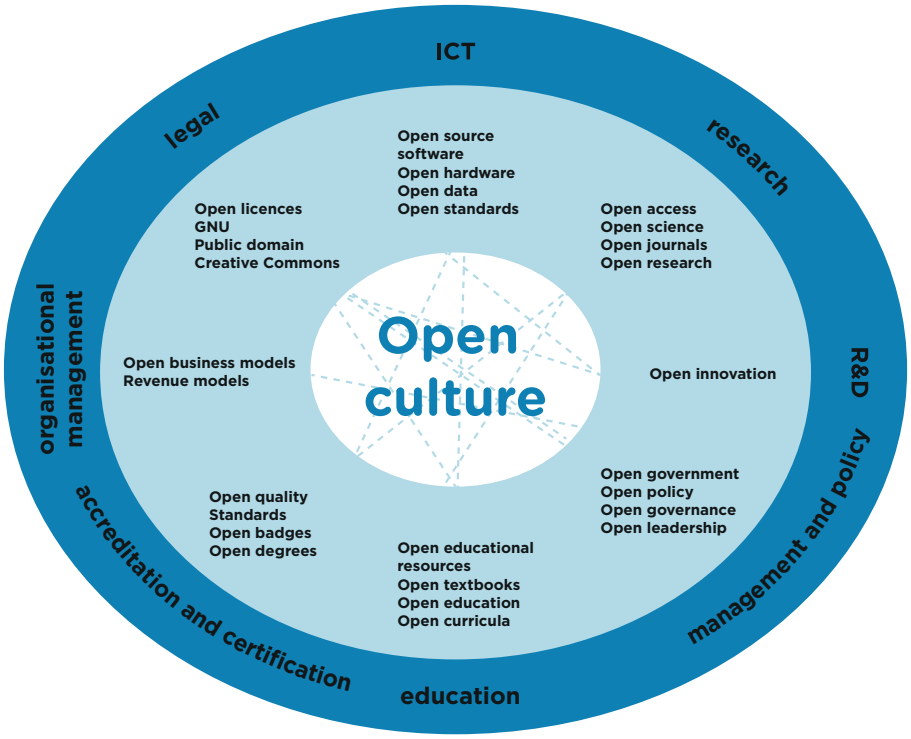


**Figure 4:** Open culture as a coherent entity of open fields.

Institutions that have 'openness' as their leitmotiv will derive greater value from increasing openness in products and services, and the corresponding business models will also be based on openness. The greater the number of contributing open fields, the more open the culture will be.

We are therefore witnessing a clear trend towards the development of an open culture. This subject was given significant attention during the Open Education Consortium Global Meeting 2015 with regard to the search for connections with open education. Mozilla stated that it is actively developing connections with open education in their efforts to globally take digital literacy to the next level by making use of the connection with open technologies (Surman, 2015). Also, the OECD (via Dirk Van Damme) said that they view OER as a catalyst for change and innovation in education with regard to aspects such as access, quality, distribution, costs, professionalisation and collaboration. He argues that policymakers should also work towards this.[10] Within the open education movement, a great deal of discussion is being conducted about opportunities to further realise an open culture. For example, during the OER15 conference in Britain, it was decided that OER16 in Edinburgh would focus on clarifying the value proposition pertaining to the implementation of open culture into the institutional strategy for learning, teaching and research. A clear trend towards open culture therefore exists, although its manifestation has not been fully crystallised and exploration is still in progress.

## Conclusions

The various combinations of openness with open education and open science offer major opportunities to reinforce one another, a process that is further accelerated when enablers of open education and open science are strategically implemented by institutions or government bodies. It may even be the case that an integrated approach to the various open fields is the only way that open education can survive and develop. From a broader perspective, all open fields are an expression of the search for an open culture. The exact manifestation of an open culture is still being discussed and its consequences for open education will become apparent in the years to come. Due to the potential advantages it offers, it is advisable to keep track of this trend and continually consider how developments can be used to benefit your own initiatives.

Finally, caution is called for when determining and safeguarding what is referred to as 'open'. Issues such as openwashing can threaten true openness, although they can also offer opportunities for discovering new opportunities in the open field.

## Endnotes

1 For example, see the activities conducted by the chair of the Otago Polytechnic & OER Foundation http://unescochair.oerfoundation.org/?page_id=129.
2 A good overview of the open source movement's timeline can be found in the Piktochart at https://magic.piktochart.com/output/2385023-history-of-the-open-source-movem.
3 http://opencontent.org/blog/archives/329.
4 https://www.fosteropenscience.eu/.
5 For example, see http://okfn.org/.
6 An overview can be found at http://www.slideshare.net/MariekeGuy/edtalk2.
7 http://www.slideshare.net/wfvanvalkenburg/oeglobal-action-lab-moocs, slide 16.
8 https://courses.p2pu.org/en/courses/2377/open-research-2014/.
9 http://www.icde.org/filestore/News/2013_July-Dec/SCOP_2013/Newsrelease-ICDEStandingConferenceofPresidentsmeeting20131205.pdf.
10 http://www.slideshare.net/oeconsortium/keynote-open-education-global-conference-banff-23-april-2015-final.

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### Literature


- Allen, N., Browne, D., Forward, M., Green, C. & Tarkowski, A. (2015). Foundations for OER Strategy Development. Open working document. Available at https://docs.google.com/document/d/1IYDeAmw3aMxuqpfEr_7BEwM5FJiqqX1S4dzPJZQqwTY/edit#heading=h.v6hj5wzh384y.
- Allen, N. & Gondol, J. (2015). Open Government Partnership as a platform for advancing open educational policy. Open Education Consortium global conference, Banff, 2015. Available at http://conference.oeconsortium.org/2015/presentation/open-government-partnership-as-a-platform-for-advancing-open-education-policy.
- Anderson, T. (2013). Open Access Scholarly Publications as OER. International Review of Research on Open and Distance Learning, 14(2).
- Chesbrough, H. (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press.
- Finley, K. (2011). How to Spot Openwashing. ReadWrite.Com. Available at http://readwrite.com/2011/02/03/how_to_spot_openwashing
- Hylén, J., Van Damme, D., Mulder, F. & d'Antoni, S. (2012). Open Educational Resources: Analysis of Responses to the OECD Country Questionnaire. OECD Education Working Papers, No. 76, OECD Publishing. Available at http://dx.doi.org/10.1787/5k990rjhvtlv-en.
- Schuwer, R. (2015). Hbopener: naar een open hbo-curriculum. Lectorale rede, Fontys Hogescholen, Eindhoven. Available at http://bit.ly/hbopener.
- Surman, M. (2015). Mozilla Keynote Open Education Consortium Global 2015 conference, Banff, Canada.
- Weller, M. (2014). Battle for Open: How openness won and why it doesn't feel like victory. London: Ubiquity Press. DOI: http://dx.doi.org/10.5334/bam.

INTERMEZZO

# RESEARCH AGENDA

by **Robert Schuwer** (Fontys University of Applied Sciences)

To gain an overview of subjects that are currently on the research agenda, an analysis has been conducted on papers, presentations and abstracts presented at a variety of major conferences on open and online education. These conferences are displayed in the following table with the number of papers/presentations per conference. Keynotes, workshops and panel discussions are not included.

| Congres | #Papers |
|---|---|
| OER15, Cardiff, 14-15 April 2015 | 88 |
| Global Meeting Open Education Consortium, Banff, 22-24 April 2015 | 97 |
| eMOOCs 2015, Bergen (Belgium), 18-20 May 2015, the research track | 15 |
| EDEN 2015, Barcelona, 9-12- June 2015, tracks on open and online onderwijs | 18 |

Many of these contributions describe case studies in which the lessons learned are formulated. This may be explained by the fact that the investigation focused on conferences. The following table displays the most important categories of subjects and gives examples of the contributions made in these categories.

| Category | Number | Examples |
|---|---|---|
| Open policy | 35 | National case studies (e.g. Scotland, India, Australia), case studies at education institutions |
| Adoption of OER and Open Education | 32 | Media production for OER and MOOCs, various institutional case studies, production of OER, support for reuse of OER, adjustment of MOOCs for the purposes of mainstream education |
| MOOC lessons learned | 20 | Development of a MOOC, types of MOOC participants, retention of MOOCs, co-creation of MOOCs with students |
| Innovation of MOOCs | 6 | Gamification of MOOCs, video annotation for promoting collaborative learning, MOOCs and learning analytics |
| Open education and culture | 18 | Experiences with languages other than English, open courses as a means to realising international collaboration |
| Open education and communities | 15 | Students as mentors in MOOC communities, various experiences with setting up and maintaining open education communities |
| Educational aspects of open education | 15 | Peer mentoring in MOOCs, pedagogy within MOOCs, self-directed learning via an open course, open badges |

Based on the available data, approximately 75 contributions did not fit in to any of these categories. These contributions addressed highly specific topics, such as the effect of language on knowledge construction (in which a MOOC was used to research this) or the impact of OER in a specific research university.

This inventory shows that a great deal of research is being conducted into open and online education policy at both the national level and the institutional level. Furthermore, it is noticeable that many lessons learned from case studies are being collected and that little research is seemingly being conducted into the combination of MOOCs and OER (such as effects on the reusability of MOOCs when the educational resources they contain are available in the form of OER).

# WISH LIST FOR CROSS-INSTITUTIONAL OPEN AND ONLINE EDUCATION SERVICES

by **Kirsten Veelo** and **Janina van Hees**

Open and online education offers many opportunities to improve education and make it more flexible. Are the institutions and lecturers properly equipped to develop open and online education? What are their needs regarding cross-institutional services that can support this?

In the summer of 2015, SURFnet conducted a needs assessment. This article examines the results of this assessment. We will also examine what comparable initiatives in other European countries can teach us. Finally, we will explain the challenges facing us now students increasingly wish to determine their own educational tracks.

### Structure of needs assessment

What tools and services do students, lecturers and education institutions need in order to get started with open and online education? This question is central to SURFnet's needs assessment, which was carried out by the consultancy firm Van Aetsveld. Over the course of six meetings, nearly 80 professionals from higher education and vocational education institutions shared their thoughts on this matter. A special aspect of the first series of meetings – the 'open space' sessions – was that the participants determined the meeting agendas themselves. In the second series – the workshops – the three most important needs were further elaborated.

### Theme 1:

#### Sharing and reusing open educational resources

One of the most important needs is to be able to find and share open educational resources more easily. This ties in perfectly with the ambition presented by Minister Bussemaker in July 2015 in her Strategic Agenda For Higher Education and Research 2015-2025. She formulated her ambition for OER as follows: "By 2025 all lecturers in higher education will make their teaching materials freely available so they can use each other's digital learning materials". The Netherlands should play a leading international role in this area.

#### Searching for relevant material

Students and lecturers want to be able to find open educational resources quickly within a single portal by means of filtering options and smart search systems. In this regard, the harvesters (collection software) must look further than just the Dutch repositories, as interesting content can also be found on the international stage.

Good metadata and compatibility with current standards are essential in this respect. Lecturers and students also need to trust the content of the material found. For this reason, the material should preferably be checked, but this raises the issue of who will check it and according to what criteria? The opportunity for users to express appreciation or add comments to the material could be another solution.

### Locked in your own digital learning environment

However, the assessment shows that making learning materials openly available is a major task for many higher education institutions. Institutions want to make the most of the opportunities that open educational resources offer, but the material is usually 'locked' in multiple systems spread across the various faculties within the institution. This makes it a difficult task to share learning materials even within the same institution, let alone with different institutions.

### Lecturers share very little

In addition, lecturers do not share a lot of material. One reason for this is the fear that their material is not good enough. Another is the possibility of the material being used by a lecturer in an earlier class, which would mean the lecturer who created it cannot use it any more as the students will already be familiar with it. In addition, lecturers' digital skills are often insufficient.

### Repository

For the purposes of sharing learning resources with colleagues at different institutions, Dutch universities of applied sciences already have access to HKI and SURFmarket's repository service Sharekit. Sixteen universities of applied sciences make use of this service. The files, ranging from videos to presentations, can be saved in Sharekit. These materials are unlocked via websites and portals, for example via the web portals The HBO Knowledge Base and the Wikiwijs Educational Resources Platform. These files contain metadata to support findability and they comply with international standards for the free exchange of data.

### International OER developments

How do other European countries approach the sharing of educational resources? In addition to the Dutch initiatives Wikiwijs and Sharekit, infrastructures that enable sharing of open educational resources at the national level also exist in Norway (BIBSYS-DLR), the UK (Jorum) and Switzerland (Switchcollection). However, the success of these initiatives is intermittent. The main challenge seems not to be the technology, but the uptake, or in other words, how frequently the lecturers and students actually use the infrastructure.

### Jorum: an enormous collection of open educational resources

Jorum, the national repository service in the UK, is a great success. Jorum offers the biggest collection of open educational resources in the UK (approx. 12,000 items). The service focuses on secondary and higher education. The providers themselves are responsible for describing the metadata. Jorum offers an API and a widget in order to integrate the collection into other online environments in a user-friendly manner. One noticeable factor is that Jorum does not provide an environment for a community. Users have indicated that they would like to interactively discuss and appraise the quality of the educational resources via the Internet. In 2016, steps will be taken to enable this.

### Open Stax CNX: comment on educational resources

Open Stax CNX, developed by Rice University, is a fine example of how quality control of educational resources can be facilitated. It enables organisations and individuals to comment on and endorse educational resources. They can also indicate whether the author works for a recognised organisation. Open Stax CNX is flourishing as it enables interaction between the users.

Open Stax CNX answers the demand from lecturers for high-quality educational resources. The initiative also shows the role reserved for social media, via the online assessment of courses by students. The expectation is that in the future, students will increasingly give reviews on aspects such as the workload of online courses. Open Stax CNX is an interesting experiment, and will be especially interesting if it is rolled out on a larger scale.

### No national MOOC platform

The needs assessment also identified themes for which the demand for support was smaller than expected. Some higher education institutions indicated earlier that SURF could possibly develop a national platform for connection of Dutch MOOCs, but SURFnet's assessment indicated that this was not widely viewed as important. MOOC platforms are learning platforms for open and online education that facilitate the entire learning process or a large proportion of it. Examples of countries offering a national MOOC platform include France, Norway, China and Brazil. National MOOC platforms seem to be particularly useful in countries that wish to increase the visibility of national courses in their native language, e.g. for the protection of their own language and culture and due to ownership of data and copyrights.

## Theme 2:

### Learning Communities

The discussions during the open space sessions also showed that professionals consider mutual exchange of knowledge to be extremely important. Lecturers view communities as a valuable way to get a grip on relevant online developments in education. The participants also indicated that they would like more international collaboration with regard to improvement of open and online education.

Learning communities are not new to the Netherlands. For example, SURF's special interest groups are working hard on themes such as open education, digital testing or the use of audiovisual media. Employees of various education institutions are sharing their knowledge and experience in this area. The special interest groups are supported by the online community platform SURFspace.nl, on which all employees of education institutions can share knowledge.

We can conclude from the assessment that the importance of this cross-institutional collaboration will only increase in future. The needs assessment identified two new approaches for the expansion of this knowledge sharing:

- the desire to collaborate with more local learning communities for open and online education, one example of which is the collaborative environment EMERGE in the regions of Leiden/Delft/The Hague.
- the desire for domain or subject-oriented communities, such as those that exist in the medical profession or in green education.

## Theme 3:

### Flexibility in education

A third need identified by the assessment is support for flexibility in offering and attending courses. The expectation is that students will have more and more control over their own learning process, and may wish to take various course units at different institutions. An example of this kind of flexibility is the existing collaborative environment 'Kies op Maat' (Compile your own programme). Within 'Kies op Maat', students can easily take minors at different research universities and universities of applied sciences participating in the collaborative environment. There is a wide range of minors for students to choose from in accordance with their interests. The participating institutions have made agreements regarding many issues, such as the recognition of credits.

### Digital student files

However, to make a success of personalized education, this idea must be scaled up. For this reason, this assessment examined the subject of digital student portfolios in greater detail. The participants indicated that digital student portfolios should give a clear overview of the student's learning process at all institutions where he/she has taken a course. For example, it could display the number of credits earned by the student. In addition to the student's marks, the file can also include competences and learning styles, creating a portfolio that is even better suited to the labour market. By making this file accessible via an account that is independent of the institutions, students can get a clear overview of their learning process regardless of which institution they are studying at.

### Modular structure of EMMA

One example of a flexible learning pathway at the European level is EMMA. The European Multiple MOOC Aggregator hosts MOOCs from 12 European research universities (including the Open University of the Netherlands) on its own platform. The online courses are made available in a variety of languages by means of translation software and subtitling. In this way, European languages and cultures are made accessible to a wide audience. EMMA has a modular structure. Students can compile their own course and learning pathway. EMMA is a pilot project running until July 2016, funded by the EU.

## Conclusion

### Cornerstones of open and online education

Open Stax CNX, Jorum and EMMA show that user-friendliness, quality, personalised education via modules, social media for reviews and an online community are important cornerstones of successful open and online education. These initiatives show that ultimately, the institution does not necessarily have to be the central player in education, and that students themselves can determine their own educational tracks.

### Culture change: dare to share

When various academic parties develop a collective vision of open and online education and collaborate, it is possible to successfully boost the flexibility of education. This goes beyond just a technical implementation: it is a change of culture.

Open and online education requires institutions to open their doors wider than ever before. This requires user-friendly design and a desire to contribute to an online community, as well as the courage to share your own educational resources with the world via the Internet.

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**Janina van Hees**
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## Literature


- Van Aetsveld (2015). Eindrapport behoefteonderzoek naar instellingsoverstijgende dienstverlening voor open en online onderwijs. SURFnet, Utrecht. Available at https://www.surf.nl/kennis-en-innovatie/kennisbank/2015/eindrapport-behoefteonderzoek-dienstverlening-open-en-online-onderwijs.html.
- Veelo, K. (juni 2015). Verkenning naar bestaande dienstverlening voor OER en MOOC's in binnen- en buitenland. Utrecht. (internal document, unpublished)

INTERMEZZO

# CHOOSING A SUITABLE ONLINE EDUCATION PLATFORM

by **Lianne van Elk** (SURFnet)

Increasingly, education institutions are having to determine which platform they should use to make their online educational resources available. Should they connect to major platforms such as FutureLearn, Coursera or Edx, or should they use a platform within their own institution? What variables influence the decision and what options are available to choose from? SURF has inventoried a number of platforms and collected a range of user experiences from within research universities and universities of applied sciences in the Netherlands.

**Optimal support**
Many research universities and universities of applied sciences are currently examining how they can optimally support their lecturers and students. They are looking both for learning platforms that support fully online education and learning platforms that support blended learning, either as a replacement for their current learning management system (LMS) or otherwise.

**Overview table with 20 variables**
SURF's overview is intended to support institutions when choosing a learning platform. Learning platforms currently in use within Dutch higher education institutions are described based on 20 different variables. It examines factors such as the specific form of education for which the learning platform is suited, the functionalities it offers and the way in which standards are used.

The user experiences show that institutions mainly based their choice of learning platform on functionalities offered, reliability and user-friendliness. The experiences of Wageningen UR, Delft University of Technology and Leiden University indicate that institutions that are looking for a learning platform for online education also take international visibility and the network created by use of the platform into consideration.

**User-friendliness and functionalities**
For all institutions, it is important that the learning platform provides effective support to the learning process. Many of the learning platforms on offer provide a huge range of functionalities. When starting with a new platform, it is extremely useful to carefully consider a user-friendly and clear structure, according to UMC Utrecht and Utrecht University's experiences with Elevate.

Avans University of Applied Sciences also carefully considered the way they put Blackboard into use. The institutions said that the most important factor is that you must first work out exactly what you want from a platform.
Users increasingly consider functionalities for collaboration and interaction to be the most important. Furthermore, many institutions value an integrated educational resources databank – including for open educational resources – as well as an integrated tool for learning analytics.

**Buy it or make it yourself?**
Another question is how actively you wish to be involved in the development of the learning platform. For open source learning platforms, you can influence the development via the community and you are often expected to contribute. If – like Utrecht University of Applied Sciences and the Open University of the Netherlands – you wish to develop the learning platform yourself, then you can design it entirely in accordance with your own preferences. However, this does carry the risk that the costs of development are not as well-defined. Purchasing a learning platform from a supplier means reduced flexibility, but it does give you a clearer picture of the costs.

**Trend: cloud and mobile**
One important trend that was identified is that learning platforms are being increasingly offered as cloud services and mobile services. For many institutions, it is important that learning platforms facilitate the integration of external tools and the exchange of content and educational data. In this regard, the use of common standards and conceptual frameworks is vital.

# GRAND CHALLENGES FOR LEARNING ANALYTICS AND OPEN & ONLINE EDUCATION

By **Jocelyn Manderveld**

This contribution addresses the challenges that are encountered when learning analytics is applied within open and online education. Firstly, the prospects of learning analytics within open and online education will be described, before detailing the challenges that we must face during the large-scale application of learning analytics within open and online education. Finally, an indication will be given of how we should proceed. This article is a revision of the SURF report 'Grand Challenges for Learning Analytics and Open and Online Education – a Study'

## Introduction

The phenomenon of learning analytics is attracting more and more national and international interest (Horizon Report, 2014-2015). Learning analytics focuses on gathering and analysing data from learning environments in order to improve students' learning processes. This information is then made available for various stakeholders, such as the student him/herself, the lecturer or the programme managers (see also Manderveld & De Wit, 2015).

This definition of learning analytics is based on the use of data to define actions that improve the learning process. It is therefore more than just automated data analysis – the goal of learning analytics is to realise optimised learning processes and environments.

The relationship between open and online education and learning analytics is an interesting new area. Due to the developments in open and online education and the large numbers of visitors and users of the educational material made available, enormous amounts of data have been collected. This data can be analysed and used as feedback for students and other stakeholders, such as lecturers and education developers. The previous trend report presented a number of opportunities for using learning analytics to boost the quality of open and online education (Latour & Schuwer, 2014).

Using learners' behaviour and performance data from open online environments in the context of Learning Analytics enables others to determine, visualise, and create frameworks such as hierarchies of the strengths and weaknesses of individual learners and larger groups. In principle that has always been the case in educational environments such as schools; however, Learning Analytics enables the provision of this information in larger quantities, real time and on demand. In addition, it is no longer only an educational institute that has access to the data. Especially in open online education, new educational players such as various MOOC providers that are private companies have access to the data and can also pass these data on to third parties for research purposes (Prinsloo & Shane, 2015).

## The prospects of learning analytics

This trend report is about open and online education. However, the degree of openness of the education is of lesser importance to learning analytics. The most vital factor for the application of learning analytics is that the education is conducted online. This enables data to be collected such as every mouse click that a particular student makes in an online environment.

This is the power of learning analytics: every online action made by students within a particular online environment is automatically registered. This creates large data sets that can be used to make predictions about aspects like students' study behaviour, the quality of the teaching materials used, the use of the digital learning and working environment, the quality of test items, and study progress.

The following parties benefit from the use of learning analytics within open and online education[1]:

- Students: They can reflect on their results and compare their performance with other students.
- Lecturers: They can conduct interventions for individual students or groups of students.
- Management: Based on the data, they can make decisions regarding the positioning of a particular programme.
- Functional groups, such as educational development teams, who wish to improve the education or develop a new curriculum.

Learning analytics within education is a very promising development. However, is there any evidence that large-scale analysis of educational data actually has a positive effect on study success? Within the scope of the European project LACE (Learning Analytics Community Exchange), an 'evidence hub' has been developed that collects evidence of the effectiveness of learning analytics in education. This provides excellent examples of institutions that are now using learning analytics. One of these is Georgia State University. Thanks to the use of learning analytics, the average time taken for students to graduate has reduced, and 1,700 extra students graduate each year.

Despite these wonderful examples, we should manage our expectations with regard to learning analytics. There are a number of major concerns with regard to learning analytics, particularly its impact on the privacy of the people about whom data is being collected, linked and analysed (see also Ministry of Education, Culture and Science, 2015). The possible impact of learning analytics goes much further than simply an evaluation procedure in the classroom, and it may not be clear to the student what data is used. With learning analytics, you can calculate the relationship between students based on their interactions: the time that one student spends on the learning materials can be compared to other students.

Thus, Learning Analytics goes far beyond traditional assessment procedures and affects the privacy rights of learners in a new manner. This urgently calls for a clarification of the concept of privacy in relation to Learning Analytics in the education system. It also raises ethical questions, such as: where do you draw the line when creating student profiles? Do we do any harm to our students when drawing up those profiles? Are we actually allowed to collect this kind of data, and if so, for what purposes? How can we make those analytics transparent and understandable to the data subjects involved?

For the higher education institutions, clear legal directives must be set that can be used as a point of departure for the application of learning analytics within education. Best practices are also required for the reuse, storage and security of educational data used for learning analytics.

In addition to these privacy issues, there are other challenges that will have to be examined and addressed.

### Challenges for learning analytics and open and online education

- **What data actually helps the learning and education process?**

Based on data from all kinds of digital systems, learning analytics can be used to give students feedback on their own learning process. In addition, it can give feedback to lecturers regarding their students' performance, the effectiveness of the learning environment and areas in which improvement is needed. However, the selection and interpretation of data from the systems used is a complex task.

What data will reflect the learning and education processes of students and lecturers in the most meaningful way? So far, the main focus is on data that displays the students' presence within a particular online environment or their progress when carrying out assignments. Are these aspects truly the most important factors for predicting study success within open and online education?

- **Connection between online and offline education**

The assumption of open and online education is that the students' learning takes place online. However, a large proportion of the learning process often takes place either offline or in unmonitored online environments. Therefore, is the analytical data collected from the online education the right kind of data? And how can you monitor learning activities conducted by students outside the online environments and ensure they facilitate the prediction of study success? This will be one of the major challenges of learning analytics in the years to come.

- **How can learning analytics be visualised effectively and efficiently?**

When large quantities of data become available with which you can monitor the student's learning process in detail, the demand for a convenient dashboard within the learning environment increases. The ideal lecturer's dashboard would be visual, intuitive, well-organised, personalised, compatible with different devices and display not only data, but also analysis. There are a number of examples of dashboards within open and online education, although as of yet, little is known regarding which visualisations are viewed as effective and efficient by both students and lecturers.

- **Applying learning analytics within open and online education in practice.**

Various higher education institutions already offer open and online education via a wide range of platforms. Currently, these platforms are collecting and updating data on a large scale. The enormous volumes of data have pushed learning analytics into the domain of big data, which brings with it a number of challenges relating to data management and infrastructure. Learning analytics at the institutional level requires data centralisation, access to data silos, collection and analysis of data and the application and validation of interventions within teaching practice.

It is useful for education institutions to consult with the suppliers of their learning management system to examine whether learning analytics can be conducted and what data they should collect for this purpose. Be sure to get a clear picture of whether open standards are used and how this data can be extracted from the systems and used to give feedback to students and lecturers.

### How to proceed from here?

The information above illustrates the enormous potential of learning analytics. It can make an important contribution to study success, preventing study delay and reducing the drop-out rate. In order to capitalise on this potential, knowledge development is required on many fronts. This relates to didactics, the design of learning arrangements in which learning analytics are designed together with the learning arrangement, technology, privacy and the ethics of learning analytics within open and online education.

It is important that SURF critically assesses the aforementioned challenges and knowledge development together with higher education institutions and determines whether and how these can be included in a national agenda in which the synergy of learning analytics and open and online education can be further elaborated in the coming years.

When determining this agenda, it is also important that sufficient room for experimentation is included for education institutions to enable them to gain more experience with learning analytics in practice. This will give us a clear picture of what data and interventions have a positive effect on study success. These experiments could eventually lead to further innovation of open and online education as we progress towards data-supported education. This can help take customised education to the next level.

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## Endnote

[1] http://www.laceproject.eu/faqs/learning-analytics/

## Literature


- Berg, A., Drachsler, H., Filius, R., Manderveld, J., van den Boogaard, M., & Schuwer, R. (2015). Grand Challenges learning analytics & open en online onderwijs: Een verkenning. Obtained on 2 September 2015 via https://www.surf.nl/kennis-en-innovatie/kennisbank/2015/rapport-grand-challenges-learning-analytics--open-en-online-onderwijs---een-verkenning.html.
- ELI (2015). Horizon report. Obtained on 20 March 2015 via http://www.educause.edu/library/resources/2015-horizon-report.
- Ministry of Education, Culture and Science (2015). Big data in onderwijs & wetenschap. Obtained on 20 March 2015 via https://www.rijksoverheid.nl/documenten/kamerstukken/2015/06/05/kamerbrief-over-big-data-in-onderwijs-en-wetenschap-inventarisatie-en-essays.
- Latour, S. & Schuwer, R. (2014). Open Education, Big Data en Learning Analytics. In: Woert, N. van der, Jacobi, R. & Jelgerhuis, H. (eds). Trendrapport Open Education 2014. SURF, Utrecht.
- Manderveld, J., & de Wit, M. (2015). Innovatieprogramma Onderwijs op Maat. Project Learning Analytics: Activiteitenplan 2015. Obtained on 2 September 2015 via https://www.surf.nl/binaries/content/assets/surf/nl/2015/plan-learning-analytics-2015.pdf.
- Prinsloo, P. & Slade, S. (2015). Student privacy self-management: implications for Learning Analytics. In Proceedings of the Fifth International Conference on Learning Analytics (83-92). New York, NJ: ACM.

# PUBLICATION DETAILS

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The Open Education Special Interest Group facilitates and promotes community building, knowledge development, knowledge sharing, cooperation and the development of a coherent vision on open educational resources and open education within the Dutch higher education sector. The Special Interest Group's activities are coordinated by a core team of experts from the various institutions. It is therefore a group that is run by higher education for higher education, with SURF's support.

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- Open Education Special Interest Group on SURFspace (with information about the special interest group, news, articles, literature, videos and conference blogs): www.surfspace.nl/openeducation.
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