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1. Background and context

Digitalisation is not a new phenomenon in the higher education sector. It has been around for quite some time. Almost all institutions of higher education support electronic learning environments, issue digital timetables, and use online learning materials and video lectures to a greater or lesser extent. Recent trends in online higher education courses have generated a great deal of interest in the media and among politicians and public authorities worldwide. The clearest example is the Massive Open Online Courses (MOOCs).

In the past decade, a number of important trends have broadened the concept of 'open education' and led to innovations in this area. It used to be the exclusive domain of open universities. In 2001, however, the Massachusetts Institute of Technology (MIT) launched its OpenCourseWare programme and added digitalisation to open education. In response, UNESCO introduced the term Open Educational Resources (OER) in 2002. The year 2008 saw the launch of the independent non-profit OpenCourseWare Consortium, a worldwide community of more than 250 universities founded to advance open education. This marked the start of a global movement promoting digital openness in education.¹ The former Vice Chancellor of the British Open University, Sir John Daniel, placed MOOCs in the broader context of the open provision of education over the course of time.² Open universities in various countries have built up a strong tradition in this area. Open education promotes a number of different types of openness:

- open access (no entrance requirements);
- open as regards pace (no restricted period of time for the course);
- open as regards location (no obligation to be physically present somewhere);
- open as regards time (no fixed starting date, no cohorts);

¹ Mulder, F. (2010) Open Universiteit in the Netherlands, see http://www.ou.nl/Docs/dies%20nataalis/Redeboek%20rectoraatsoverdracht%202010_DEF.pdf.

² See 'Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility', in Robert Schuwer, Ben Janssen and Willem van Valkenburg (Eds), *Trend Report: Open Educational Resources 2013*, published by SURF's Open Educational Resources Special Interest Group.

- open as regards the programme (choice of a complete curriculum or individual courses);
- openly available (free of charge);
- open as regards alteration (freedom to reuse the material, to combine it with other materials, to edit it, and to distribute it further under certain conditions).

The first five are the “classic” types of openness and typical of the education provided by open universities (for example in the Netherlands and the UK) and private education providers. The two final types of openness listed grew out of the open education movement. Open Educational Resources (OER) are learning materials that must comply – by definition – with both of the latter two types of openness. The first two OER projects in the Netherlands were launched by the Open Universiteit in the Netherlands in 2006 and Delft University of Technology in 2007. In addition, the Netherlands was one of the countries that approved the UNESCO Paris OER Declaration in 2012.

Massive Open Online Courses (MOOCs) are a branch of the OER movement. The term itself was coined back in 2008, but the turning point really came in 2011. MOOCs have given a tremendous boost to the thinking about open and online education and its development. A MOOC is a complete online course consisting of course material, a teacher who explains and supervises, homework assignments, feedback on homework, a platform for discussion between course participants, and a final examination. Participants can choose between receiving a certificate of participation or a certificate of achievement showing that they have passed the examination, the latter usually for a small fee.

There has been a dramatic boom in MOOCs. The table below indicates the number of such courses and course participants. Currently, the three leading MOOC platforms worldwide are Coursera (a for-profit educational technology company founded by two professors at Stanford University and funded by venture capital), Udacity (similar) and edX (a non-profit initiative by MIT and Harvard). Unlike Udacity, which offers only its own MOOCs, Coursera and edX offer a worldwide platform for all participating institutions. The platforms deliver the necessary technology, the institutions provide the content, and the teachers are responsible for the teaching.

MOOC participants can be found in virtually every country in the world. Several experiments are under way exploring how MOOCs can be incorporated into mainstream higher education. In the USA, Georgia Tech University – a prestigious brick-and-mortar technical university – intends offering its degree courses online. There are also universities that intend incorporating MOOCs produced by other institutions into their curriculums, and almost all MOOC providers are experimenting with forms that will allow them to integrate their courses into mainstream education. Other initiatives aim to offer not only individual courses but also more integrated sequences of open courses online.

The three leading MOOC platforms in figures

	Number of universities	Number of courses	Number of students enrolled
Coursera	107	554	5,746,421
edX	30	105	1 to 2,000,000
Udacity	-	33	approx. 1,000,000

Source: websites and various publications, status on 16 December 2013

Because MOOCs are so new and mark the start of a whole new chapter, it is difficult to assess their impact on the higher education system. On the one hand, MOOCs are viewed as an innovation that could change the face of higher education completely (or, as described by Clayton M. Christensen, a Harvard Business School professor who specialises in business innovation, they are a 'disruptive innovation'). The reasons cited include the worldwide availability of fast Internet, the rapidly expanding access to technology (for example tablets), the new business models that are emerging, and mass participation in MOOCs by top universities.

On the other hand, MOOCs are still limited in number (when compared to the number of courses available in mainstream higher education), there is restricted evidence of their pedagogical quality, and it remains unclear how a sustainable revenue model can be guaranteed. Udacity, for example, recently announced that it would be shifting its focus from open and online higher education to the market for paid 'career readiness' training, an interesting development from the perspective of lifelong learning.

My own expectation is that open and online education will not *replace* the current system of higher education but serve to *supplement* it. Teachers and students will always need a certain amount of face-to-face contact and engagement with their educational institution. That was the case in Erasmus's day and it is just as important now. However, new technologies offer teachers and students new ways to interact. After Erasmus, advances in technology (for example the printing press) facilitated the evolution from small communities of scholars to larger lecture-style classrooms. In the same way, today's technological advances allow us to return to smaller scale approaches to teaching, for example the 'flipped classroom', which I will come back to later.

Higher education institutions now offer much more than a list of courses; they have fully developed, coherent curriculums and provide students with projects, practicals, work placements, a social context, a research environment (both applied and fundamental), and the opportunity for each one to conduct his or her own research (in assignments and theses). Using open and online education can help improve the quality of education and of teaching materials.

It is important to distinguish between open education, which is not necessarily all available online, and online education, which is not necessarily open in every respect. For example, MOOCs are only 'open' to a limited extent; they are free of charge and available to all, but participants cannot study whenever they like or at their own pace, and much of the material used is not open access. This memorandum concerns online education that is also open, albeit to a limited degree. We are mainly interested in how the changes described

above relate to how we envision the future of higher education. The key question is how open and online higher education can contribute to quality in diversity. This memorandum will first zoom in on our ideas about the future and then look at where we now stand. We will then describe what we need to do to move from the present to our ideal scenario, and what questions we will have to address in light of the Strategic Agenda 2015.

2. Open and online higher education as a driver of quality in diversity

The Strategic Agenda for higher education, *Quality in Diversity*, describes what higher education could be like in 2025. Its main aim will be to offer students a challenging climate in which standards are high and quality assurance is a priority. Students will receive inspiring education and will be encouraged to study hard. Educational institutions will have distinct identities and will provide a learning community where students, teachers and researchers interact closely. Quality will arise out of diversity.

This is the perspective from which I view the potential of open and online higher education. In our scenario, higher education institutions make maximum use of that potential. One of the main reasons they do so is because students increasingly engage with the world around them through digital media, be that social media, Web search engines, or apps on smartphones or tablets.

In our imagined future, open and online higher education is the calling card of our institutions. Prospective students will increasingly use online courses to decide which study programme they wish to enrol in. Universities will be able to attract tens or even hundreds of thousands of students from around the world with their interactive, pedagogically rich online courses. These courses will enrich education, encourage research and draw talented students to the Netherlands. The traditional brick-and-mortar campus will remain, but the trend towards open and online education will influence its physical design and the technical infrastructure needed. Small-scale learning communities will develop with distinct identities, with universities focusing on their core. The best teachers worldwide – or in the Netherlands – will contribute to the digital curriculum, and traditional books will be replaced or supplemented by digital open educational resources or, at times, by MOOCs. Teachers will encourage interaction and engagement in small-scale settings and link the subject matter to local and national issues. The learning materials will be more tailored to students' needs and abilities, with enough flexibility for them to learn from other disciplines. Students will be asked to invest even more in their own learning process. Those who lack certain skills or are studying part time will find it easier to chart a flexible route through higher education and engage in lifelong learning. Teachers will be able to concentrate more on their core task, i.e. teaching. They can spend less time conveying general knowledge – which students will be able to access digitally anywhere, anytime – and concentrate instead on exploring subjects in depth, answering questions, and challenging students.

The ability to share knowledge and skills without having to move to another country to study will boost internationalisation. Open and online education will also make it possible to help foreign students learn the language skills they

need to study effectively in the Netherlands. Obstructions in the relevant laws and regulations will be removed. Diplomas will retain their value. The quality of education will be guaranteed thanks to an independent, critical assessment of students' knowledge at the end of their studies and an accreditation process that adapts to the growing number of pathways through higher education. Quality assurance organisations in different countries will cooperate closely on various aspects of quality control, for example assessment and examinations and the relationship between online and physical instructional design.³

There is no uniform approach to open and online higher education. Universities have always competed with one another on a global scale, in particular within the context of research. Higher professional education has also grown increasingly international in recent years and is seeking relationships with similar institutions abroad, but it will continue to require courses and educational content that are embedded in a national and regional knowledge economy and labour market. The students enrolled in post-graduate forms of education are extremely diverse and they usually have less flexibility than students enrolled in Bachelor's programmes, for example because of their jobs. And some subjects are simply better suited to online education than others. However, in our scenario every higher education institution will have asked itself how it can benefit from open and online education – something that encourages quality, in diversity.

3. Where does the Netherlands stand?

Dutch higher education gets positive marks. Our institutions are positioned high up in the international rankings and they are working actively to make our scenario for higher education in 2025 a reality. We have a long history of developing and utilising digital, open and online approaches to higher education. The Open Universiteit in the Netherlands (OU) has been involved in open and flexible education for many years; it began by sending course material to students by post, but now delivers much of its material online. Private providers of higher education have also played an important role in distance education and have evolved from correspondence courses to online distance learning. The OU plays a leading role in European online distance learning activities, more specifically in Open Educational Resources and MOOCs (for example in the first pan-European MOOC initiative, OpenupEd). The technical infrastructure of Dutch higher education is state of the art thanks to its many years of collaboration in SURF, the higher education and research partnership for ICT.

Virtually every Dutch higher education institution and every university medical centre is actively considering what role open and online higher education might play in the future of their organisation and what this will mean for their premises and other factors. They are also going a step further and developing activities in this area, in part because their students are asking them to do so. A growing number of research universities and universities of applied sciences

³ Stamenka Uvalić-Trumbić and Sir John Daniel (Eds) (June 2013), *A Guide to Quality in Online Learning*, Academic Partnerships, available at http://www.icde.org/A+Guide+to+Quality+in+Online+Learning.b7C_wRbU2t.ips

are recording video lectures, sharing learning materials through iTunesU, and working with open courseware. A number of them are actively offering MOOCs or plan to do so. By way of illustration: the OU has been offering open and online education through its OpenU and European platforms for quite some time now, as we mentioned. Delft University of Technology, which has chaired the worldwide Open Courseware Consortium for the past few years and has long been active in online education, makes MOOCs on water management and solar energy available on the edX platform. Next year, it will be launching a number of new MOOCs. Leiden University has begun two MOOCs, one on European law and one on terrorism, on the Coursera platform. It has also incorporated an MOOC developed by Vanderbilt University into its curriculum. The University of Amsterdam has introduced an MOOC, and similar plans are in the works at Maastricht University, Eindhoven University of Technology, and Wageningen University and Research Centre. In addition, the Universiteit van Nederland has recently started to offer short video lectures by top Dutch professors online.

Research universities in the Netherlands that offer MOOCs

	Platform	Current MOOCs	Students	MOOCs now being prepared
University of Amsterdam	Coursera	1	5,000	-
Delft University of Technology	edX	2	54,000, 27,000	3
Leiden University	Coursera	2	43,000, 26,000	6
Utrecht University	Elevate	15	unknown	unknown
Maastricht University	-	-	-	1
Eindhoven University of Technology	Coursera	-	-	1 3
Wageningen University & Research Centre	unknown	-	-	2-3
Open Universiteit in the Netherlands	OpenupEd	unknown	unknown	unknown

Source: SURF report as of 16 December 2013

Universities of applied sciences are active in another segment of the open and online spectrum, at least for now. They use open and online education to help students with deficiencies or to facilitate interactive feedback. Some of them have also entered into international partnerships in which a course (or part of a course) is offered online to their own and international students; these include the Hanze (Groningen), Amsterdam, and Utrecht universities of applied sciences. Other options are to offer some courses to foreign students, in appropriate cases linked to the university's *lectoraten* or 'knowledge networks'. In addition, universities of applied sciences are designing common test sets or enriching their curriculums, for example in laboratory and nursing programmes, in response to the Bruijn Committee's recommendations.

Whether the distinct approaches to open and online education taken in academia and higher professional education are temporary is difficult to say. As I indicated earlier, this is a fast-changing area and institutions are moving quickly to position themselves within it.

4. What steps must be taken to make our scenario a reality?

If the Netherlands is to capitalise on its solid starting position and move towards the future that we have envisaged, it must remain open to trends and developments in open and online higher education. That is precisely what the European Commission emphasises in its Communication *Opening up Education*. I support this Communication and wish to work within the European context in this regard. I am also actively seeking to collaborate with my fellow ministers. Several EU countries are exploring the meaning of open and online higher education for the quality of teaching practice and the future system of higher education. The most explicit initiative in this respect is Slovenia's OpeningUpSlovenia, which was cited during the discussion of *Opening up Education* at the Council meeting of 25 November 2013. In addition, Norway recently established a committee, the United Kingdom published a study in September last year,⁴ France has launched a national MOOC platform based on edX,⁵ and my counterpart in the Flemish-speaking Community of Belgium intends issuing a policy memorandum on this theme in 2014. I am certain that open dialogue on this subject will be conducive to good policy and meaningful international collaboration.

Openness is also one of the guiding principles of the Open Courseware Consortium described in section 1, whose aim is to promote free and open sharing in education. This is entirely consistent with a philosophy in which knowledge and research results generated through the use of public funds should be publicly accessible, as argued by the State Secretary in his Memorandum to the House⁶ on Open Access to publications. I therefore applaud Dutch institutions for joining this movement and making it one of their international marks of distinction.

Open and online education is developing rapidly and across a broad spectrum. I am convinced that every higher education institution can use it to improve its reputation, but most of all to improve its teaching. By providing free access to open educational resources, institutions can also connect with many more people in informal contexts, with all sorts of options for transitioning to formal education. Open and online education is inevitable, and it has enormous potential. I anticipate that all higher education institutions will develop their own approach to exploiting that potential. The possibilities include: using MOOCs to enhance their international reputation; attracting larger numbers of

⁴ Department for Business Innovation and Skills (2013). *The maturing of the MOOC. Literature review of massive open online courses and other forms of online distance learning*. BIS Research Paper number 130. September 2013.

⁵ edX press release (3 October 2013). 'EdX to Work with French Ministry of Higher Education to Create National Online Learning Portal'. <https://www.edx.org/alert/edx-work-french-ministry-higher/1179>

⁶ Memorandum to Dutch House of Representatives (15 November 2013). Open Access to publications, English version available at: <http://www.government.nl/documents-and-publications/parliamentary-documents/2014/01/21/open-access-to-publications.html>

students who will continue learning throughout their lives; sharing educational materials; expanding their policy of internationalisation; improving student performance by tutoring students with deficiencies online; and finding efficient methods to give students feedback on their work. I believe that all these approaches are good ones. Each educational institution has its own identity. They will only be able to determine which approach works best for them by experimenting, evaluating the outcome, and learning from it. I indicated above that private providers of higher education are also active in this area. Increasingly, government funded universities of applied sciences are collaborating with their non-funded counterparts to pool their expertise on behalf of their students. I applaud such initiatives.

It is well known in other markets affected by rapid technological change that the pioneers often have a 'first mover advantage'. To ensure that Dutch institutions remain in the global vanguard in those fields in which they are acknowledged leaders, they need to keep pace with trends in open and online education. A number of Dutch institutions are already doing so, and that is important for a knowledge-based economy like our own. Another advantage of open and online education is that it may put the Netherlands in a better position to attract talented teachers and researchers. In addition, the flexibility of open and online education makes it a suitable channel for facilitating lifelong learning. It is important for online open educational resources to feature more prominently in the sum total of available courses and programmes. One obvious move is to involve the Centres of Expertise in higher professional education and to ask the private sector for input when identifying those fields where the demand for online courses is greatest. I also see enormous potential in the areas of healthcare and education.

Working with open educational resources and developing a broad range of open and online courses are huge steps en route to the future that we have envisaged. But open and online higher education will only be successful if it is combined with mainstream education. That will require evaluating the outcomes of open and online education and applying the lessons learned in teaching practice on brick-and-mortar campuses. Top universities in the USA have had positive results with the 'flipped classroom', in which the MOOC serves to transfer knowledge, leaving considerable scope during lectures for interactive discussion or – depending on the course of study – for individual practicals in which students experiment with various techniques. Experiments working with online laboratories have also been promising. The same is true for transferring the sort of immediate feedback provided in online education by means of frequent online tests to mainstream campus-based education.

Teachers play a crucial role in transferring the knowledge gained in online education to teaching practice. I believe it is important for them to learn about the potential for and experience gained in open and online education and to be excited by the possibilities. The Dutch higher education institutions support this idea. They have told me that they wish to incorporate these new options into their standard in-service training courses (the *pdg*, *bko* and *sko* teaching certificates). For example, several universities of applied sciences have been working to improve teachers' general and digital didactic skills by integrating them into a broad professional development programme (within the context of the 'Teachers Matter' action plan). Using the potential of open and online

education is not only relevant for higher education. As the Commission notes in its Communication, it applies equally for the other educational sectors. I would therefore like to see open and online education included in teacher training programmes and wish to explore whether open and online educational resources can assist new teachers with their professional development.

Finally, like their teachers, who are to play a crucial role in the changes that we have described, students too will have to alter the way that they take part in education. Student organisations have responded positively to the opportunities that these changes offer them. In future, we expect that students will not be satisfied with institutions and courses that do not make use of open and online education. Student organisations emphasise that this will also play a significant role in fostering the right attitude in students towards their studies. An interactive setting that supports open and online education, in which teachers and students challenge and inspire one another, requires not only teachers who are properly equipped but also students who are well prepared.

5. Open and online education en route to the Strategic Agenda 2015

The main thrust of this memorandum is that open and online education is a promising development on many different fronts. I expect that if we experiment across the entire spectrum and evaluate the outcomes, it will gradually become clear how Dutch institutions and students in higher education can benefit from it. Open and online education is an inspiring development that is generating considerable enthusiasm.

I would like to encourage and facilitate this development. I have no plans to introduce new legislation. My impression is that the existing legislation and the way that it is implemented in the accreditation and inspection process will be sufficient for the next few years. Indeed, new legislation could unintentionally obstruct the dynamic changes that I have described. I would like to be informed about legislation that impedes progress and will take into account the advisory report by the Rinnooy Kan Committee on flexible higher education for adult learners. I already plan to look at contact hours and the location principle. I understand that the concept of 'contact hours' may become an issue if online education grows enormously popular. For now, however, the total number of courses offered online is very small. With respect to students' engagement with their educational institution and efforts to provide them with a challenging learning climate, I see open and online education as supplementary to forms of education in which students and teachers interact directly in the lecture hall, as I explained in section 1. I expect that some educational components will always be administered and attended at the institution's physical location, and that the performance agreements that I have made with the educational institutions about contact hours will remain in place.

The location principle also raises questions. If the institution offers its own distance-learning courses, then those courses will be regarded as being delivered from the institution's location. If the institution uses distance-learning courses offered by other institutions, then those courses will be regarded as not being delivered from the institution's location. The current

Policy Rule on the Effectiveness of Higher Education 2012 indicates that for a Bachelor's degree programme, no more than a third of the curriculum may be provided outside the institution's location without it having to request prior permission (with the exception of foundation phase courses and courses in the student's major). For a Master's degree programme, no more than thirty credits (for one-year programmes) or a third of the curriculum (for the remaining programmes) may be provided outside the institution's location without prior permission. In other cases, the institution must request permission in advance. Students who take such courses are granted the relevant credits. This system means that distance learning can be used to supplement the traditional teaching methods in a programme.

I also wish to support open and online education financially. My purpose is to promote 1) the international reputation of Dutch higher education in a number of fields in which it excels by supporting the development of MOOCs, 2) cooperation between Dutch higher education institutions on improving education by making use of open and online facilities across the entire spectrum and 3) an in-depth assessment of lessons learned using open and online education in the Dutch context (on the condition that the results are made available to all institutions of higher education in the Netherlands). I propose to make an annual sum of €1 million available for these purposes over the next few years. In prioritising the budget allocation, I will be actively looking to address major social issues and to connect with policy that has already been introduced in the key economic sectors, healthcare and education. I intend to align myself with the Government's aims in the areas of lifelong learning, teacher training and refresher training, and the creative industry. In consultation with SURF, I will specify the criteria for allocating this incentive funding in the first half of 2014. I have already announced that I will support the development of an open online course focusing on Dutch language proficiency, which will make it easier for foreign students to learn Dutch and commit to the Netherlands. This initiative falls within the 'It all starts with language' line of action from the *Make it in The Netherlands Action Plan*.

I will conduct an ongoing critical analysis of the development of open and online education. It is a development that raises fundamental strategic questions, both for institutions and government. Many of these questions relate to the facilitating role that open and online education can play in 'unbundling' higher education. Basically, this means that the separate educational services are offered by different parties, i.e. developing and delivering educational resources, providing guidance and teaching, and testing and issuing diplomas.⁷ It is still too early to answer a number of related fundamental questions; the most relevant developments are too recent and the experiences too fresh. I intend tracking them closely and will consider all these questions as I prepare the next strategic agenda for higher education, which will appear in 2015.

6. Conclusion

⁷ Barber, M., Donnelly, K. Rizvi, S. (2013). 'An avalanche is coming, Higher education and the revolution ahead'. *IPPR*, March 2013.

Open and online education is part of a longer tradition, but the recent advances have been rapid and dramatic. Experts are virtually unanimous in concluding that no one really knows where they will lead. That is true of many digital advances in our society. Facebook and LinkedIn were almost unknown ten years ago, and the iPhone and iPad had yet to make their debut. What is most important to me is the promise that open and online education represents for our reputation, for our system of education, and for our knowledge society. It will offer students more variety and can make a meaningful contribution to our knowledge economy. It can also promote knowledge valorisation, both in the Netherlands and elsewhere.

I am therefore pleased that Dutch higher education institutions are actively exploring their role in this trend. Their efforts will help them distinguish themselves and may also assist them in reaching their performance targets. Exploiting the potential of open and online higher education will promote success within numerous policy areas, from lifelong learning to internationalisation, and from better study choices to better academic performance. I would like to encourage this trend and keep close track of its progress. I am therefore working with the Association of Universities in the Netherlands (VSNU), the Association of Universities of Applied Sciences and SURF to organise a wide-ranging higher education conference during the international Open Education Week in March 2014, which will focus on the significance of open and online learning and instruction for the quality, diversity and internationalisation of education. What this development means for our higher education targets will be an important factor in the next strategic agenda for higher education, which will appear in mid-2015.

The Minister of Education, Culture and Science,

Dr Jet Bussemaker