

Transforming Higher Education through COVID-19 Crisis: Experiences and Opportunities in The Netherlands

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Abstract

Large-scale online education plays a minor role in campus education in the Netherlands or most European higher education (HE) institutions. The COVID-19 crisis enabled two Dutch frontrunners in open and online education to implement their lessons learned from large-scale online education, digital tools and methods on campus. The changes do not automatically shape a future that focusses on the best learning experience for different target groups in order to successfully reach the learning objectives and attainment levels. In order to steer towards that future, changes are needed in policy, administrative processes and rules and regulations.

Keywords: Higher education in the Netherlands, online education, flexible learning experiences, change management, COVID-19.

Transforming Higher Education - Challenges in (Dutch) Higher Education

The blessings of large-scale online education, digital tools and methods have until COVID-19 not been largely embraced in campus education in the Netherlands or most European higher education (HE) institutions. In Europe, by far most universities have public funding, so affordability and accessibility of higher education are guaranteed. Therefore, the European system of higher education offers hardly any incentives to transform or reform the essence of traditional approaches of classroom education.

We consider the case of the Dutch higher education system, which has its base in the European Bologna agreement ("Bologna Process", 2020). Dutch universities are public institutions that are publicly funded. Accessibility, affordability, and high quality are regarded as important values. First, every student from the European Economic Area (EEA) that meets the admission criteria should be able to enrol in a bachelor or master program. Second, the tuition fees are low and subsidized. Students from the European Economic Area pay a minor percentage of the actual costs for their first bachelor and master's degree (2020-2021 € 2,143 per year). Approximately 80% of the actual costs are covered by government subsidies. Additionally, the government offers the option of a loan to support their cost of living. The

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possibility to obtain an academic degree, and to participate in the student's life on campus is seen as a sort of basic right in European society. Moreover, the quality of the educational programs is guaranteed by the accreditation procedures. Important quality parameters are the pedagogical approach and the connection with the labour market.

In addition to the absence of financial incentives for change, pre- as well as during COVID-19, the traditional approach of classroom teaching was (and still is) institutionalised in policies, rules and regulations at universities, in the accreditation system, and in national policy and law. To support the ever-growing number of national and international students, and to encourage student success and keep university education manageable, the system is relatively rigid. To a large extent, the content of educational programs is predetermined. All organization is fine-tuned in such a way that 'standard' campus students follow fixed programs for full-time study and finish their studies on time: three years for bachelor's and one or two years for master's programs. There is, for example, hardly room for professionals to study part-time, to participate in degree programs or to take a class. The rigidity of the current HE system does support affordability and accessibility of HE, but limits (online and blended) innovation and (the speed of) transformation. Instead of initiating a university-wide transformation, the acceptance and use of digital tools, methods and didactics were stimulated and facilitated by special departments of the university, which focused on new target groups and lifelong learners (non-students) worldwide. These departments innovated, used and developed tools and methods for online teaching, in times where HE teachers relied heavily on more traditional methods of education for their campus classes. So far, the crisis was no reason to (temporary) relax or even reconsider the system. However, it appeared possible to find room to manoeuvre while respecting those.

Hence, the response in HE institutions to the COVID-19 crisis may look similar everywhere, when we moved to the emergency remote delivery of large numbers of campus courses, with an enormous effort from both academic and support staff. However, the implications hereof for the education system, including both on-campus and lifelong learning, may vary greatly from the European system depending on country or region. In this chapter, we would like to give you some insight into the potential impacts of the COVID-19 crisis for European higher education, based on experiences from two leading universities in the Netherlands; Wageningen University (WUR) and Delft University of Technology (DUT). We will introduce both universities and their online activities, then provide an overview of the developments during spring 2020, followed by a discussion on how these developments offer an opportunity to reform the HE system: towards an online-based, resilient system which fully

embraces tools and methods from online education, in order to accommodate both students and professionals in a flexible and personalized way.

Typical Dutch HE Institutions

In the Netherlands and Europe, WUR and DUT have been frontrunners in developing their online portfolios. The continued strong focus on, and investments in, programs to innovate education at both institutions have resulted in a broad offer ranging from short courses that focus to educate the world, to online programs for professionals that lead to a credential or degree and that are connected to academic credit. Both universities offer their Massive Open Online Courses (MOOCs) on the edX platform. Academic credit is only connected to MOOCs when these are supplemented with additional interaction and assessment, with the Micromasters® as an exception.

Both WUR and DUT have similar drivers to develop online education which have been, and still are: to educate the world, innovate education and reach a broader audience. Since online education at both universities primarily targets non-campus students like lifelong learners, professionals, emerging economies etc., their support organizations have been set up as separate departments. These units provide facilities and guidance to teachers to design and develop online courses and programs, including product and portfolio management, marketing and promotion, learner administration, learner support, and moderation support.

While their approach to develop and offer online education show similarities, the two universities have their distinctive characteristics. WUR focusses on healthy food and living environment. Currently about 6000 bachelor's and 6500 master's students are enrolled in one of the 19 bachelor's and 30 master's programs. The mission of the university states: 'We educate students to become academic professionals, who can contribute to sustainable solutions for existing and future complex issues in the domain of 'healthy food and living environment' all over the world, and who take their social, personal and ethical responsibilities seriously.' DUT is the largest technical university in the Netherlands and covers practically the entire spectrum of engineering sciences. Currently, more than 13,000 bachelor's and 11,500 master's students are enrolled in 16 bachelor's and 33 master's programs. The mission of DUT states: 'We contribute to solving global challenges by educating new generations of socially responsible engineers and expanding the frontiers of the engineering sciences.' The two universities' activities in the online space can also be distinguished: WUR has been an edX member since 2014, and in their about

^e The Micromasters program consists of MOOCs that represent courses in a master program, and that include additional, proctored assessment. Learners that successfully completed the Micromasters, and that meet the entry requirements for the master program, can convert their Micromasters credit to academic credit.

50 MOOCs, 3 Micromasters, and 5 Professional Certificate programs are in 2020 more than one million learners enrolled. Next to the edX programme WUR offers three fully online degrees in a part-time mode and several courses (online and in-class) for professionals. DUT joined edX in 2013 as an edX Charter Member. In 2020 the offering was about 120 MOOCs, 1 MicroMaster and 17 Professional Certificate programmes (of which 2 in Spanish) with more than 3 million learners are enrolled. In addition to courses on edX, Delft offers about 70 online courses for professionals, of which 20 form part of a master's degree.

The vision of education of both universities emphasizes a more learner-centered approach for all campus education, which cannot be reached without a blended learning concept and the increased use of digital tools. Most of the education on campus is lecture-based and workgroup-based, with - depending on the topic - more or less emphasis on applied tutorials and labs. The online infrastructure, tools, materials and methods that have been developed for the online portfolio have to some extent penetrated campus teaching. Most teachers who developed online courses for non-campus students found that the materials could improve their campus courses. They were the first on campus to experiment with concepts like flipped classroom, online peer review and assessment, and intense blended learning. Despite these positive exceptions, until now online education has been mainly perceived as separate from campus education.

COVID-19 Crisis: Enforced Remote Teaching and Increased Use of Online Tools and Methods

The COVID-19 crisis forced a sudden change that was unplanned, abrupt and driven by external circumstances. Normally, all educational innovations that involved online teaching at our universities would be carefully planned and designed considering potential benefits. Risks and failures would be avoided, and innovations were driven and supported by the university's education departments. Now, online technologies offered the only solution to a very urgent and definite problem. Teachers played a crucial role in this sudden change: they were certainly not just the 'adopters' of innovations but became the very 'creators' or change-makers of the transition. More generally, the transition changed attitudes within the organisation (there is no choice), increased the available resources and attention for online education, and triggered the experimentation with a wide range of new information and communication technology (ICT) tools and new teaching methods. This transition, from online teaching methods as part of innovation projects (vertical at-scale learning), to online teaching methods as the only solution in

a crisis to offer higher education across programs (horizontal at-scale learning), had huge implications for the supporting organisation, the teachers, and the students.

To start with the first: all existing departments for educational support had to work closely together to support all teachers by this sudden change. Universities with a good infrastructure to support online education, such as WUR and DUT, benefitted hugely from their expertise and prior experiences. The didactic part of the challenge – addressed in this chapter – was mastered by several actions targeted on teachers such as:

- Forming a multi-disciplinary taskforce who managed the transition, consisting of experts from online education, scheduling department, tooling/IT, multimedia, pedagogy and teacher training, where assessment and privacy/security of specific tools needed specific attention.
- Organizing a single helpdesk for teachers where they could ask for support and advice nearly 24-7.
- Developing or adapting manuals, and organizing webinars, for all aspects of online learning as well as offering tailor-made didactic advice for teachers.
- Building courses and platforms for teachers that offer all instruction manuals, tips, best practices and new tools.
- Scaling up tooling like the virtual classroom, collaboration platform, and proctoring.
- Organizing working groups for teachers with similar problems (like lab-work, excursions, big courses with a high number of students, how to interact with your students).
- And finally: monitoring and analysing how the transition affected course didactics, teaching and the learning of teachers and students.

At the start of the crisis, research was initiated in which independent researchers and educational departments of universities collaborated to monitor and analyse the changes at several universities, such as WUR and DUT (Stevens, Brok, Noroozi, & Biemans, 2020) (VSNU, 2020) (NRO, 2020). Teachers and students were willing to cooperate in these projects and to share their experiences and perspectives. This helped the universities to get an unbiased and comprehensive picture of the situation (Crawford, et al., 2020). Intermediate results were frequently shared - both within and across the universities - to inform and improve education and to learn from the interpretations of everyone involved. Let us summarize the insights and experiences of teachers and students during the first months.

Overall teachers were satisfied with the various educational services, training, and IT tools, and they felt supported by colleagues and the organisation at large. However, teachers did struggle with the sudden transition. At WUR for example, teachers experienced increased levels of stress (66%) and an increase in workload (80%) (Stevens, et al., 2020). Half of the

teachers did not like online teaching, and the majority (80%) believed that the learning of students is worse in online education. They particularly missed the informal and personal interaction with students. Although many teachers experienced high work pressure and did not like online teaching, they engaged in a high level because they found it very important to offer students online education of high quality. Moreover, most teachers felt that they possessed the skills (both ICT skills and didactical skills) needed to be able to teach online, and they felt that they managed to move their course online successfully. Overall, the results suggest that although teachers were not happy with 'being forced' to teach fully online, they had the support, skills and infrastructure to be able to move their course online to their satisfaction. Additionally, we saw that teachers with experience in online or blended teaching felt more comfortable to make the transition to online.

A large part of the research was focussed on investigating the experiences of students (using surveys, interactive sessions, and interviews). Overall, the results show that students missed the social interaction and had difficulty in keeping up the motivation to study from home. Students also prefer campus education, but in comparison to teachers, a larger group favours blended education. Moreover, many new (online) teaching methods were evaluated positively, such as new types of group assignments, polls during live lectures in the virtual classroom, and recordings that can be paused and re-watched to make notes and learn at one's own pace. Most importantly, the average grades and pass rates show *no difference* in comparison to previous years. The student evaluations were also stable: overall students were equally satisfied with education. Hence, despite the sudden and unprepared move to 'online only', grades and satisfaction rates did not go down.

After the first emergency response, we observed a trend towards a structural redesign of courses that include online tools and methods for synchronous and asynchronous interaction. At WUR for example, more than half of the teachers said that teaching the course online stimulated them to rethink the course design. The percentage of teachers that was able to move entirely to online increased from March to May, and from May to July. Moreover, teaching methods were more often revised rather than just maintained or fully replaced. Many teachers (about 60%) that used an online teaching method for the first time would like to maintain the adaptation next year and use on-campus gatherings only for learning activities in which social interaction is essential. Also, at DUT the focus of teachers and support shifted from tools, tips and tricks to a more structural redesign of courses for online or blended education. Teachers felt supported but the results showed a great variance in adaptation to the online mode; many teachers indicated that they value and prefer education-as-usual.

The Challenge Ahead: Moving from Crisis to Change Management

Since the start of the study year 20-21, the Dutch campuses are open again, but in a 1.5-meter social distancing setting. Classroom teaching is possible up to 20-30% of the 'normal' physical capacity compared to pre-COVID -19. Being familiar with the strengths and weaknesses of online education, teachers now have the opportunity to move from purely online education to a 'blended approach', as long as we do not get new lockdown orders. As we pointed out in the beginning, embracing online tools and methods would be a necessary precondition to reform the system. But we observe that teachers and the organization are not yet fully ready, and in order to prepare a lasting change there are two important challenges: Teachers' attitudes towards digital culture and upscaling educational support.

Teachers' Attitudes towards Digital Culture

Although the credo of the association of Dutch universities is to teach "on campus if possible, online because possible", many teachers now indicate that they prefer to teach fully on campus and would like to go 'back to normal' (VSNU, 2020). Despite positive student evaluations and learning results, they believe that the learning performance of students is worse in online education. Although they are relatively positive about their own skills and performance, and their experiences with specific online teaching methods, they still show a negative affective attitude towards online teaching in general. This might result in resistance to move towards a lasting more online-based education. It is difficult to determine exactly what shapes this attitude. We should acknowledge that this sudden crisis is unwanted and comes with a lot of difficulties in all aspects of our social lives, and this general feeling may influence teachers' attitudes towards online education in general. Moreover, since on-campus teaching is the default mode in our education system they are likely to be more aware of the benefits of on-campus teaching – and what they miss- rather than they are of the potential benefits of online teaching methods. Online education also generally means a change in the role of the teacher: from a person in the very center of the classroom to somebody, who rather arranges a series of learning experiences, online and offline. Perhaps, if teachers get accustomed to this role and get recognition from the students, the resistance will decrease. Additionally, workload and stress seem to play a pivotal role in the general attitude towards online teaching and the motivation to make a change. Teachers already experience a high workload and many teachers indicate that the transition to remote learning significantly increased their teaching workload.

It is important to note that there are quite a few differences between teachers. Researchers conducted a cluster analysis and identified different types of teachers: groups of teachers that differed in motivation, stress, skills, and beliefs (Stevens, et al., 2020). It is

essential that education departments consider and address each of these teacher types. Especially the teachers that are more conservative and critical can be off-the-radar in institutions that are used to working 'vertically' (vertical at-scale) in innovation projects with mostly engaged teachers ('the early adopters'). In fact, the results showed that there was a large group of teachers that felt unheard and wanted to go 'back to normal'. This group of teachers requires a lot of attention in communication and policies, in order to facilitate a more widely supported, 'horizontal' transition (horizontal at-scale).

Upscaling Educational Support

Most important in the short term – and with an eye on the future - is to organize support for teachers differently. Online tools and methods have the potential to make education more effective and ultimately to decrease the workload of teachers. The transformation should be organized in such a way that it not just improves the quality of education, but also is advantageous for teachers in terms of workload and/or rewards.

In our universities, the teaching and learning services were focused on supporting high numbers of campus students and classroom teachers, and growing numbers of (lifelong) online learners and few teachers new to online education. Each teacher was coached on the job by a learning developer to deliver a great learning experience in his or her course. The focus was on offering high quality online education in relatively few courses to large amounts of learners.

As a result of COVID-19, the latter changed in particular. Large amounts of teachers familiar with current educational practices and the learning management system needed to be supported to offer their teaching in another mode of delivery. Not the numbers of students made the big difference, but the large amount of teachers that were in urgent need for assistance, to deliver the same high quality as they did before. That support needed to be reorganized.

In the emergency response, the organizational set-up to coach all instructors individually was transformed overnight to more general support, in the form of guidelines, best practices, tips & tricks, factsheets, decision support matrices to select appropriate tools, and training. In the following semester, the prepared response phase, most teachers had some – limited to extensive - experience with online teaching, and the support organization was set-up to support at scale the (re)design of courses to deliver high quality online learning experiences. More than before, teachers had to figure out themselves how to teach online, what choices to make, what tools were suitable, how to test etc. They increasingly started to help each other, and share experiences. Given the high number of teachers in distress only limited personal support was available. That lead to new experiences in a new context. For example, teacher had to select and implement digital tools themselves, to apply in an virtual learning environment they were not

used to, both technically and didactically. Learning developers on their turn, had to trust that these teachers are capable and efficient to pick the best alternative and figure out how to apply. For both the teachers and learning developers this was new and uncomfortable.

For the teaching and learning services, these developments mean change in the approach of support, quality control, and relations between teachers and learning developers in (re)designing education for fully, partly, or temporarily online delivery. Table 1 below aims to explain this shift in approach and what it may imply in the nearby future.

Table 1

Shift in Focus and Approach in Vertical and Horizontal (At-Scale Learning)

	Past (vertical): Online for many learners	Future (horizontal): Online by many teachers
Focus of course design	Design a course for online first, transfer to campus (impact). Aim for learner-centered design, with a close link to their practices and interests.	Design a great learning experience. Flexibility in course design and delivery options (mode, planning, moderation). For students and sometimes professionals (towards microcredentials).
Teacher support	Individually coach teachers in (re)designing their courses, selecting appropriate methods and tools for constructive alignment. The result is custom based support, addressing the needs of the teacher and the specific topic and course only.	General support: Offer training, tools, factsheets etc. to teachers. Impersonal support, instructional designer/learning developer most often not inaugurated in the specific course. Individual coaching in exceptional cases. Learning community of teachers.
Role of learning developer	Support teachers to design for, and support, large groups of learners.	New roles for instructional designers: Support many teachers. Guide teachers to professionalize.
Dependency	Teacher and instructional designer co-produce courses and are thus in control of the quality of the online learning experience (support essential).	Instructional designer cannot be involved in, and have control over, all courses (teacher can do). Trust the (new) professionalism of teachers, their engagement and commitment to high quality delivery.

On Our Way to a More Innovative System?

We started this chapter claiming that the absence of a financial driver and the fine-tuned nature of our HE system have been in the way of development towards a more open system,

where online and blended education offers more options to serve other target groups and give way to more flexible education paths. In the short term, the COVID emergency response and education crisis-management is not expected to change the essence of the publicly financed Dutch and European HE system, its scale or economic accessibility. Such systems do not change overnight. Institutionalized paradigm, culture and standards have a very slow pace of change, but disruptive situations may set operational and managerial change in motion (Williamson, 1998).

At the same time, the first signals are positive. Teaching and education support during the COVID era may have created an opportunity to steer towards online or truly blended, learner-centered and flexible higher education. Teachers now prepare for back-up alternatives and think about how to offer their courses dual-mode, using the full range of digital tools and methods. They prepare for physical absence of a teacher or student in class (due to medical condition, family condition, social setting, limit access to public space) or ultimately to offer education to a class of students again in case of the next lock down. That enables a more flexible program.

The lessons from the COVID-19 response are having their effect. From now on, it is realistic that the delivery of education can not only be threatened by a fire (destroy a location for lectures), but also by a pandemic (disturbs the mode of teaching). Options to make educational programs more resilient for future threats by embracing online tools and methods are considered. This may affect managerial strategic decisions for the years to come. Processes of digitalization and flexibilization of HE will be incentivized, to start in the day-to-day operations in the short term. This gives options to enlarge our education portfolio to broader target groups. Rules and regulations will ultimately change, since campus, remote and online will be mixed.

Both teachers and students begin to ask for a vision for the future of their university education, on the medium and long term, from their managers and boards. Together we should build a vision for the future where the best learning experience for different target groups will be central in order to successfully reach the learning objectives and attainment levels.

In order to steer towards that future, changes are needed in policy, administrative processes and rules and regulations. It will anyway be a bumpy road as long as the pandemic remains. So far, we've experienced that there are many rules, regulations and policies in place that are grounded in a specific mode of delivery of education, and do not offer flexibility to adapt to changing circumstances and new modes of delivery. It may be worthwhile to reconsider these with the purpose of offering a good learning experience to students. This will only work in small

steps, but an important step has been taken: more online-based/digital tools are used by more teachers and in more courses on campuses.

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