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Chapter 4 - How to design a 21st-century online course that makes learning happen for all

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ONE MORNING ON THE BUS...

When the Massive Open Online Course (MOOC) hype was almost over its peak, Annika received an alert on her smart phone while on her way to work inviting her to access a video lecture via the iTunesU app. On the bus she watched the first of a series of lectures on 'Justice' taught at Harvard University by philosophy professor Michael J. Sandel (Harvard University, 2017), which have been viewed today by tens of millions of people around the world. When entering the office to have one of her morning talks with the director of the School, the two started to ponder how the School could make its own training accessible to more people around the globe. While not aiming at the outstanding quality and success of the Harvard lecture series, why not make an effort to make the School's annual training available to more than the 30–40 young energy professionals who came to Florence each year?

This morning talk was the spark that was needed to ignite a series of discussions at the School, including with the School's training director. From the very start he openly embraced the idea to move the School's flagship course on the 'Regulation of the Power Sector', an induction training programme for young regulators and those regulated in the energy sector, online.

The online course we developed in response to these discussions was launched in autumn 2014. Three years later more than 600 practitioners and academics from 76 countries – from Peru to Cameroon, from Australia to Russia, and from many EU countries – had been trained in the five-month online programme. The completion rates for the course were around 85 per cent and 62 per cent of participants scored high in the final exam which assessed ambitious learning objectives (Figure 4.1).



Source: Authors

Figure 4.1 Completion rate, course evaluation¹ number of participants, and percentage of excellence certificates for ‘Regulation of the Power Sector’ (fifth edition, autumn 2016)

ACADEMIC TRAINING FOR EUROPEAN PRACTITIONERS

When the School for energy regulation was founded in 2004 at the European University Institute (EUI) in Florence (see for more detail Chapter 10), one of the core founding ideas was to train a new generation of European professionals working in the energy sector. This was done through an executive training course for young professionals that mixed academic thinking (mainly from economics, law and engineering) and practical knowledge of energy regulation and over the years developed into an annual training programme. The course was designed as a blend of two residential weeks and several month-lasting distance education.

The course was characterized by a strongly teacher-centred approach, and lecture-based residential training with a traditional distance teaching format typical of that time: selected (printed or digital) reading materials, a few assignments that were submitted on the learning management platform and graded by the instructors, and a final essay, again submitted online and graded by the instructors.²

When the discussion started as to how the School’s flagship training could be moved fully online, the questions we posed ourselves initially were about how we could make the training accessible to a wider group of learners. We could have simply filmed the lectures, added the digital reading material and put everything online for the learner to figure out how to engage with – an organized online repository where people access the recorded material of the annual training at their own pace and in their preferred way – which is a model used by many Massive Open Online Courses (MOOCs), or openly accessible courseware (OER).

¹ On the question: How satisfied are you with the course? For which one was the lowest and ten the highest score, the average satisfaction of all participants was point 9.

² The learning management platform (LMS) certainly offered more possibilities to design the course. Yet, as in so many institutions, educational material and teaching habits had been simply imposed on the learning environment without stirring a deeper reflection on what the technical environment would allow the course to develop in terms of learning activities and teaching approach. Compared to most universities the use of the LMS at the school was nevertheless advanced as it did not simply use the learning environment as an online repository for the course material but offered the online submission of assignments and a course forum where participants could get in touch with the instructor for clarifying questions.

What happened instead was that the idea to move the course online triggered a deeper reflection on the way training was offered at the School. The ambition to offer a training that would require learners to put their acquired knowledge into practice was in stark contrast with a surface learning approach (Marton and Säljö, 1976) which an online repository could have offered. While the ambition to offer a high-quality learning experience was not formulated in these terms at the start of the online journey, the new project turned out to be an opportunity to radically question the practices the School had adopted in the area of training.

The online course initiated several dynamics at the School, most importantly the dynamic whereby the School started to move away from a teacher-centred approach towards a course design emphasizing student learning, engagement, communication and collaboration – with a focus on the particular opportunities and challenges of teaching and learning online.³ Moving the flagship training online was the start of a journey that:

- Changed the way a training course was designed at the School;
- Changed the team's and the faculty's approach to engaging with learners;
- Changed the way the School developed its training portfolio.

As we will discuss in the chapter, these changes allowed the School to explore completely new practices as how to share the School's expertise and knowledge through its training activities. It also allowed the School to explore different practices of academic knowledge creation occurring through the online courses.

MOVING THE SCHOOL'S FLAGSHIP TRAINING ONLINE

The idea to re-think the School's training activities was not born because anything was going wrong. The original training course – the flagship of the School – did not need change. The course was greatly appreciated by course participants and considered a must-have certificate for many regulatory authorities and regulatory offices in energy companies. The course was directed by the School's training director Professor Ignacio Pérez-Arriaga, a leading and recognized expert in the field (Professor for energy regulation at MIT and former Commissioner at the Spanish Electricity Regulatory Commission, thus impersonating the School's declared ambition to bridge academic and practitioner knowledge). Each year the demand for the course exceeded by far the places available to train young professionals.

Moving the training online meant allowing access to leading knowledge in the field of energy regulation to (different kind of) learners from distant places around the globe. This started a process to improve the quality of teaching at the School and thus make a better learning experience available to many more people, whether in Florence or online. Further, it started a process of continuous innovation in the area of training that is still ongoing at the School today.

The new course designs, the engagement with learners and experts, as well as the variety of (online) course offers started a deep transformation of how knowledge creation and sharing is understood and practised at the School. In what follows, we will describe these three dynamics that developed in response to the decision to move online.

³ See also Chapter 1 by Liz Marr who similarly discussed the shift at the Open University from traditional distance education to exploring the full potential of online education at the Open University, UK.

A New Course Design at the School

The online course firstly changed the School's approach to designing a new course. The term 'course design' suggests that there was a well-defined process in place as of the very beginning to guide the course development. This was not the case, however. When we started to develop the online course no formal requirements for designing a course existed at our institution (EUI) that would have guided the design of a new course.⁴ While we ended up with an innovative and successful online course design (see Figure 4.1) and the School today uses a set of well-informed practices and standards to guide the design of its new online courses, it was the result of a constant calibration of what we wanted to achieve (which was a moving target), the experience we had gathered from other activities of the School, and, very importantly, the challenge to take the group of (external) instructors and learners with us at all times of the course development.

Yet, while the School did not follow established models (or best practices) of higher education course design at the start⁵ and no formal or institutional requirements were in place to guide the process, the online course did not develop in a void. The course had to raise enough money as to cover the investment and running costs and its quality and relevance would have to be validated by academics and practitioners being experts in the field. In particular, the combination of two factors did support but also shape the development of the first full online course of the School:

First, the course design could build on the annual training that had run for many years. The online course could rely on an experienced course director who had decades of teaching experience being an internationally renowned academic in the field, and an existing team of instructors covering a wide area of expertise relevant for the course. The course content was already organized into a series of modules and divided among the team of instructors. The reading material for each module existed and a handbook on energy regulation by the school's training director had just been published, building in great part on the course content and structure which then served as the core reading of the course. The new course could thus build on an existing course structure, course material and teaching faculty.

Second, for a couple of years, the School had been experimenting with new multi-media formats and social media to communicate the research more widely, supported by a team of multi-media experts (see Chapter 10). The experience and insights gained from these online activities of the School – the webinars, video lectures, video interviews, and all kinds of ways to inform about the School's activities and output more widely, gave us important clues about what works and what does and does not work online. We observed online audience attention for different online formats and activities (for example, recorded video lectures or interviews compared to live webinars); experimented with how to engage people in different types of online events and activities (e.g. answering polls and submitting questions during webinars, social media participation during live streaming of conferences); but also gained experience in how to support academics and other experts talking in front of the camera or to an anonymous audience during an online seminar. Also, and very importantly, we learned that we had

⁴ In many universities today new course proposals have to go through a formal process of quality assurance before courses are included in a department's course catalogue. Universities also increasingly expect their teaching staff to undertake professional teaching training as to learn how to design courses for higher education teaching (for an overview see Sursock, 2015).

⁵ That is, starting from the definition of what the learner should get out of the course and aligning accordingly the learning objectives, ways of assessing whether learning has taken place and the teaching and learning activities that support this learning (see Biggs, 1996).

to be careful to take the audience or learners with us, trying to find the right balance between what was technically possible and what activities or set-up would make us lose technically less experienced participants or those that do not have the time or interest to engage in more demanding online interactions.

When starting to design a new course, the first – often unquestioned – step is to start from lectures, the tacit assumption that knowledge is best transferred by somebody talking and somebody listening. Similarly, when we started to develop the online course, we started from the lectures, clearly being the teaching activity instructors were most familiar and comfortable with.

Course instructors had prepared PowerPoint slides with detailed information on various aspects of how the energy sector needs to be regulated and why. It was of great help that these external instructors had been involved in the residential training and could rely on existing lectures they had developed in this context. The challenge was that these lectures were indeed long speeches that expected that the learners process a substantial amount of dense information in a short time. We knew however from a series of video lectures we had published at the School, that attention for a video lecture was even more difficult to keep than in the classroom, in addition to the insight that lectures tend to not support more ambitious learning objectives (Bligh, 1998).

Together with the instructors, the course editor decided to try out different (shorter and more engaging, see also the discussion in the next section) video lecture formats. Long lectures and dozens of PowerPoint slides were limited to short animated (five-minute) video lectures. A series of three to five video lectures would set the scene for each module and introduce some of the key concepts.

Yet, the amount of information that was delivered via video lectures had been substantially reduced, and the obvious concern was that this would not provide learners with a sufficient understanding of the topics. It was clear that there was much more to learn than what could possibly be covered in 15–25 minutes of video lectures for each of the modules. Instead of simply adding the reading material and testing the understanding at the end of the module with a multiple-choice test, we explored other learning activities. To introduce the learners to the full set of issues and thinking in each module, we started to develop a wider set of additional teaching and learning activities that focused on engaging the learner in the online space (see Box 4.1). Most learning activities were designed so as to allow learners to get a deep understanding of the topic and to apply their knowledge by analysing existing power systems across the globe.

One important difference from many other online courses was that once the course development was completed (i.e. the course design aligning the learning outcomes, learning and teaching activities, and the formative and summative assessments) the course was not simply put online for the learner to undertake the learning path on his or her own. Instead of giving no or only minimal support to the learners, we dedicated as much – or even more – attention to the running of the course itself. The effort that we put into running the course is a major difference with most Massive Open Online Courses and many of the corporate (self-paced) e-learning products, where learners undertake the learning journey on their own.

One crucial feature of the online course was the continuous engagement of a course facilitator with the learners and the instructors. The course facilitator on our online course is a figure that acts as the first contact point for instructors and learners, and the person in charge to keeping close track of the individual and collective learning progress. As we were trying to achieve higher-level learning and due to the fact that the course was what one could call a ‘middle-sized online course’ with maximum of up to 150 attendees, the facilitator can easily engage with single learners or course teams and identify

or anticipate potential problems and provide personalized support. Also, the course facilitator had a crucial role when it came to managing the expectations of course participants of which the majority had been taught traditionally. Pedagogical changes are seen as tiresome or – in the worst case as not proper learning – not only by many instructors but by learners too. People often have strong (implicit) assumptions about what learning is. The presence of a course facilitator and her constant motivation of the instructors and learners ensured that learners engaged in more demanding forms of learning activities.

From our experience the figure of the facilitator was key to getting the amount (and depth) of engagement by both learners and instructors. It not only allowed learners a continuous point of reference for any questions they might have (particularly as there were different instructors for each module), the same was true also for the instructors: As online course activities are undertaken at any time by the learners (in particular with a global reach where time zones differ) activities other than the live class are easily ‘out of sight – out of mind’ for the instructors. The facilitator plays a crucial role in supporting faculty to indicate the core activities where their engagement is needed, such as questions in the forum that could not be answered by any of the peers.

BOX 4.1 THE FIRST ONLINE COURSE: HOW BEST TO REGULATE THE ELECTRICITY SECTOR? LEARNING WITH THE PROFESSOR FOR ENERGY REGULATION FROM THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

The school’s first online course ‘Regulation of the Power Sector’ launched in 2014 runs over a full semester and is directed by the MIT Professor for Energy Regulation and former regulator Ignacio Pérez-Arriaga. The course is divided into 13 modules, each lesson taught by a different expert, running over two weeks. Each module is composed of a series of learning activities designed for a deep learning experience (as opposed to a surface approach), that is, enabling learners not to simply repeat acquired knowledge but being able to apply that knowledge in new and different contexts (see Bloom’s taxonomy in Wikipedia, 2017). Learning activities within the modules Each module engages the learner at the very start of the course, taking examples from a real-life scenarios. Light activities at the start of the course (quizzes, small homework) connect to the learners’ prior knowledge (that might or might not be linked to the issue energy regulation) and ask them to engage with the topic before watching the video lectures. Other lessons start with open questions or teasers to test learners’ ideas and implicit knowledge about a topic. The short video lectures (visually supported by key terminology and graphics) that follow answer questions that had been raised in the previous activities and introduce further topics relevant to this lesson. Each topic links to the discussion forums of the course, where learners can join the other participants and ask questions. Learners are also invited to contribute their specific expertise. For example, as learners come from very different regulatory systems all over the world, they can often share country-specific knowledge. Every week interactive live classes are run with the instructor of each module. During these one-hour live sessions, learners can directly interact with the instructors. They can also send questions in advance or watch the recording of the class afterwards. During the class, after a short presentation, the instructor addresses participants’ questions and stimulates discussion by using live polls. At the end of each module, learners take a final quiz (summative assessment) with questions displayed at random and learners are allowed to retake the quiz as many times as they wish. This approach has been proved more rewarding for learners. On the basis of data tracking each learner’s activity, badges are awarded, much appreciated by the learners as these make their learning progress visible. Learning activities running across the whole course Every module has a set of tasks for the two big projects that learners submit at the end of the course: Firstly a policy paper where learners are single authors, with questions to be answered around the 13 module topics. Secondly, a wiki project where learners collaborate online in small groups, having to describe a regulatory system of their choice covering again all 13 module topics of the online course. Both big learning activities are worked on continuously on-the-go during each module so that learners can test the level of understanding of each topic straight away while the module is running. These two activities allow learners to get a deeper understanding of how the topics covered in the module work in practice. The wiki articles are also used as case studies for future consultation. At the end of the

course, course participants evaluate each other's work (anonymous evaluation of policy paper by three peers and anonymous voting for the best wiki- article).

With the first online course, we had thus introduced a new course design that moved away from a lecture-based and heavily teacher-centred teaching approach, introducing many different teaching and learning activities and the role of the course facilitator. Of the total amount of course activities within a typical module that amounted to about eight hours per module, only 20 minutes were now delivered via lectures, another couple of hours had to be dedicated to the core reading and summative assessment of each course, and the rest were more advanced forms of active learning in forms of doing small research exercises, interacting or collaborating with other course participants, also taking advantage of tools to tap into the expertise learners could bring into the course (what is known as horizontal learning), introducing peer learning and peer assessment, known to be an efficient tool to support learning (Triantafyllou and Timcenko, 2014).

Approach to Engaging with Learners

The work on the course design encouraged the team of instructors to reflect on their teaching and learning practices and how better to engage with learners as to support higher-level learning. For this to happen it was essential that the online course development was guided by a 'course editor', who combined knowledge of the course content with an interest in learning theories and related research and innovative (online) learning practices. This combined expertise of the course content and learning theories allowed the streamlining of the course development and made it possible to find the right balance between the instructor's preference for delivery of content and the opportunities that online learning could offer for engaging learners in collaborative learning experiences.

The development of the online lectures described in the previous section is again an inspiring example for how this reflection on the role of the instructors and learners evolved. As mentioned above, following a common practice in higher education the course editor and the team of instructors started from the content that should be delivered via lectures as to 'transmit' the knowledge from the instructor to the students or learner. Indeed, in higher education lectures are – despite their limits for making learning happen – still the dominant teaching activity. Insights into learning theories and cognitive science suggest there are better or worse forms in which to deliver a (video) lecture for the learner and the school's multi-media team had gathered experience on the useful length and the advantages of animating the video with images and key terminology (Figure 4.2).

In order to make short and engaging video lectures the course editor set-up a collaboration with the instructors and the media team. Instructors started to work on their video lecture trials (delivered in front of the camera and then watched and discussed). To prepare their trials, each instructor was provided with a different hand-out detailing tools on how to engage the learner (for example, how to get them interested, how to get and keep attention, how to scaffold learning, how to improve the learner's understanding). Each tool was based on insights into how our brain becomes alert, and processes and retains (new and challenging) information.⁶ These insights had been translated into easily applicable teaching tools by the course editor that could be used during a speech, giving some explanatory background on why and how this enhances learning.

⁶ Some sources from this broad research field used were for example Willis (2006); Ambrose et al., (2010); Carey (2014).



Note: Each video lecture offers the possibility for downloading a transcript to give learners additional access to the information, which is particularly helpful as none of the instructors and most learners were non-native English speakers.

Source: Authors.

Figure 4.2 Example of video lecture animated with key terminology

When we discussed the video lecture trials, instructors could explain to the others why they used ‘their’ lecture teaching tool. During this one-day discussion of the video trials, we discussed the role of tapping into the pre-existing knowledge of the learner, how to get the attention of the listener at the beginning of the talk and how to get the learner interested and engaged in what is to come, the importance of narratives as our brain seems to be wired for causal and sequential thinking⁷ and the need to present information that is personal and not abstract (Kahneman, 2011: 170ff). At the end of the day we had a ‘lecture teaching tool box’ that by way of example had been made accessible to the other instructors as well.

The benefits of this one day discussion of the video lecture trials with the whole team were: First, to experience the online teaching (video lectures) from the learner’s perspective (quality and length of the lecture); second, they familiarized the instructors to speak in front of the camera; and, third, and most importantly, enlarged the teaching repertoire of each instructor by providing them with a series of ready-to-use lecture teaching tools to better enhance learning. Once the trials had been discussed, scripts for each video lecture series were drafted before the lectures were finally filmed – a process of back-and-forth between the school’s course editor and the instructors over several weeks.

Starting from the lectures which are the dominant higher education teaching practice seemed the right point at which start a reflection on ‘how learning works’ (e.g. Ambrose et al., 2010). Once the topic of how to better engage learners was put on the agenda, other online teaching and learning activities were explored. The course developer, the instructors and the multi-media team were exploring ideas on how to increase engagement throughout all course activities, for example, during the weekly live classes. One way to engage learners was to encourage them to share the expertise they might have on specific issues in advance of the live classes, or to solve small puzzles ahead of the online meetings.

⁷ Indeed our brain is so strongly wired for causal and sequential thinking that we are often misled in drawing conclusions (see Chabris and Simons, 2010).

It was only a small step from there to emphasizing the importance of valuing the knowledge learners might bring to the course and the advantage of learners taking ownership of their learning so as to be highly motivated to progress with the course. The course editor in collaboration with the instructors designed a course activity in which learners co-created articles in collaboration with other learners about the energy regulatory system of countries from across the world, providing information and insight on up-to-date regulatory systems. Comprehensive information on dozens of energy regulatory systems were available at the end of the course that would be difficult to keep track of as an individual expert or instructor. The fact that course participants could attend the course from around the globe was an advantage in that it provided information on countries that might otherwise have been difficult to access (for example, due to language barriers, no familiarity with sources of knowledge such as newspapers to keep track of, no familiarity with national and local institutions and policy). Learners were thus encouraged in the forum, live classes and in the teamwork to interact and contribute their knowledge and expertise. They were also involved in the peer assessment of the final essays.

Learners were thus involved in the creation of knowledge on energy regulation and policy (learners as co-creators of knowledge and horizontal learning), also participating in the peer assessments of the two big course tasks (see also Box 4.1).

A New Training Portfolio

When starting to move the annual training of the School online, we did not know exactly what the product would look like in the end and whether it would be embraced by those we thought should be interested (academics and practitioners working in the area of energy regulation in the EU and beyond). Also, the launch of a new offer within the School's training portfolio of residential offers was risky as the online offer was a cheaper – though at the same time lighter – version of our annual training which continued to be offered at the School.

The new balance we had to find among the new existing course offers had one advantage though: it kept us constantly alert as to continue improving the quality⁸ and making sure our trainings were of relevance to potential course participants: Each new course had to provide additional value in the School's course portfolio. We today have evidence that our first online course indeed did not put at risk the traditional annual training, but simply opened the training to different participants across the globe.

Encouraged by the first positive experience the School started to develop new online course offers providing alternative forms of learning for those interested in specific topics and shorter formats. These new online courses aimed at reaching out to professionals willing to get an insight into a new topic or to update their knowledge, rather than providing a broad induction to young professionals as was done in the first online course. The constant updating of knowledge for energy professionals is indeed of crucial importance, as new regulations, research on, for example, market dynamics or the

⁸ For example, after some editions we decided to move to a new learning management platform that allowed to add a series of tools and made the navigation for the learners more user-friendly. One important improvement was that learners thanks to easy-to-use icons could more easily interact and collaborate with each other. The new and easy design of the course environment substantially increased the communication among the learners. We substantially reduced the cognitive load for course participants by making the technical environment more intuitive and easy to use, and learners could thus concentrate more on the content of each module than struggling with small navigation or technical issues.

(adverse) effects of new policies, and new discoveries (for example, shale gas) challenge the existing repertoire of knowledge and practices sometimes at a very rapid pace.

As the aim of the course, as well as the backgrounds, interests and knowledge levels of the participants were different, the course development team went on to explore how the online learning content could be designed so as to be more flexible, dynamic and personalized.

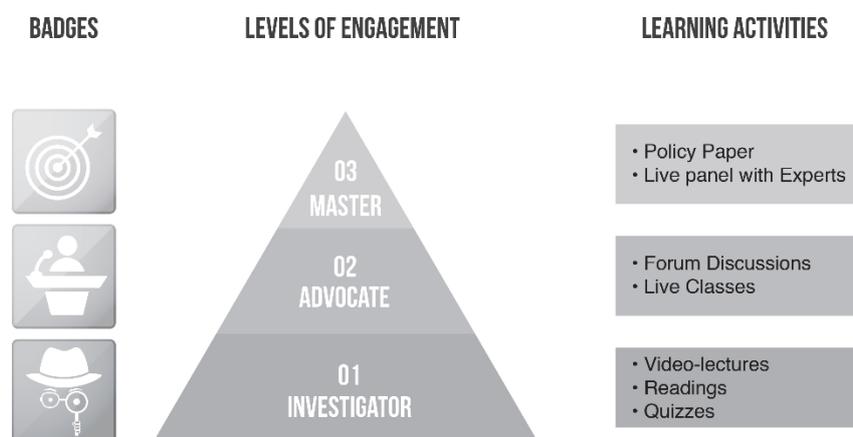
The new course design first aimed at responding to the individual needs of each professional learner and how the course could respond to these changing needs ‘on the fly’, as the courses were already running. The course design that was developed allowed us to respond to different learner’s knowledge and experience, as well as how this changed during the course run. In practice, it meant that the course content was dynamic – the weekly progression changed in accordance with what the instructors learned about the learners and their previous knowledge as well as the gaps that seemed to still need filling. The course facilitator employed data analytics provided by the learning management platform but also used formative assessment activities to allow the learners to test their knowledge.

Second, not only was the course design more flexible, learners could also choose among different learning paths, deciding on their own learning objectives and thus take ownership of their learning. Depending on whether participants just wanted to get a quick overview of the topic or a more detailed insight or in-depth knowledge learners could choose among three different learning paths with different levels of engagement and learning activities. Each learning path would give the learner a different badge:

Level 1: ‘Investigator’ learning path: The investigator learning path (lightest level) allows the learner to acquire some fundamental knowledge on the topic by watching the videos, doing some readings and taking feedback quizzes with instant feedback.

Level 2: ‘Advocate’ learning path: The advocate learners are expected to complete all level 1 activities and engage in the forum discussions and live classes and engage with other experts or learners.

Level 3: ‘Master’ learning path: These master learners are expected to complete levels 1 and 2 and to work on an individual or collaborative policy-document on a real-life project. At the end of the course, the masters will discuss their findings with experts and decision-makers who will give a feedback on their work in a live session.



Source: Authors.

Figure 4.3 Ownership and personalized learning paths: three levels of engagement, learning activities and corresponding badges

The new online courses are not graded. Instead, they give instant feedback on how learners are doing in the form of badges. The badges can be shown in participant's profile and shared outside the course (Figure 4.3).

The most demanding engagement (master level) culminates in an online event where participants discuss their policy paper with experts and decision-makers from the European Commission and other senior energy professionals. This activity brings policy-makers and learners together to work on real-life cases the European Commission is currently addressing. As the course director Professor Leonardo Meeus points out:

It is often said that the best way to learn a topic is to teach it; in my experience at Florence School you learn even more if you organize an online training on a new set of market rules and regulations that everybody is struggling to catch-up with; only an online training can mobilize 140+ professionals from 25+ countries on a new topic and also give all of them the opportunity to contribute to the course text, forum discussions, panel debates, and live classes with academics like me to moderate, challenge and summarize the discussions. (Interview March 2018)

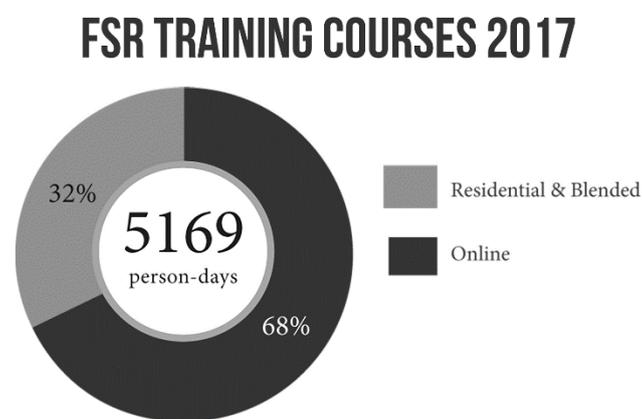
On the one hand, this activity makes the relevance and meaning of the learned content tangible to the learners, while on the other hand it provides the policy-makers with ideas and detailed feedback on policy proposals they were currently working on. Often, in these discussions, the traditional role of instructors, experts and learners is challenged: Policy experts or instructors are challenged by learners who might be experts in some areas; policy-experts contribute to the 'teaching' as they might add context-specific knowledge or constraints ideas would face in practice; or, as Professor Meeus points out in the quotation above, these online courses are also an opportunity for the course director to learn about the subject and accordingly review research questions and outputs. These online discussions become a space where information is updated and composed and a shared understanding of problems negotiated. The new course design thus emphasized the collaborative, instantaneous (real-time), and community aspect of learning in which the roles of the instructors, learners, experts and researchers become blurred.

How the roles of learners, experts and instructors were blurred and learners became co-creators of knowledge is also illustrated by the course textbook. Course participants found an initial (beta) textbook prepared by the researchers involved in the course as instructors. This handbook was not designed as a fixed text but was conceived as an open guide that was developed during the course by the participants. Participants were invited to contribute to the course text making notes, changes and integrations. Based on this feedback the course instructors developed the text into a book (including all the contributors in the references) and published it in open access (Meeus and Schittekatte, 2018).

The new online courses thus further expanded our training portfolio at the School, reaching out to different types of learners, and allowing for new forms of collaborative learning. In practice, this also meant (and still means today) that course formats and designs continued to change in order to respond to what works and what does not work well. As of 2018 the school offers six different online courses (in addition to nine residential or blended trainings) and as shown in Figure 4.4 since 2017 the majority of the training offered at the School is online, with more than 5000 person-days of training in 2017 and rising.

MOVING THE EXECUTIVE TRAINING ONLINE: CHALLENGES AND RESPONSES AT THE SCHOOL

The design of a new course that was initially developed with the intention to share our knowledge from our flagship training much more widely not only resulted in a high-quality and exceptionally successful online offer (completion rates, share of certificates of excellence) and an exceptional level and pace of innovation but also started several dynamics at the School that are still ongoing today. The School developed new ways in which to share and create knowledge through its executive training offers, in line with some of the most discussed pedagogical approaches existing in higher education today, such as collaborative creation of knowledge across borders and crowdsourcing, learner-centred and horizontal learning, ownership of learning and the re-definition of the roles of instructors, learners and experts.⁹ Not only were the roles of learners, instructors and experts blurred, but boundaries between the academy and the world of practice were made shared spaces, in which to inspire, critique, and challenge knowledge on energy regulation. While the journey of pedagogical innovation at the School is still ongoing, practices of knowledge creation and sharing have already been deeply transformed at the School laying one of the many new bricks to create a different academy in the 21st century.



Source: Authors.

Figure 4.4 Total number and share of person/days training at the school in 2017 in either online or residential/blended trainings

A dynamic started that deliberately introduced the team, the teaching faculty and the learners to a different kind of thinking about the role of training for knowledge transfer and creation. Training participants were introduced to tools and practices that would allow them to contribute their specific expertise and build knowledge in collaborative efforts with other learners and instructors around the globe.

While no single activity or approach was revolutionary in itself, the school's training offer today integrates some of the most innovative pedagogical tools and approaches into its training portfolio.

⁹ It also triggered a dynamic to improve the quality of teaching at the school, residential, blended and online courses to varying degrees. As we started to move away from a lecture-based course design when developing the first online course, the school had to experiment with different online teaching and learning activities that did broaden the teaching tool box used at the school. Alternative teaching and learning activities could now also be used by instructors for teaching in other (residential) courses of the school and thus helped setting new standards of good teaching and gave examples to other teaching faculty about the array of teaching activities and their benefits for the teacher and the learner. Moving online thus did not only provide a new type of course offers for different learners, but also questioned and thus improved residential teaching practices.

When developing the online courses we encountered what we believe to be some of the typical challenges in a higher education context when developing online courses and the pedagogical opportunities these offer.

Challenge One: Within higher education there is a widespread scepticism about technology and online tools. They are either simply considered a fashionable tool that does not in any way contribute to the educational mission of universities and only puts a useless burden on the already heavy teaching load¹⁰ or rejected in a more pronounced way by assuming that online tools undermine the typical deep and critical thinking of higher education because of their superficial, short and distractive characteristics (for a critique see Furedi, 2015). Online tools are thus not necessarily welcome by all teaching faculty and strong opinions on technology exist that still too often keep the door for innovation shut.

Challenge Two: Most of us are convinced that we know the best way a topic, on which we are experts, should be taught. Being experts on the topics we teach, with a substantial teaching and research record, and having taught a topic for many years, in some cases decades, we are not necessarily convinced that another person can offer valuable advice on the way we organize our teaching. As we often learn through imitation and role models most of us adopt those teacher-centred teaching approaches that we were exposed to when we were students ourselves, and (teaching) habits are difficult to change (Duhigg, 2012).

Challenge Three: Finally, public universities do not necessarily have the (financial) incentive to innovate and/or improve their university teaching, or if they wish to do so, do not have the financial means to invest money in (risky) projects with an unclear output. Many traditional universities do not necessarily see any benefit in undertaking out of the box activities with questionable legitimacy.

The challenges introducing online teaching and learning activities are thus manifold: assumptions about the adverse effects of technology on student learning; the burden on the time commitment of academics (researchers) who already spend about half of their time on teaching activities for which there is still little institutionalized reward; teaching habits and expectations by students (or learners) of what a typical university professor (or instructor) is supposed to do. These challenges are by no means the only challenges when it comes to innovating teaching and learning in higher education but they describe some of what we believe to be typical challenges within many traditional higher education institutions.

Which factors do we believe contributed to the setup of new innovative training offers at the School that might guide other institutions in their attempt to harvest the opportunities offered by online tools and activities for higher education teaching and learning? In addition to a substantial financial investment in the training area – including the importance of setting up a team of knowledge workers (course editor, course facilitator, and multi-media team) and the nurturing of three cultures within the School discussed in more detail in Chapter 10, we believe that two characteristics of the School's approach account for the success innovating the school's training offers.

The first characteristic is, that the development of online courses was embedded in a broader digital strategy of the School, which also comprised the way research is communicated and the way the research process itself is designed (see Chapter 10). This allows all those working within the School (multi-media team, knowledge editors, researchers/instructors and managers) and for the School (external instructors) to share a broader vision and be on the same wavelength. It also allows for activities developed in different areas of the School to constantly contaminate each other: new

¹⁰ 10 In for example Teixeira (2017) who reports that academics in Portugal spend more than 50% of their time for teaching activities, without these activities being rewarded within the institutional; strategy.

practices developed in one area (for example, webinar to share early results of a research project) inspired other areas to use the insights of what worked and what did not work online.

The second characteristic of the School's approach is the way we addressed the three challenges described above. First, the online course was used as an opportunity to join together the different kinds of expertise available at the School to work on a common project. Right from the beginning, we set up meetings where all involved in the project (instructors, multi-media experts, course editors, course facilitator and the director of training) contributed with their ideas on an equal footing. We started from those teaching practices that instructors were most familiar with (lectures), to then develop and discuss more engaging online video lecture formats and later the need for additional teaching and learning activities. It was a collective learning experience that tried to keep everybody involved, taking into account the different investments each instructor was able to make in developing different teaching practices, as well as, for example time and technical constraints. The fact, that neither the instructors nor the course editor and director had a pre-defined concept of how the finished online course should look like, was an advantage. It allowed us to conceive of the online course development as a project 'in the making' where all involved first had to learn and understand each other's area of expertise, and importantly, the various constraints while keeping the aim for ambitious learning objectives as a guiding principle at all times.

The role of the course editor, combining a good understanding of the content to be addressed as well as experience with online pedagogy was key to limiting the burden on the instructors during the course development. This double expertise allowed to draft learning activities, introductions to the modules and a set of course material, to be proposed and reviewed by the course instructors. During the course run instead, the active support of a course facilitator, acting as a bridge between the instructors and the learners again was of importance for limiting the teaching burden on the instructors and guiding their attention to the most essential activities and interventions.

Finally, we believe that two external factors favoured the innovation of the training area: First, the necessity to find an audience for the new course offers (willing to pay for the new offer and thus contributing to the financial sustainability of a project that entirely depends on external funds). Second, the necessity to develop a course that would be valued by external stakeholders and experts as academically robust and practically relevant. The fact, that the School was perceived as a core provider for energy regulatory training, combined with the increasing visibility the School had gained thanks to its communication efforts (see Chapter 10), provided a push for the School's training area to not lag behind.

CONCLUSION

While many universities today have introduced online course offers, we believe the potential of widening access, improving the quality of teaching and learning, and supporting a transformation in the approach to how knowledge is created and shared, is far from being fully harnessed. As we have tried to illustrate above, online practices in teaching and learning offer an array of opportunities to make knowledge more open, accessible, communicative and instantaneous – all potentially offering an enormous benefit to societies with a need for pervasive high-quality knowledge. Online learning makes it possible, for example:

- To connect the minds of learners from anywhere in the world and give them access to knowledge stored far away (in people's minds or in online course material) they would otherwise be excluded from;

- To train many more people at the same time: for example, in only three years a single course trained about 600 people from more than 76 countries, something that is difficult to achieve in the classroom;
- To crowdsource knowledge so as to find solutions to problems, bringing together experts and learners from a variety of institutions, difficult to gather in a room at the same time (academics, policymakers, regulators, private sector and other experts) and to work on these problems without a major time-delay;
- For learners to add relevant context-specific knowledge to theoretical concepts from any part of the world and thus become co-creators of knowledge.

Developing online course offers at Florence School of Regulation triggered a process for thinking more deeply about what learning is, when it happens, and what the role of the learner might be today, as we are challenged to continue to update our knowledge and question our assumptions our entire (working) life. When aiming to 'make people think and act differently' in a higher education context (for example, questioning one's (tacit) assumptions, thinking from different angles, coming up with new conceptual understandings or questions) we essentially need to get as many people as possible hooked on learning who have traditionally been excluded or marginalized within these teaching and learning spaces. Online tools and activities offer a path towards an organized (edited) but self-determined learning, learning about topics that are relevant and thus meaningful to the learners and within a network of others who teach and learn.

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