Towards a more effective model for distance education

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Abstract

What is the most effective model for academic distance education, given that drop-out numbers in traditional distance education institutions are too high and the demands from the various stakeholders are changing? In this paper this question is answered from the perspective of the Open University of the Netherlands (OUNL). The OUNL has planned to redesign its educational model from the traditional guided self-study model towards a model of active online learning. In essence this means that education will be less content driven; more focus is put on activating students to engage with real world problems supported by tutors and peers using distance media. The drivers for change, the change process and the resulting redesign of the educational model are presented in this paper.

Keywords: e-learning; distance education; educational model; active online education

Introduction

In its simplest form, distance education can be defined as the delivery of education using distance media, or more specifically Moore & Kearsley (2012) define distance education as ' -- teaching and planned learning in which the teaching normally occurs in a different place from the learning, requiring communication through technologies as well as special institutional organization'. The establishment of specialised institutes for distance education like the Open Universities, is traditionally motivated by the objectives to increase the accessibility of education for nontraditional groups of students and the attainment of economies of scale. The target group, nontraditional students, is not well defined, but most characteristic are age and that they study part time (Bean and Metzner 1985). The National Center for Education Statistics in the US (NCES, 2002) uses the following characteristics of nontraditional students: (1) attended part time, (2) is financially independent, (3) has dependents other than a spouse (e.g. children), (4) works full time (more than 35 hours per week), (5) is a single parent, (6) does not have a high school diploma that provides access to a university. One characteristic of this group is that they have to manage more different priorities in life than full time, traditional students. Horn (1996) rates students on a continuum of these characteristics to what degree they are nontraditional. The economy of scale is attained by developing self-study materials with 'baked in instruction' that can be reproduced at low costs and needs limited guidance by tutors when students are using them. Because of this characteristic, they provide a lot of freedom for students: they can study where they want, when they want and in their own preferred tempo. This characteristic also fits the demand of nontraditional students to be flexible in time, place and tempo. The fact that distance education attracts nontraditional students with a method

that is based on economies of scale also comes with a price: open distance education is known for its large dropout rates (see e.g. Pierrakeas et al, 2004) and its relatively high costs for course development and infrastructure.

In order to perform well, institutes for distance education have to establish and maintain an educational system, containing an educational model and supporting infrastructure, that optimizes education on three dimensions: a) the educational system should enable the enrolled nontraditional students to attain the educational objectives (effectiveness), b) it should enable to attain educational objectives as 'lean' as possible, i.e. reducing wasted time from students and staff (efficiency), c) it is maximal attractive and open for the target groups that are aimed at and as closed as possible for other groups (accessibility).

From time to time it is needed to assess whether the educational system and infrastructure of an institute are still optimal on these dimensions or should be adapted to changing circumstances. Sometimes this comes with a shock: for instance when core values change rapidly, e.g. in a different economical, technological or political climate. This has happened several times in the history of the Open University of the Netherlands (OUNL). In this paper a case study about a very recent redesign of the educational system of the OUNL will be discussed, with a focus on the drivers for change, the redesign process and the outcome.

Current educational model

The Open University of the Netherlands (OUNL) was founded in 1984 and delivers academic distance education in seven different academic fields to nontraditional students. The current education model for the bachelor and master programs is summarized in table I.

Table I. Characteristics of the current educational model of the bachelor/master programs of OUNL

Aspect	Current educational model
Mission	To deliver higher education to societal groups who are not primarily targeted by the traditional universities.
Delivery mode	Distance education in its traditional definition (Garrison, 1993): 'Distance education is still predominantly a private form of learning based upon prepackaged course materials produced to achieve economies of scale.'
Admission requirements	Bachelor: open admission >18 years; Master: bachelor degree, pre-masterprogram or studying for one of these.
Study orientation	Prospects can orientate themselves on studying at the OU by browsing the information on the ou website in which each degree program and course is presented.
Study start	Students can start studying at any time in the year by ordering a course.
Curriculum design	A degree program consists of a series of courses, each consisting of one or more modules of 4,3 EC. With some restrictions, especially during start and finish (thesis), courses can be followed in any order.
Subscription and payment	On a per course basis (tuition fees are regulated by law). For this purpose students have access to a specific webshop (and forms) to order follow-up courses.
Time constraints	Students can study at any time they want, some collaborative events and tests require scheduled presence.
Pacing	Students can study at their own pace. Minimum requirement: a course of 4,3 EC (120 hours) must be completed within 14 month, although after this period students can buy extensions.
Location	Students can study at any location they want, only for some events (like exams) they should visit a study centre.
Instruction	Work and study books specifically prepared for self-study. This include standard elements in study or work books like: learning objectives, directions, assignments, questions, self tests, feedback.
Study activities	For regular courses, most of the time students are required to study from texts. Other activities are making assignments and (prepare for) tests. Sometimes there are scheduled online or face-to-face meetings. At the end students write a thesis and for some programs there is a period of internship.
Tutoring	Each course has one or more tutors. Most of the time tutors will only be active on student request, e.g. by answering questions or grading/providing feedback on assignments.
Mentoring	Each program has a mentor who helps students in their planning when they need this.
Learning environment	After a course is ordered, a box is filled with all the required printed learning materials and instructions and is send by post to the student. Sometimes this includes packaged digital media like DVD's. The box includes login instructions for the internet facilities that are available for the course. Courses can have different internet facilities: blackboard, moodle, OpenU, use of serious games using Emergo (Slootmaker et al, 2014), computer-based testing, social media, synchronous collaboration tools, etc. Besides the box and internet, there is a network of study centres that serve students and are used for exams.
Testing and exams	Computer-based testing (multiple choice) in study centres and marked assignments through email; 3 attempts are offered for each preliminary exam. More attempts including longer duration of the course can be bought extra.

Drivers for change

The major driver for change came from discussions about existential questions: are we doing the right things, do we perform well enough, and what is the added value of the OUNL relative to other universities and private suppliers of distance education. These questions were asked internally in the context of a renewal of the institutes strategy plan as well as externally in the political debate about the future of the OUNL. Although the OUNL does rather well with respect to student satisfaction (scores are systematically in the top of the best universities) and in external assessments and accreditation of the degree programmes, the core problem is the decrease in student numbers, the type of population attracted (many lifelong learners, not enough second-chance students) and the high dropout rates. Also, politically, the question arose whether the OUNL should be paid by public funds or that it should be privatised and compete with other commercial providers in the market. For example, one of the political demands was to create a level playing field with private suppliers of adult distance education and lifelong learning. A strategy commission for the minister of education made the following remarks about the OUNL (Veerman 2010, p.35): "It is clear that the OUNL does not meet expectations. … More than two-thirds of the students at the OUNL has a higher education degree and the number of degrees students attain is very low. In addition, the trend is not favorable. The number of active students has more than halved, from about 36,000 in 1991 to less than 14,000 in 2008. A reorientation is needed, if only because in the new funding model only students who do not yet have a higher education qualification are eligible for funding.". On top of this, the dedicated law on the OUNL has in the past been integrated in the general law on higher education and the exceptions made for the OUNL needed to support its specific role in higher education are in each revision less and less, forcing the OUNL to act like any other public university in the Netherlands. This has had many consequence, like more focus on degree programs. Another important one to mention is that the financial structure of the OUNL is now compared on a regular basis with other universities and that the outcome is that the overhead at the OUNL is too high in comparison with the others. This is (partly) due to the different infrastructure needed for distance education, like study centres and ICT infrastructure.

In the period following these observations and a review process (Van der Wende et al, 2011), the OUNL has created a new institutional strategy (OU instellingsplan, 2012). The main points with respect to education are:

1. The OUNL will maintain its status as a public funded university and will not privatise.

2. In line with this position, the core mission of the OUNL will be to offer initial academic bachelor and master degree programs at a distance and to perform research, including PhD programs.

3. Post-initial education will continue to be offered, but on a level playing field with commercial suppliers and not be funded with public money.

4. The OUNL will revise its educational model in order to make the bachelor and master programs more successful and more attractive for people who want to attain a degree. Although lifelong learners can still follow individual courses from degree programs, the population should clearly be separated into degree program students and lifelong learners.

All universities in the Netherlands had to redefine their strategies and make agreements with the ministry of education on certain performance criteria. This has also been done by OUNL (OU OU Prestatieafspraken, 2013). With respect to performance the OUNL we made the agreement that the institute should be compared with the performance of other distance teaching institutes. Table II and III summarizes the number of bachelor and master programs, the number of students and the number of bachelor and master degrees for the OUNL in comparison with the Fernuni Hagen (FU), Universitat Oberta de Catalunya (OUC) and the Open University in the UK (OUUK).

Table II. Comparison of number of degree programs

Number of:	OUNL	FU	UOC	OUUK
Bachelor programs	7	9	17	101
Master programs	9	13	7	65
Short programs	20	18	20	-

source: OU Prestatieafspraken, 2013

Table III. Comparison of the number of students and the number of degrees attained in the years 2009 – 2011

	OUNL			FU			UOC			UKOU		
	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
Number of students	15600	15500	16300	68052	74949	78803	54378	56787	60876	191606	205254	205987
Bachelor degrees	266	266	271	424	409	615	1367	1206	2327	9901	10413	10477
Master degrees	296	331	314	159	220	307	130	202	310	2536	2518	2491

source: OU prestatieafspraken, 2013

This comparison does not take into account the possible differences in the duration of programs and the way student are counted, e.g. including students who only intend to study one or more courses instead of a full degree program. This comparison shows that the OUNL does not deviate much from the figures found in this selection of sister institutes, but in all cases the number of degrees as compared to the number of students is rather low. This is in line with international studies on dropout in distance education, in which it is found that dropout in distance education is higher than in residential education (see e.g. Simpson, 2003).

Strength and weaknesses of the educational model

How to interpret this development in terms of the three dimensions, effectiveness, efficiency and accessibility, mentioned in the introduction with respect to the educational model and supporting infrastructure?

From the effectiveness perspective: Clearly, the OUNL delivers high quality education at a distance and students find it attractive. However the high dropout rates in degree programmes is interpreted as sign of ineffectiveness. However from the learners perspective this could be perceived differently: most students already have a degree and are focussed on studying (parts of) one or more courses only, even sometimes without a need to attain a certificate for the course.

From the efficiency perspective: The type of education delivered (pre-packaged content with a minimum of tutoring) enables economy of scale, however the scales are sometimes too low to justify the development costs for individual courses. On top of this the overhead is perceived as 'too high' by the government in comparison with regular universities.

From the accessibility perspective: the openness and flexibility of the system makes it accessible for every adult seeking to update their knowledge with one or more courses. However, the OUNL is not selective enough, it is too attractive and accessible for groups of students that are not in the primary focus from a political funding perspective: students who already have a degree in higher education. These students are expected to pay the costs for a second degree or courses themselves.

Looking more closely at the strong and weak points of the educational model we can state that the strongest point of the educational model is that students have a lot of flexibility: they can study what they want, when they want, where they want and in which tempo. They can control whether they want to work in (informal) student groups or work fully on their own. Also the tutors and mentor are available on demand, but are not intrusive. This flexibility was the response of the institute to the need for an open admission and the need to target nontraditional, mostly part time adult students who study alongside various other priorities in life. However, with an open admission you are - per definition - not selective and the resulting student population is heterogeneous, increasing the need for an individualised instead of a standardized educational approach. Furthermore, the measures that increase the flexibility are also implicitly selective: students are expected to have a lot of self-discipline and have sufficient meta-cognitive skills to regulate their learning within the system. This makes the educational system more attractive to people with experience in higher education than for its actual target group: adults seeking for their first academic degree.

A side effect that comes with flexibility is that there are no cohorts: everyone starts at any time and works in any tempo, so in fact every student follows an individual study path, is its own 'class'. This seems ideal, but the disadvantage is that you do not really have peers who can help and support you and teachers are not able to support so many individual cases/classes. So also teachers can not perform effectively and teachers as well as peers are rather invisible for each other. Related to this, some effective pedagogical approaches

are hard to apply, like collaborative problem solving, or in general, any form of group work. Whether cohorts are positive or negative for student success is a question for further research.

Another side effect of the educational system is that the OUNL does not know administratively who is studying what. Students order individual courses instead of enrolling for degree programs, and because of this it is hard to tell how many students are actually in which bachelor or master program. Of course, students are asked which degree they plan to study and what their study motives are, but these figures have low predictive value on their actual study behaviour as we have seen in the past. Many students pick and mix courses from various programs, and most of them only start with one course that they never complete. Students with the intention of following degree programs are mixed with lifelong learners. This makes it hard to report the effectiveness of the programs in terms of study success and dropout. It could even be that the dropout figures are not as bad as they currently seem when they are corrected for this phenomen.

To summarize: the OUNL had a suitable educational model for the student population it had to deal with in the past. However, the number of students are decreasing over the years and too many students are aiming for other things than a degree or drop out early. This was one of the major triggers to start a process in which we redesigned the educational model. In the next paragraph the process and result of the redesign is presented.

Redesign process

The redesign was performed in a task force consisting of various selected members representing the main roles in the university related to the educational model: teaching, educational research & innovation as well as supporting staff. During four month this group - chaired by the author of this paper - worked for two days in the week collaboratively. Every month the group was extended with all the responsible persons for all the academic programs and its support. The task force started with a state-of-the-art analysis and identification of the targets to be attained (mainly from the performance requirements and institutional plan). This was followed with several preliminary activities:

Literature study

A literature study was performed to analyse which measures increased the study performance among academic and adult students. The main measures that were identified to work were:

1. Improve the curriculum.

    1. arrange the education towards strict study standards in terms of study tempo and credits. For part time students this should be somewhere between 15-30 EC per year (e.g. Vermeulen et al, 2012)

    2. optimal balance between self study time and contact time (e.g. Schmidt et al, 2010);

    3. serial instead of parallel programming of courses within the curriculum (Vaughan & Carlson, 1992; Jansen, 2004; Berg & Hofman, 2005);

    4. restrict the number of resits (Pella, Boursicot & Roberts, 2009; Ricketts, 2010);

    5. offer compensation possibilities for low grades (Arnold & Van den Brink, 2009; Berg & Hofman, 2005);

    6. intensive monitoring of student activity and performance (Vermeulen et al, 2012);

    7. increase the social and academic integration of students (Tinto, 1993, 1997; Braxton, Milem & Sullivan, 2000);

    8. stimulate active learning (Merrill, 2002; Berg & Hofman, 2005).

2. Improve the fit of the offering for adult students (Knowles, Holton, Swanson,1998; Longworth, 2003).

3. Stimulate student retention (Simpson, 2003; Koper, 2005)

4. Improve the alignment between learning objectives, learning activities and assessment (constructive alignment, Biggs, 1996).

Best practices within the OUNL

Teachers within the OU are asked to submit best practices to the task force that show an increase in student performance. Fourteen cases were submitted. In general the best practices showed that effective examples intensified contact with teachers, organised education in cohorts, students had to work to deadlines and in a fixed and regular tempo and progress was systematically monitored.

Perceptions of OUNL staff

A structured brainstorm was organised by Brand-Gruwel et al (2013) among OUNL staff according using the Content Systems Global MAX© tool of Concept Systems, Inc. In this brainstorm 397 staff members of the 758 staff members participated and generated 798 ideas to improve the educational model which were reduced to 11 clusters of ideas using hierarchical cluster analysis. These 11 clusters are (example ideas between brackets):

1. High tech study environment (close all study centres; use one updated digital learning environment; digitalize all study materials);

2. quality of teaching staff (invest in higher quality teaching staff, e.g. by stronger involvement in practice and research);

3. educational offering (invest in the development of more masterprograms);

4. student support (organise community learning, feedforward);

5. assessment (decrease the study load per course, these are too high);

6. new target groups (target on additional niche markets and younger people (18-24));

7. partners and market (focus on working professionals aiming at a higher degree);

8. proactive marketing (organise free study exploration opportunities);

9. student centred education (support 'double speed' studying);

10. attention for personal needs (increase mentoring activities);

11. monitoring of student progress (stronger support for students with low study tempo).

Market study

A market study was performed (Van den Munckhof, 2013) to answer the question how many people will be interested in a restructured educational program with the characteristics: more structure, more intensive tutoring and at least a study investment of 15-20 hours per week. This study had two parts: a desk research and a survey among a representative sample of the Dutch population with the characteristic: 18+ and schooling level at least intermediate professional education. In total 11050 invitations were sent of which 7416 (67%) persons responded. A representative sample of 3900 were selected from the respondents. Some main results were that 10% of the respondents answered that they have plans to study a degree or course at one of the universities in the Netherlands in the future and 15% is still in doubt about this. Most people are interested in a master degree (3%), followed by a course only (2%). Lowest interest is in bachelor degrees (2%).

In addition the market research bureau NIDAP analysed for us how many people in the Dutch population would be interested in following a bachelor or master degree at the OUNL. Some results are that the investment in time for most of them is maximum 2 years for a master program and 4 years for a bachelor program and about 40% of the professionals want to invest more than 8 hours per week in a study program. The conclusion was that the group that is not yet addressed by the OUNL in the Dutch population is small: most of them are already studying at the OUNL. The challenge is that they are better retained in the programs, i.e. preventing dropout.

The result: redesign of the educational model

Informed by the information presented in the previous paragraph, the group redesigned the educational model. The first question was how to split up the degree students from the other students, aiming to study one or more courses. The following model was the result of this process (figure 1).
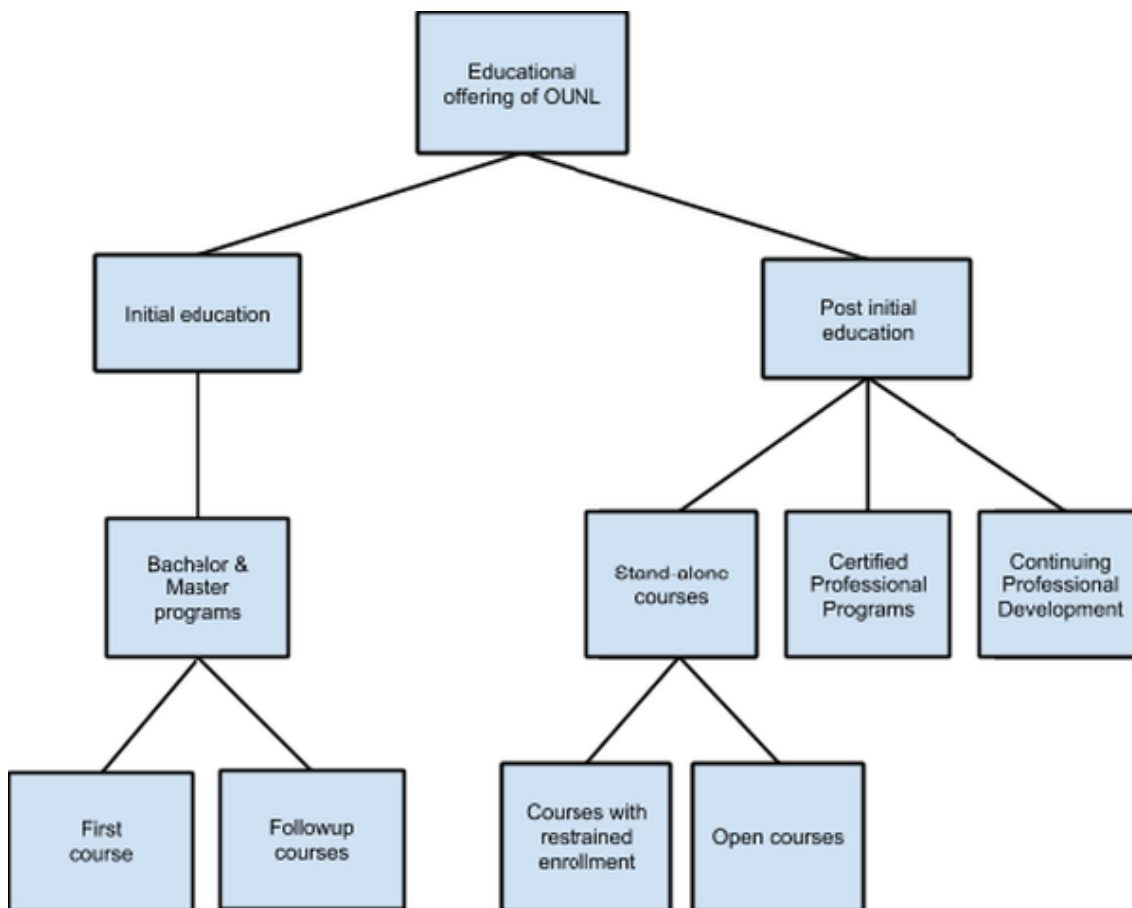
Figure 1. Structure of the new educational offering

In this model students who seek to attain a degree are distinguished from the students in post initial education. Because the bachelor programs are open and master programs can attract people from other universities, the first course is special: it is selective and starts to build the required skills for successful online learning. Most of the courses within the bachelor and master programs can also be followed by extraneous students. They can enroll in the preliminary course exams and can use the obtained course certificates for exemptions when they decide later on to enroll for a degree program. Only about 10% of the courses are offered as open courses. These courses address a market need, because the topic is timely and of interest to large groups. These courses should financially be self supportive and in a level playing field with private suppliers. In this case the economy of scale is still an important issue. In the other offering it is not the scale, but the study success of each individual student that is aimed at.

The second question was how to restructure the new model. The situation in which student learn is designed as specified in figure 2.
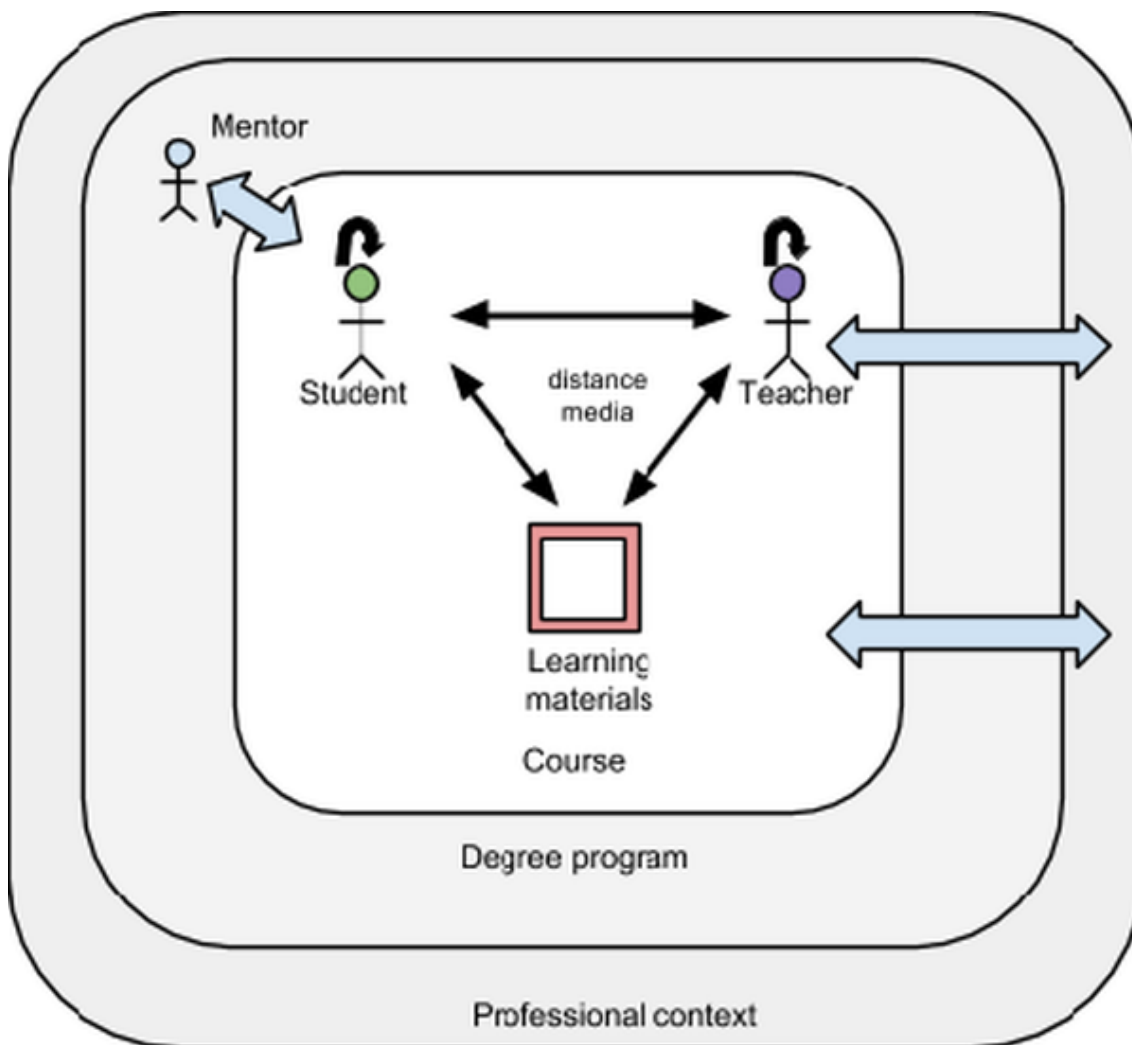
Figure 2. The study situation

At the heart of the model are the activities of the student in the course, supported by teachers and the learning material and within the context of a community of other student within the course. Students in the same cohort support each other and they learn from each other. Contacts between teachers and students is through digital distance media. Learning materials can be of various kinds, some digital some physical. Courses are still the smallest units within a degree program, but the degree program and its objectives are the leading container for planning of the course content and objectives. There is constructive alignment (Biggs, 1996) through the whole curriculum: every learning activity and every course contributes to the overall objectives of the program and tests are designed to assess this progress. At the level of the program, each student has a mentor who monitors progress and support students with their planning.

Most adult students combine learning with work and other contexts. Care will be taken to optimize the relationship with the other contexts where possible. For instance for some it would be possible to work on problems within their work situation. Table IV provides a summary of the main changes in the educational model.

Tabel IV. Summary of the major difference between the existing and new educational model

Existing model	New model
Guided self-study	Active online learning
Student is responsible for pacing	Pacing is part of the structure and a joint responsibility for student, teacher and group.
Students can start whenever they want	Students can start in September and for some programs also in February.
Curricula consists of courses that can be studied in (almost) any order in any tempo and at any time	Curriculum has a fixed course structure per year, with more pacing and restricted enrollment possibilities.
Students study individually with some support from tutors and mentors	Students study individually, in cohorts and in the community of their peer groups within and outside the program.
Course materials are predesigned, delivered in course packages that can be delivered to many students for longer periods of time without revision.	Less predesigned materials, delivery primarily online, no course packages. Students order the necessary books themselves in book stores. Each course run of the course is in principle redesigned when needed. The teacher is responsible for the design and the run of the courses.
Unbundling of the teachers tasks into design, tutoring, student support and examination. Most are performed by different persons for the same course.	Bundeling of tasks that take care for a consistent workflow in the teaching-learning process, like design, tutoring, student support and examination. These tasks can be executed by a team of persons, but still one of them is in the lead and takes care of the consistency.
Core activity of a student is to read texts and solve problems (e.g. in mathematics) individually. They can test themselves with self tests, most test are multiple choice.	More collaborative activities, individualised or group adapted activities when needed. More active learning formats and learning activities that can be performed in the students work situation. More organised feedback on progress and oral or written contributions. Less multiple choice.
Requires well developed metacognitive skills, like self-directed learning	Requires less metacognitive skills in advance, but attention is given to build these skills.

The structure of the educational model has also been designed in an UML class model that can be found in figure 3. This UML model specifies all the entities in the educational model and their relations.
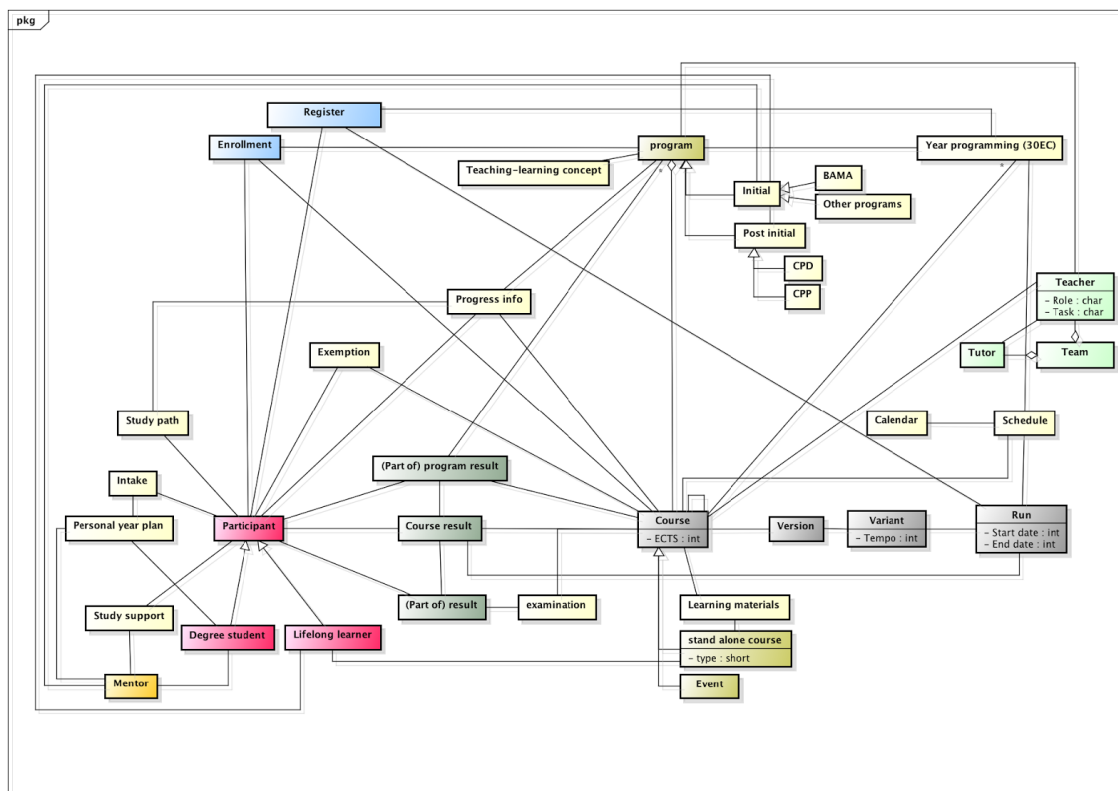
Figure 3. UML class model of the structure of the new educational model

One of the last activities that were performed was to identify the main processes that had to be changed in order to implement the new educational model. A distinction was made between primary, secondary and tertiary processes:

1. Primary processes: redesign of the teaching and learning concept, design and development of programs and courses, delivery of education, student support, assessment, evaluation of education.

2. Secondary processes: marketing, year planning, intake and start process, exemption and access procedures, progress and performance monitoring, certification process, teacher training and certification process, quality assurance procedures.

3. Tertiary processes: registration, enrollment & payment processes, ICT support, reporting and accounting.

The redesign and its underlying studies have been submitted for agreement to the board of the university. After allowing all stakeholders a say in the change process, it was agreed to implement the new model, starting with a redesign of all the master programs in two rounds: a first implementation in September 2014 and a full implementation in 2015, using the new to be developed digital learning environment. Also some of the basic changes will also implemented in the bachelor programs, before they are fully redesigned in the period after 2015.

Discussion and conclusion

In this paper the drivers for change and the redesign of the educational model of the OUNL are presented. An aspect that is not discussed yet is the role of the digital media. What happens is that the use of digital media is currently so widespread and the technical possibilities are becoming more and more powerful, that the problems with transactional distance (Moore, 1993, 2013) are diminishing. Transactional distance is dependent on dialog and structure. The new educational model as presented in this paper has less structure, in terms of predesigned materials, and increased dialog between teachers and students, due to the possibilities of new synchronous and asynchronous communication technologies that can be used in this way. Especially also the recent popularity of concepts like flip teaching, MOOC's and open educational resources more in general are changing the perception of online and distance education as an integral part of powerful teaching and learning, and not as a poor mans variant that is only preferred by people who are not able to follow regular ('good') education. How this will affect the future position of distance teaching institutes is still unknown. More than a decade ago it was expected that regular education and distance education will be aligned, it was thought that the differences between the two will disappear. When looking at current state of the art, the two type of institutions are still quite distinct in many dimensions, one of them is that the campus-based universities mainly serve a regional role and focus on initial degrees for people who have just left secondary education (age 18-24). The open universities are focussing more and more on bachelor and master degrees for nontraditional groups, master programs for people who (want to) combine work and study after their bachelors, and continuing professional development (sometimes addressed as lifelong learning) for people who already have the degree they want or need.

Another question not discussed so far is why the number of students is decreasing. We analysed this carefully, but a complete picture can not be given yet. Some factors to be mentioned are the following. In the first place, the number of programs offered at the OUNL is rather limited as compared to the number of programmes offered by other sister universities in Europe. The OUNL offers 16 bachelor and master programs, the FernUni 22, OUC 24, UNED 76 and the OUUK 166. Most of these programs are still in the same fields as from the start of the OUNL. Especially a larger offering of master programs could be required. Another factor could be that the old industrialised (one size fits all, non personal, maximum freedom) model of education is at the end of its lifetime. People want to be socially connected, are used to digital media for connections and resources. The last possibility to mention is the fact that people do not want to spend time, or simply do not have the time for a degree study alongside their work and other life priorities. In our market studies people indicated that they do not want to study more than 4 years on a partime basis for a bachelor program in about 8-12 hours a week. This is simply not sufficient to attain the required 180 EC (5040 study hours) for a bachelor degree.

Currently the implementation of the new programs is in progress. Not everything had been elaborated in detail. Many issues have to be solved on the spot and requires to gain experience. For instance the exact principles of active online learning are still unclear, also the training and coaching of teachers is a process in development as well as the way students should be attracted to the new master programs. At the same time as the master programs are redesigned, the digital learning environment will be redeveloped (see Koper,

2014 for more details about the background) and planned to be released in 2015. The first release will then be hindered in several ways: everything is new and the infrastructure is in development. In the future we will provide more details about the successes and issues that this new model has introduced.

Acknowledgements

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