REPORT OF THE BENCHMARKING PROJECT BETWEEN THE OULU UNIVERSITY OF APPLIED SCIENCES AND THE FONTSY UNIVERSITY OF APPLIED SCIENCES

LEARNING OUTCOMES AND QUALITY ASSURANCE IN THE DEGREE PROGRAMMES

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1. The Benchmarking Partner and Project Aims

Oulu University of Applied Sciences recently signed a strategic partnership agreement with the Fontys University of Applied Sciences from the Netherlands. Both universities seek close co-operation in the fields of student and staff exchange, curriculum planning and quality assurance. Oulu UAS has made a wide range of cooperation with Fontys earlier; there have been active student and staff exchange activities in the School of Business and Information Management and in the School of Engineering. There have also been group visits to both universities in the years 2012-2013.

Fontys University of Applied Sciences is a learning community with 40,000 students and 4000 staff members. Fontys invests in intensive, challenging, fascinating and well-organised education. The competence-based education offered at Fontys is built around the three core competences: knowledge, skills and professional attitude. In this way, students are thoroughly prepared for professional practice or self-employment. Internationalisation is important, so Fontys has set itself a goal: every student should have international experience from 2015 onwards.

With its focus on quality and its similar organizational structure, Fontys was a natural partner to Oulu UAS in the benchmarking project. Comparing the learning outcomes and the quality assurance of the Degree Programmes helped both organisations to develop and improve their performance. The benchmarking project was carried out between the Degree Programme in Mechanical and Production Engineering and the Degree Programme in Business Economics in the Oulu University of Applied Sciences and the corresponding Degree Programmes from the Fontys University of Applied Sciences.

The primary aims of the benchmarking project were:
- to benchmark and share best practices in defining learning outcomes in the Degree Programmes
- to compare the processes ensuring that expertise, skills and knowledge are achieved by the students

In addition the benchmarking project:
- promoted and strengthened the strategic partnership and cooperation
- gave opportunities to discuss the evaluation and assessment guidelines and procedures
- helped both universities to develop their feedback systems
- prepared for the internal and external audits and accreditations.

2. The Benchmarking Visit

The project was carried out by two visits to Fontys University of Applied Sciences in Eindhoven.

The first visit took place from 17th November to 20th November 2013. Mr. Hay Geraedts from Fontys acted as a host. There were four participants from Oulu UAS:

- Mr. Hannu Pääätalo, Head of Degree Programme, The Degree Programme in Industrial Management
- Mr. Tommi Alatalo, Student, The Degree Programme in Mechanical and Production Engineering
- Mr. Jukka Kerola, Student, The Degree Programme in Mechanical and Production Engineering
- Mr. Martti Lukka, Student, The Degree Programme in Mechanical and Production Engineering

The purpose of the visit was to start The International Cooperation Innovation -project between the Dutch and the Finnish students. Meeting face to face in the beginning of the project was a good starting point. The students got to know the campus in Eindhoven and compared the teaching and learning methods in both
countries. They also created product ideas together and agreed on contents, responsibilities and timetables of the project. The International Cooperation Innovation -project was successfully finished online.

The second visit took place from 31st March to 4th April 2014. Ms Gea van Zutven from Fontys acted as a host. There were nine participants from Oulu UAS:

- Mr. Juhani Kurula, Head of Degree Programme, Senior Lecturer, The Degree Programme in Business Economics
- Ms. Kaisu Kinnunen, Senior Lecturer, The Degree Programme in Business Economics
- Ms. Eija Svanberg, Lecturer, The Degree Programme in Business Economics
- Ms. Inkeri Hedemäki, Planning Officer, The Degree Programme in Business Economics
- Ms. Hanna Lahtinen, Student, The Degree Programme in Business Economics (Law and Administration)
- Mr. Jori Karjalainen, Student, The Degree Programme in Business Economics (Financial Management)
- Mr. Eero Korhonen, Head of Department, Principal Lecturer, The Degree Programme in Mechanical and Production Engineering
- Mr. Esa Kontio, Senior Lecturer, The Degree Programme in Mechanical and Production Engineering
- Ms. Marianne Isola, Planning Officer, Quality Coordinator, Rector’s Office

The purpose of the visit was to get to know and compare the best practices in teaching and learning in the fields of Business Economics and Mechanical and Production Engineering. The group divided into two teams, who visited the corresponding Degree Programmes. The teams heard presentations about Fontys, discussed with several teachers, coordinators and students, and got to know several campuses and premises.

The team from the Degree Programme in Business Economics met for example Ms. Klaartje van Genugten, Ms. Gea van Zutven, Ms. Arian van Hulsel, Ms. Sandra van de Ven, Mr. Rob Maat, Teacher Mr. Blain Lambert, Teacher Ms. Martine Simonis, Ms. Fridy Smits, Teacher Mr. Tim Leavers, Teacher Mr. Ben Hendriks, Mr. Ewoud Jansen and Mr. Jerry Vervaart. The team from the Degree Programme in Mechanical and Production Engineering met for example Director Ms. Ella Hueting, Teacher Mr. Hay Geraedts, Teacher Mr. Andre Sasburg and Teacher Mr. Piet van Loon.

3. The Best Practises

The Degree Programme in Business Economics, the Teachers Point of View

In the discussions we compared the curriculum of the Degree Programme in Business Economics (taught in Finnish) in Oulu University of Applied Sciences and the Degree Programmes in International Business and Management Studies in Venlo and in Eindhoven (taught in English). In Venlo we examined particularly the scale and the structure of the Degree Programme. The main difference is that in Venlo the Bachelor’s Degree Programme takes 4 years (and 240 credits) and in Oulu UAS only 3,5 years (210 credits). Furthermore, the whole programme was visualized very clearly only in one A4 paper copy (Appendix 1). With this schedule students can find the structure of the programme and they can plan their studies for the next 4 years. Teachers and other personnel as well as other stakeholders can see at a glance how studies are proceeding, what is the logic behind the curriculum and what courses coincide in each semester. In Oulu UAS the rough structure of the programme is described on yearly basis, but there is no scheduled forecast for courses. Curriculum is available only in the Web as well as complete course descriptions and printed 13 A4 pages.
In Venlo the students perform Study Career Management (5 credits) during their first 3.5 year and Organisational Activities (2 credits) during their last semester at the same time as they are doing their thesis. Our students have a course called “As a Learner in University” (3 credits) in their first semester but otherwise they are obliged to take part in teacher’s tutoring which does not increase their credits. In some cases it is challenging to motivate students for tuturing without any credits. Furthermore in Oulu UAS the students - and perhaps teachers as well - don’t recognize the meaning and possibility for career management which continues through their studying.

One very interesting benchmarking issue was entrepreneurship and how it is organized in Venlo compared to Oulu UAS. In the Degree Programme in International Business and Management Studies in Venlo all the students prepare a business plan during their second semester (Project Business Plan, 5 credits). In their second year they have a course called Mini Company (8 credits), which is carried out in groups of approximately 15 students. Mini Company means that in the beginning of academic year student groups start and register business companies (student company), run the business for the whole year and in the end of the academic year they close down the company. Instead of studying entrepreneurship they learn by carrying on a business. Our students study entrepreneurship in one course in their first year (Entrepreneurship and innovations, 3 credits) but they don’t act as an entrepreneur. In their fourth semester they do a Business Plan (6 credits) for a real company. Business plan is a project work for teams of 4-5 students. In outline, studies in these two programmes – scale and contents – are similar in Venlo and in Oulu.

In Venlo students do their Work Placement (28 EC) and Minor Studies (30 EC) on the third study year (semesters 5 and 6). Degree Programme is international and that’s why every student has to take their Minor studies abroad with some partner University of Fontys. Students can choose if they take first Minor Studies and after that Work Placement or the other way round. It’s possible to do the Work Placement in the Netherlands or abroad (but not in Germany, because it’s the home country for the most students). Also in Venlo students have to acquire internships themselves. However, only companies more than 15 employees will be accepted. During their work placement the students must complete a project, which the supervisor approves. Project should be useful to the employer and interesting and enough challenging to the student.

The length and the time of the training are approximately the same in both degrees. In Degree Programme in Business Economics the students have to acquire work placement independently and there is no limit for the number of company employees. Work placement can be done in Oulu area, in the other parts of Finland or abroad. During the training period the student does professional tasks offered by the work placement. Furthermore the student must do a small assignment during the training period.

In the discussions didn’t come forth what kind of studies are accepted to the Minor Studies. Difference to the Oulu UAS is that in Venlo the Minor studies are concentrated to the third year and in Oulu UAS optional studies can be completed during the whole degree. We noticed that system in Venlo clearly guides students to apply Minor studies on certain semester after his/her basic studies. In Oulu UAS the students can choose professional optional studies during the whole degree, but maybe the studies don’t proceed in ideal order. Also administratively this structure in Oulu UAS needs constantly planning efforts.

There are clear differences between these two Degree Programmes concerning thesis process. In Venlo thesis is 28 credits (max 40 pages) and in Oulu 15 credits (no page limit). In Venlo the students work in the companies while doing their thesis there. The theme of the thesis is defined by the company and it can also be confidential. In Venlo the thesis is not public. In the evaluation there are no public seminars but the thesis will be presented to the company and to the assessment committee. That evaluation event is a formal occasion with formal dress code and limited time: 15 minutes of presentation, 15 minutes of questions, 10 minutes evaluation among graduation committee members and 10 minutes feedback summarized by university supervisor.
In the School of Business and Information Management the students can get the topic of their thesis from their work placement. Companies also offer topics in student’s intranet. The thesis process involves a three-step, public seminar structure where the student shows the progress of his/her own work to the supervisor teacher and to the other students. It’s also desirable that the company representative takes part to those seminars, but usually they don’t. Accepted thesis has to be stored in the open national database Theseus.fi or in Oulu UAS internal Intranet.

Some of the best practices:
- In Eindhoven there were so called semester coordinators, who had the responsibility for coordination studies in one semester
- In Venlo there was a nameplate next to teachers’ office door, where each teacher could shift her/his name to “Present” or “Absent / Busy” to show if students can meet her/him (Picture 1)
- Halls were highly facilitated and used as students group workplaces (Picture 2)
- If students apply delayed to the exam, they had to pay a penalty and the money were invested in students facilities (for example tulip chairs (Picture 3))
- The Chamber of Commerce takes actively part in the university development

![Picture 1. Name badges, Picture 2. Student facilities, Picture 3. Tulip chairs in Venlo.](image)

**The Degree Programme in Business Economics, the Students Point of View**

Students in Fontys University of Applied Sciences establish a business, a Mini Company, during the second class. This is a mandatory part of IBMS-studies. In Netherlands it is possible to register student company, thus making business is possible as part of studies. The purpose of the student business is to teach business practices and running of business in real life while taking classes of those topics. There are 10-15 students in a business group and they are from four different training programs. This way it is possible to get knowledge from different branches working together during studies.
The students collect 3000 euros for initial capital by selling shares to their family members and friends. Business is often selling items for example at school or Christmas fair. Business idea must be generated by the students and they play different roles in a company. One person can have two different roles during the year. Teachers are only advisors and instructors. The students meet the teachers with respect of mini company often at first and later only within two weeks. It must be noticed that teachers do no conduct any negotiations on behalf of the companies for example with the banks, but instead the students must take care of everything. As a reward for running the business each student gets 8 points for their studies and gain profit which the company has generated. Through the mini companies the whole lifecycle of a company will be gone through. The company is established in the beginning of the school year and it is to be closed down at the end of the school year. It is not possible to sell the shares of the business, but the business idea can be acquired by the lower grade students.

Through Mini Company the students get valuable experience which is taken to their curriculum vitae, too. This is an excellent way to gather theory from the classes into real life and get involved in business life where people from the different branches collaborate and are responsible for each other. In my opinion this idea is worth of doing and is to be utilized for us through business game, thus corresponding business model as such is not available due to the Finnish legislation.

Probably the best and the most potential practice to be learned from was the Mini Company -course in Venlo. Though there exists no company form to allow the same practice in Finland, there is a lot to learn. The main point is the way it motivates students. The trend was of motivating teaching could be seen both in Venlo and Eindhoven. Teachers were really coming up with new ways execute courses or parts of them. In the case of Mini Company, the motivating things were clearly competition, possibility to earn money, building up something on your own and to have a responsibility over the company managed. Something like this needs to be implemented also in Oulu University of Applied Sciences, competition is the best kickstarter for motivation.

In Eindhoven Fontys had shared working spaces for teachers and students. Of course teachers need also privacy but some of the work could be done in the shared space were students could ask for consultancy. This makes teachers easier to approach and strengthens the conversation between teachers and students. It is a win-win situation, both would learn.

The alumni are active Fontys Eindhoven: they arrange networking events, offer projects for students and give their opinion on developing curriculums. Possibly 10 % of graduated students join the alumni network and somewhat 100 of them are active as alumni. These figures are way better than ours. Maybe the alumni networks and organization should be seen as a more significant resource here in Oulu UAS and worth extra funding?

**The Degree Programme in Mechanical and Production Engineering: Comparison Findings and Results**

In the discussions we compared the curricula of the Degree Programmes of Mechanical Engineering. At Fontys the curricula of Mechanical Engineering, Electrical Engineering and Mechatronics have the same structure, 60 credits per year. The first two years there will be conventional studies and 9 to 12 credits project studies per year. The project studies in different semesters have different main topics. The 7th semester, autumn semester of the 3rd year will be 30 credits practicum in the industry. The 8th semester, spring of the 3th year is a Minor period, which can be studied also in another University. The 4th year includes theoretical studies and 30 credits final thesis. At Oulu UAS the students do 30 credits industrial practicum during 3 summers and only in one option of mechanical engineering there is 30 credits project studies in industrial companies at spring semester of the 3rd year.
When comparing the education resourcing and methods we found differences and similarities: At Fontys the number of teacher’s working hour resource is at average 1 hour per 1 student and 1 ECTS cr. It is quite the same as at Oulu UAS, School of Engineering, calculated of the teacher’s 1600 hour annual resource. The ratio of students and teachers is 20 students per one teacher at Fontys, at Oulu UAS in the department of Mechanical Engineering the ratio is about 25. The normal student group size at Fontys is 30 students, it's at the same level as in Oulu UAS. At Fontys the number of contact classroom hours is smaller than at Oulu UAS. The teachers resource is number of contact hours multiplied by 2,5. The teachers use more resource to guide project based learning. At Oulu UAS, School of Engineering the teachers resource is contact education hours multiplied by 1,6 to 2, depending of the calculation criteria.

Students in Oulu have more classroom lecture hours annually than at Fontys. The number of contact lecture hours at Oulu can maybe be decreased as it has been taking place at Fontys, but in such case the total number of teacher’s working hours should not decrease and the ratio of non-contact hours per contact hours should increase.

In planning co-operation in the future there will be different possibilities: The Minor semester of Fontys, spring semester of the 3rd year, can suit for our exchange students. Another possibility is co-operation in product development education. In both of the universities there are courses of innovation and product development and in those courses the student groups innovate, design and build prototypes. We can mix up our student groups and do co-operation. As a matter of fact this kind of co-operation has now been started and the first time a mechatronic device designed and built in co-operation of students of Fontys and students of Oulu UAS was built and tested at Oulu in the end of May 2014.

More results from the benchmarking project can be found on the benchmarking worksheet (Appendix 2).

4. The Application and Distribution of the New Knowledge

The results of the benchmarking project will be presented in several ways. There have already been presentations on staff training sessions and personnel meetings and blog texts will appear in the Laatuleipuri (http://blogit.oamk.fi/laatuleipuri/). The students informed their organisations about the outcomes of the project. There were also discussions about several shared articles (for example a couple of teachers from Fontys and Oulu UAS planned to write an article on thesis guidance). The articles will be published later on publishing series called ePooki (http://www.oamk.fi/epooki/).

The results of the benchmarking project will be directly exploitable in the Degree Programmes in the design process of the new curricula to be prepared in 2015. The objective is to design curricula that provide for effective completion of studies for different types of learners with different competence levels at the beginning of their studies. It is also crucial to yet more efficiently involve working life organizations in the design process in order to ensure the working life correspondence of the learning results.

Other places for project result utilization include the development of the Oulu UAS feedback system, as well as the preparation activities for the next internal and external audits. The next external audit will be on 2017, and there are plans to have 1-2 rounds of internal audits and student surveys before that.

Another aspect involves strengthening and further developing the strategic partnership between Oulu UAS and Fontys. The aim is to increase productive cooperation both in student and staff exchanges. This will boost the development of individuals’ international skills increasingly required in the globalizing societies.