Towards individual study paths

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Abstract.

Digitalisation, global networking and work tasks are becoming increasingly complex and diversified. Thus, there should be investment in the development of wide-ranging capabilities at work. The change also sets a challenge to education providers to develop their offerings in an increasingly personalised way. In addition, adaptability, desire for lifelong learning and continuous acquisition of new skills are are prominent issues in today's working life.

This paper aims to introduce introduce how higher education can be developed to enable individual study paths for students. The development work has been carried out under the 'Lapland UAS Master School' project from August 2018. We have piloted our solutions with Master's degree students in Service Management in Digital Era. Based on the pilot, we have developed an educational framework that we are now extending to all training programmes of our Master's School at Lapland University of Applied Sciences. This paper introduces our educational framework from the point where students can choose their combination of studies depending on their individual competence needs based on lifelong learning and the specific skills required for their career. According to their background studies and work experience, students have to choose 25 or 55 credits worth of specialisation studies and 5 credits worth of optional studies as well as complete a work-oriented and multidisciplinary thesis worth of 30 credits.

Keywords: lifelong learning; educational framework; Master's studies, individual study paths

1. Introduction

Nowadays, work communities are constantly diversifying along with the changes in working life and transformation of work. Diversity refers to the crossing of educational boundaries, wherein graduates of different degree levels and fields of study work in the same team or working group. This kind of diversity in work communities is a great asset and supports the development of new ways of working. Thus, educational institutions and their study programmes have to be developed further to serve students' individual needs based on the specific skills required for their career.

At the same time, higher education institutions are increasingly fragmented due to their increased professionalisation and specialisation in work (Stensaker, 2018.) However, this fragmentation poses challenges with regard to providing education that meets individual needs. While the Competence-Based Approach (CBA) is quite an old learning methodology, it provides many potential benefits for higher education as well. The Competence-Based Education (CBE) model is defined '*as an outcome‐based approach to education that*

incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviors required for the degree sought.' (Gervais, 2016.) Thus, the CBE can be utilised while developing the content of courses to meet the requirements related to new competence needs in current and future work environments. However, pedagogical solutions during trainings are not sufficient. Hyötynen and Tynkkynen (2014) highlighted the need for flexible and individualised study paths that allow for the use of digitalisation to match lifelong learning needs and skills with the needs of the changing world of work. The framework enabling individual study paths based on students' previous studies and work experience is needed in higher education.

The Finnish National Agency for Education has launched an anticipation process within the framework of the National Forum for Skills Anticipation, in which experts of working life, education and training anticipate future skill and education needs and reflect on proposals concerning the development of education and training. The report (Osaaminen 2035) examines changes in the importance of competencies and skills and anticipates the most important skills come 2035. The results show that future working life will be characterised by the progress of digitalisation, the rise of sustainable development and economic values and the need for continuous learning. Furthermore, according to the Osaamisrakenne 2035 report (Leveälahti et. al. 2019, 79), the ability to be inspired and motivated and skills related to interaction, communication and cooperation are generic skills that are generic skills that will gain more significance, especially in management and expert positions. The ongoing digital transformation provides possibilities for organisations to increase their internal efficiency or external opportunities, such as new data-driven services for customers, or it can inducedisruptive changes that affect the organisations' business models (Parviainen et al., 2017), (Tihinen et al., 2016). It is estimated that the aforementioned changes in working life will require new skills, such as expertise in the utilisation of digital solutions, changes and networking as well as partnership and stakeholder expertise (Leveälahti et al., 2019). The changes described above need to be considered in the provision and structures of education. Consequently, it is important to develop higher education to be more student-oriented and more agile in order to meet the challenges posed by the current times and changes in the operating environment.

In the 'Lapland UAS Master School' project carried out by Lapland University of Applied Sciences, we planned and implemented multidisciplinary and student-oriented studies leading to a master's degree. One of the main goals was to ensure that the studies enable students to obtain stronger expertise related to the management and development tasks of multidisciplinary teams. This requirement was derived from several discussions and workshops with the university's students as well as national and international representatives of working life.

This paper introduces introduces the process of developing the individual study paths of students as well as the educational framework that has been created. Due to the evolving competencies needed in working life, it was understood that the way education is provided has to be changed. In the future, Master's degree graduates are expected to be resilient and able to upgrade their knowledge according to the needs of agile working environments. We understood that we, as educators of future experts, need to enable our graduates to build their individual study paths. The developed framework is now being extended to all training programmes of our Master's School at Lapland University of Applied Sciences in Finland.

The paper has the following structure: first, the progress and methods used during the development project are described in Section 2; then, the developed framework is introduced with details in Section 3; next, the challenges and the proposed solution are discussed and concluded in Section 4; and finally, conclusions are drawn in Section 5.
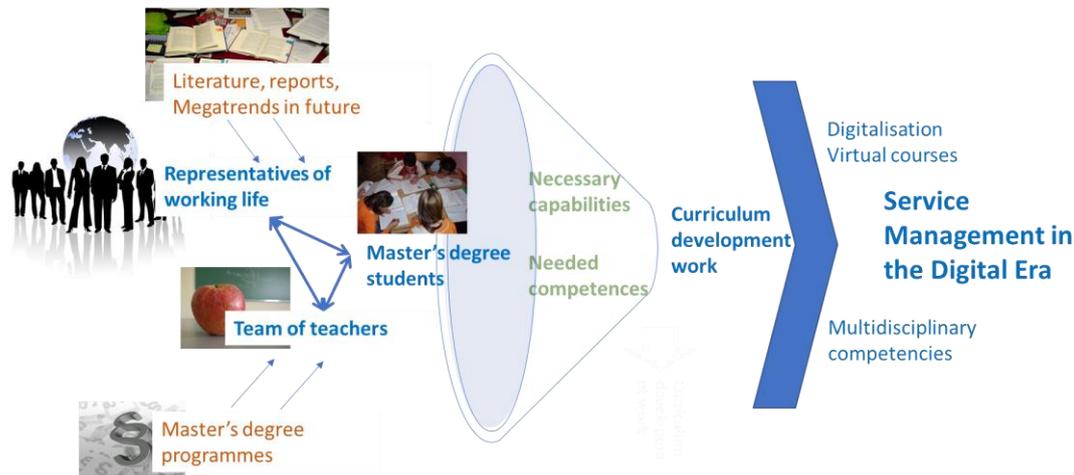
2. Methods

This section describes the methods, activities and processes needed for producing a new educational framework. As mentioned before, the research was carried out under the 'Lapland UAS Master School' project during 2018-2020. The main goal of the project was to produce a student-oriented, multidisciplinary educational framework for Master's degree programmes that taps into the opportunities of digitalisation. Furthermore, a particular goal was set for the work: the framework has to support and promote persons with university degrees in their professional transition into working life, e.g. help them take up new positions at horizontal level or more challenging positions at vertical level.

The development work was carried out using the co-creation method. Co-creation involves doing things purposefully and equally together, and it is about more than just talking about things together. The goal is also to create something new and find a common target. Co-creation is a fast-paced process of bringing out and experimenting with concrete issues (Hagman et al., 2018). For example, collaborative design and development process has been proven to provide many concrete benefits for service providers: they receive valuable feedback about customers' opinions concerning their services to be used in developing and marketing the services (Vehmas et al., 2017).

The actual development team of the project consisted of four principal lecturers from multidisciplinary backgrounds. In addition to the teaching team responsible for the development work based on recent research reports and literature, the results of the work have been evaluated and commented on by experts representing organisations operating in various fields of activity. In this respect, the project continues to develop the activity known as Visiting Professors. Visiting Professor (VP) is a representative of working life and a specialist who delivers information relevant to students about changes in the operating environment and the needs of working life. Currently, six Finnish VPs have committed to the collaboration, and two international VPs are due to join. The VP activity is based on networked collaboration in order to develop the content and structure of Master's degree programmes by utilising the co-creation method.

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Figure 1: Multidisciplinary co-creation process

Thus, co-creation took place as an activity between teachers on one hand but also as an interactive process between teachers and working life representatives on the other (Figure 1). This wide-ranging interdisciplinary cooperation during the education development process was then continued in classes as an interdisciplinary learning process for students.

The joint planning of the curriculum continued with the planning of course implementation, which was done for the student group of 'Service Management in the Digital Era' in the team of principal lecturers at Lapland University of Applied Sciences. This way, in addition to the competence-based nature of the courses, the plans concerning course integration were implemented, and the educational competencies were brought to the forefront during teaching. The evaluation and development of the courses was discussed together. The multidisciplinary background work carried out together with a multidisciplinary group of students gave rise to completely new ideas and innovative solutions for the development needs of working life.

The newly developed educational framework was started to applied in spring 2020. The work was organised by a specially designated Development Forum consisting of all the principal lecturers at Lapland UAS Master School. At the moment, we are planning courses, contents and structures according to the development framework. The new, student-oriented curriculum will be deployed in autumn 2021.

3. Results

In this section, we introduce in detail the framework developed for use at Lapland UAS Master School. Figure 2 provides an overview of the new framework – a student-oriented, multidisciplinary Master's degree educational framework.

Figure 2: The structure developed for Master's degree studies in Lapland UAS Master School
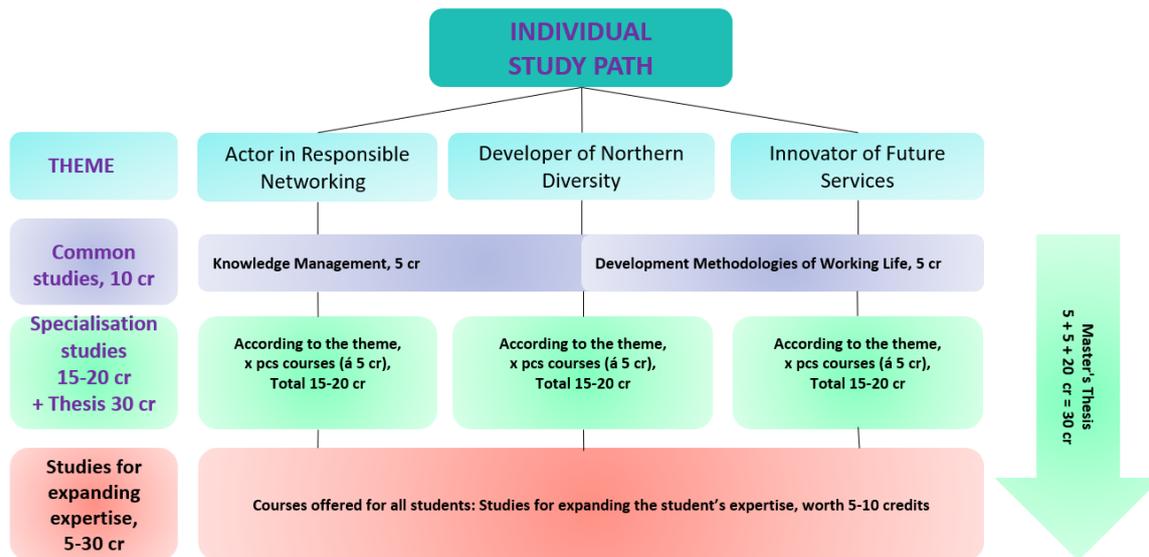
As explained earlier in this paper, the main objective of the framework is to support a student's individual study path. The process begins when the new student is starting their Master's degree studies. In the first phase, they choose the theme for their study path. The theme options based on the strategy of the Higher Education Institution (HEI) are; Actor in Responsible Networking; Developer of Northern Diversity; and Innovator of Future Services. The second step in the framework is common to and compulsory for all the Master's degree students, containing courses such as 'Knowledge management and Development Methods of Working Life'. According to HEI's philosophy related to Master's studies, these two courses form the professional basis of Master's degree studies. Thereafter, the student can continue along their chosen theme path, taking the Specialisation studies they prefer or expect to support their future career development. Options in the Specialisation studies include 3–4 modules worth of 15–20 credits; the student has to choose one module. In the final stage of the framework, the student can choose courses worth of 5–30 credits from the module called 'Studies for expanding expertise'. These studies are available to all Master's degree students. The number of courses needed depends on the degree the student is taking. Along with the modules and courses the student is taking, they work with the Master's thesis project as depicted in the figure above. The scope of the thesis is normally approximately 30 credits, which means about six months of full-time studying. In higher education, the thesis is usually scheduled for the end of the studies. In our model, the thesis is worked on by means of multidisciplinary work in pairs or small groups throughout the student's studies.

4. Discussion

We all live in an era of rapid technological and educational change, and responding to this shifting landscape also requires that new opportunities be created for Master's degree studies. From now on, students can select studies for their Master's degree programme in alignment with their needs for the transitional phases of their careers at Lapland UAS. The students' study paths are now more individual and flexible than they were before the project was launched at Lapland UAS Master School. The result was a structure for Master's degree studies based on alternative study modules for a virtual study unit, supported by the activities of Visiting

Professors based on the participation of domestic and international actors in working life and education, and work-focused pedagogy based on assignments and applicable interests.

The results from this project by Lapland UAS Master School also offer a rejoinder for teachers who seek to meet the diverse, interconnected and holistic needs of their Master's degree students. The project not only seemed to help teachers meet specific pedagogical needs, but their networks also gave many participants the opportunity to create new ways to collaborate with working life representatives at a national and international level. However, despite everything that has been achieved, challenges may be looming ahead in near future. For example, networks require maintenance and development, the new model needs further development and continuity needs to be maintained. Discussion and evaluation of key stakeholders needs to be continued to reach a consensus on what needs to be integrated, prioritised and used as content in our educational framework.

Acknowledgment

References

[1] Gervais, J. (2016). The operational definition of competency- based education. *The Journal of Competency-Based Education*, vol 1(2), pp. 98-106. doi: 10.1002/cbe2.1011

[2] Hagman K., Hirvikoski T., Wollstén P. & Äyväri A. (2018). *Handbook for Co-creation*. Espoo, Finland. http://urn.fi/URN:NBN:fi:amk-201901231513 (Accessed 3 September2020)

[3] Hyötynen, P. & Tynkkynen, J. (2014). Tulevaisuuden osaamistarpeet vaativat yliopistoilta rohkeutta uudistua. Tekniikan Akateemiset TEK -verkkolehti, Available: https://lehti.tek.fi/koulutus/tulevaisuuden-osaamistarpeet-vaativat-yliopistoilta-rohkeutta-uudistua (Accessed 3 September 2020)

[4] Leveälahti, S., Nieminen, J., Nyyssölä, K., Suominen, V. & Kotipelto, S. (ed.). (2019). Osaamisrakenne 2035. Opetushallitus, Raportit ja selvitykset 2019:14. Finland. Available: https://www.oph.fi/sites/default/files/documents/osaamisrakenne_2035.pdf (Accessed 3September 2020)

[5] Osaaminen 2035. (2019). Opetushallitus, Raportit ja selvitykset 2019:3. Finland. Available: https://www.oph.fi/sites/default/files/documents/osaaminen_2035.pdf (Accessed 3 September 2020)

[6] Parviainen, P., Tihinen, M., Kääriäinen, J. & Teppola, S. (2017). Tackling the Digitalisation Challenge: How to Benefit from Digitalisation in Practice. *International Journal of Information Systems and Project Management (IJISPM)*, vol. 5(1), pp. 63-77.

[7] Stensaker, B. (2018). Academic development as cultural work: responding to the organizational complexity of modern higher education institutions. *International Journal for Academic Development*, vol 23(4), pp. 274-285. doi: 10.1080/1360144X.2017.1366322

[8] Tihinen, M., Iivari, M., Ailisto, H., Komi, M., Kääriäinen, J. & Peltomaa, I. (2016). An exploratory method to clarify business potential in the context of Industrial Internet - a case study. *In the proceedings of the 17th IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2016*, 3 - 5 October 2016, Porto, Portugal.

[9] Vehmas, K., Tihinen, M. & Seisto, A. 2017. Collaborative design boosting development of digital wellness services. *International journal of scientific and technical research in engineering*, vol. 2(2), pp. 36–49.

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