Maarit Virolainen

Toward Connectivity: Internships of Finnish Universities of Applied Sciences

UNIVERSITY OF JYVÄSKYLÄ
FINNISH INSTITUTE FOR EDUCATIONAL RESEARCH

Finnish Institute for Educational Research
Studies 29

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Esitetään Jyväskylän yliopiston kasvatustieteiden tiedekunnan
suostumuksella julkisesti tarkastettavaksi
Agora-rakennuksen auditoriossa 2
helmikuun 8. päivänä 2014 kello 12.

Academic dissertation to be publicly discussed, by permission
of the Faculty of Education of the University of Jyväskylä,
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on February 8, 2014 at 12 o'clock noon.

UNIVERSITY OF JYVÄSKYLÄ
FINNISH INSTITUTE FOR
EDUCATIONAL RESEARCH

THIS PUBLICATION
CAN BE OBTAINED FROM:
Finnish Institute for Educational Research
Customer services
P.O. Box 35
FI-40014 University of Jyväskylä, Finland
Phone +358 40 805 4276
E-mail: ier-customerservices@jyu.fi
www.ier-publications.fi/

Drawing on the cover: Valpuri Virolainen
Photo on the cover: Maarit Virolainen
Cover and graphic design: Martti Minkkinen
Layout: Taittopalvelu Yliveto Oy

ISSN-L 1455-447X
ISSN 1455-447X (printed version)
ISSN 2243-1381 (pdf)

ISBN 978-951-39-5587-8 (printed version)
ISBN 978-951-39-5588-5 (pdf)

Printed by Jyväskylä University Press
Jyväskylä 2014

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University of Jyväskylä
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ISSN-L 1455-447X
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Abstract

This doctoral thesis explores the internships of Finnish universities of applied sciences (UAS). The purpose of the study is to contribute to the discussion on developing internships, and to redefine the concept of connectivity on the basis of the findings. The overarching research questions investigated in this summary are: (1) How do teachers perceive the internship model of learning through work experience with respect to connectivity?; (2) Which practices co-construct and institutionalise the internship model as it is presently organised by the Finnish UAS?; (3) How do graduates perceive the internship practices regarding connective learning?; and (4) How do employers perceive the application of a connective internship model?

The dissertation consists of four empirical sub-studies and this summary. The data utilised in the sub-studies include: (1) open-ended interviews conducted with teachers (n = 28); (2) graduates' views on internships collected through a questionnaire (n = 1,050); (3) collaborative employers' views collected via a questionnaire (n = 269); and (4) employers' views collected through an internet questionnaire (n = 169). Fields of education addressed in the study include business administration, technology, social services and health care. The data were analysed through qualitative content analysis, thematic analysis and quantitative statistical methods.

The findings revealed internship models to differ considerably with respect to connectivity, i.e., in how they support learning across contexts. Both national networks of teachers and labour market organisations have influenced practices of constructing internship curricula essentially. Major differences between educational fields were reflected in graduates' internship experience. Graduates from the field of technology were more critical than graduates from other fields. The employer profiles identified in the study were: (i)

employers with an employment perspective; (ii) cooperative employers; (iii) employers with multiple goals; and (iv) employers concerned with the development of their own work. Compared to other fields, employers from the fields of social services and health care placed greater emphasis on students' importance in developing the work community. Critical characteristics influencing the quality of internships, such as curriculum issues, guidance of students and collaboration between various educational institutions, underlined the role of teachers in organising cooperation. In the dissertation, the concept of connectivity has been redefined by emphasising (i) the role of informal communities and career counselling in learning, as well as by investigating (ii) shifts between contexts of learning and types of concepts, (iii) the role of bodies operating outside educational institutions in reviewing curricula, and (iv) how participants co-construct the practices.

Keywords: internships, connectivity, universities of applied sciences, polytechnics, higher education, work-related learning

Virolainen, M. 2014
KOHTI YHDISTÄVYYTTÄ: SUOMALAISTEN AMMATTIKORKEAKOULUJEN TYÖHARJOITTELUT

Jyväskylän yliopisto
Koulutuksen tutkimuslaitos
Tutkimuksia 29

ISSN-L 1455-447X
ISSN 1455-447X (printed version)
ISSN 2243-1381 (pdf)
ISBN 978-951-39-5587-8 (printed version)
ISBN 978-951-39-5588-5 (pdf)

Tiivistelmä

Väitöstutkimuksessa tarkastellaan suomalaisten ammattikorkeakoulujen opintoihin kuuluvia työharjoitteluja ja pyritään tukemaan niiden kehittämistä määrittelemällä uudella tavalla yhdistävyyden (connectivity) käsitettä ja mallia. Väitöskirjatutkimus koostuu neljästä osatutkimuksesta ja niiden yhteenvedosta, joka keskittyy seuraaviin kysymyksiin: Millaisena opettajat pitävät työharjoitteluissa toteutettua työkokemuksesta oppimisen mallia suhteessa yhdistämisen malliin? Mitkä tekijät muokkaavat ja institutionalisoivat ammattikorkeakoulujen työharjoittelumallia? Missä määrin opiskelijat arvioivat harjoittelujen mahdollistavan eri ympäristöissä opitun yhdistämisen? Kuinka työnantajat arvioivat yhdistävyyden mallin soveltamista harjoitteluissa?

Osatutkimuksissa hyödynnettiin seuraavaa neljää tutkimusaineistoa. Ammattikorkeakoulujen näkökulmaa harjoitteluihin tarkasteltiin harjoittelujen järjestelyyn ja suunnitteluun osallistuneiden lehtoreiden ja muun henkilöstön teemahaastattelujen avulla (n=28). Valmistuneiden opiskelijoiden kokemuksia harjoitteluista tutkittiin kyselyllä (n=1050). Lisäksi työnantajien käsitysten selvittämiseksi kerättiin kaksi kyselyaineistoa (n=269, n=169). Tutkimusaineistot kerättiin tekniikan ja liikenteen, yhteiskuntatieteiden, liiketalouden ja hallinnon sekä sosiaali-, terveys- ja liikunta-aloilta useista ammattikorkeakouluista. Lisäksi työnantajakyselyihin vastasi pieni ryhmä muiden alojen edustajia. Aineistojen analysoinnissa hyödynnettiin laadullista sisällönanalyysia ja teemaattista analyysia sekä tavanomaisia kvantitatiivisia menetelmiä, kuten faktori- ja ryhmittelyanalyysia.

Tulokset osoittivat, että ammattikorkeakouluissa toteutetut harjoittelumallit ovat hyvin monimuotoisia suhteessa yhdistävyyteen eli siihen, miten ne tukevat eri ympäristöissä opitun yhdistämistä. Sekä kansalliset harjoittelujen kehitystyötä tehneet

opettajaverkostot että työmarkkinajärjestöt ovat osaltaan vaikuttaneet harjoittelujen muotoutumiseen. Valmistuneiden opiskelijoiden kokemuksissa näkyi harjoittelumallien koulutusaloittainen eriytyminen: tekniikan ja liikenteen koulutusalan opiskelijat olivat muita kriittisempiä. Työnantajien suhtautumisessa yhdistävyyden malliin erottui neljä profiilia: työvoimanäkökulman korostajat, yhteiskehittäjät, monitavoitteiset työnantajat ja oman työnsä kehittäjät. Sosiaali-, terveys- ja liikunta-alan työnantajat painottivat muita aloja enemmän opiskelijoiden merkitystä työyhteisön kehittämiselle. Työnantajat pitivät opettajien roolia keskeisenä harjoittelujen opetussuunnitelman, opiskelijoiden ohjauksen ja oppilaitosyhteistyön kehittämiselle. Yhdistävyyden käsitteen uudelleenmäärittely tutkimustulosten perusteella korosti: 1) informaalien yhteisöjen ja opinto-ohjauksen merkitystä harjoittelujen muotoutumiselle; 2) käsitteiden omaksumisen vaiheistumista niiden muodostumisesta hyödyntämisympäristöihin; 3) myös muiden kuin oppilaitostoimijoiden merkitystä opetussuunnitelman rakentumiselle; sekä 4) eri tasoisten toimijoiden, kuten kansallisten kehittämisverkostojen ja työnantajien yhteistyön tärkeyttä harjoittelukäytäntöjen kehittämiselle.

Asiasanat: työharjoittelu, ammattikorkeakoulut, työnantajat, ammattitaito, oppimiskokemukset

List of original publications

This dissertation is based on the following sub-studies, which are referred to in the text by their Roman numerals.

I Virolainen, M. (2007). Workplace learning and higher education in Finland: Reflections on current practice. *Education + Training, 49*(4), 290–309.

II Virolainen, M. (2009). Work experience constructed by polytechnics, students and working life: Spaces for connectivity and transformation. In M.-L. Stenström & P. Tynjälä (Eds.), *Towards integration of work and learning: Strategies for connectivity and transformation* (pp. 201–220). Dordrecht: Springer.

III Virolainen, M., & Stenström, M.-L. (2013). Building workplace learning with polytechnics in Finland: Multiple goals and cooperation in enhancing connectivity. *Journal of Education and Work, 26*(4), 376–401.

IV Virolainen, M., Stenström, M.-L., & Kantola, M. (2011). The views of employers on internships as a means of learning from work experience in higher education. *Journal of Vocational Education and Training, 63*(3), 465–484.

Article IV has also been published as a chapter of a book, edited by A. Fuller & L. Unwin, 2013. *Contemporary apprenticeship: International perspectives on an evolving model of learning* (pp. 230–249). London: Routledge.

Author's address

Maarit Virolainen
Finnish Institute for Educational Research
University of Jyväskylä
P.O. Box 35
40014 University of Jyväskylä, Finland
Email: maarit.ha.virolainen@jyu.fi

Supervisors

Professor Anneli Eteläpelto
Department of Education
University of Jyväskylä, Finland

Professor Marja-Leena Stenström
Finnish Institute for Educational Research
University of Jyväskylä, Finland

Reviewers

Docent in Sociology of Education Sakari Ahola
Research Unit for the Sociology of Education
University of Turku, Finland

Professor Karen Evans
Institute of Education
University of London, UK

Opponent

Professor Karen Evans
Institute of Education
University of London, UK

Acknowledgements

For me, preparing this dissertation has been both an alluring by-product and a more prominent sub-product of the research projects that I have participated in. I feel privileged to have been able to do this research at the Finnish Institute for Educational Research (FIER), part of the University of Jyväskylä in Finland, where I commenced in 1996. The institute is a community of practice full of inspiring experts exploring education and other areas of interest in life. Notwithstanding the circumstances, being involved in postgraduate studies has been a long and multifaceted process for me. Through all the years that I have worked as a project researcher, many colleagues have provided me with help, critique and challenges as well as support for learning. All the way through the dissertational work, the encouraging words of others have carried me and strengthened my trust in getting the dissertation completed. At this point, having finished writing the dissertational summary, I owe my heartfelt gratitude to my patient and insightful supervisors, Professor Anneli Eteläpelto and Professor Marja-Leena Stenström. I also want to express my deepest gratitude to Professor Karen Evans and Docent Sakari Ahola for previewing the manuscript. Their thorough, diverse and critical comments and suggestions helped me greatly to finalise the summary.

I also wish to thank our research group – Learning, Education and Working Life – and its present and previous members at FIER. At the moment, the research group is part of the research area called Processes of Learning, Teaching and Guidance. These groups have been led by Professors Marja-Leena Stenström and Päivi Tynjälä, whose expert leadership I wish to express my gratitude for. In these research groups, its many members have shared their expertise and wit. In particular, I am grateful to application designer Sakari Valkonen,

who has computed all the quantitative data of this dissertational work. Without him, this dissertation would not have included as many delicate statistics. I am also warmly grateful to research secretaries Minna Jokinen and Tarja Hämäläinen, who transcribed the teacher interviews used in the research. With respect to the employer questionnaires, I owe my gratitude to the manager of Educational Services at the Turku University of Applied Sciences, Mauri Kantola, for his organising of one of the data gatherings of this dissertation.

Sub-studies I–III are part of a research project completed for the Finnish Ministry of Education under the title *Cooperation Between Polytechnics and the Working World*, e.g., *Ammattikorkeakoulujen työelämäyhteydet,* and the project *Integration of Work and Learning: Strategies for Connectivity and Transformation,* funded by the Academy of Finland (Project no. 205922). The data for sub-study IV was collected as part of the Leonardo da Vinci project DEQU (Development of Elements for Quality Assurance within Practice-Oriented Higher Education, see Humpl 2007). The writing of Articles III and IV and this dissertational summary have also been funded by the University Alliance Finland, Research Cluster of Excellence for Work, Learning and Welfare for several months in 2010. I am grateful to all of you who gave me the opportunity to participate in these research projects and who collaborated in completing them. In addition, I wish to express my deepest gratitude to all those who have carefully polished my English language. It would not have been optimal without the in-depth reviewing and proofreading of several drafts by Lecturers Michael Freeman, Roger Noel Smith, Donald Adamson and Karl-Heinz Rademacker, B.A. (as well as anonymous reviewers from Scribendi). In particular, I wish to thank Kalle Rademacker for the proofreading of this summary. I also want to thank the members of our publication unit at FIER, publications manager Jouni Sojakka, and planning secretary Martti Minkkinen, who shaped the final appearance of this dissertation. For the provision of the data, I am truly grateful to all the Universities of Applied Sciences that have participated in the research. Their personnel have sacrificed their time for interviews and related arrangements. Their commitment to development work has inspired me greatly. I am equally grateful to those students and representatives of working life who have served as collaborators and answered the various questionnaires.

In the sphere of my personal life, I am particularly grateful to my dear friends Ruth Peuhkuri, Marja Kaskisaari and Anne Sankari. Your sharing of more than twenty-five years of friendship, since the 1980s, has granted me the privilege to share explorations in various circumstances together with you at home and abroad. You have soothed my soul. Your sincere approach of lifelong learning has been a source of inspiration for me. To Hanna Metsävainio, I wish to address my gratitude for your personal help. My dear son, Ilmari Metsävainio, and dear daughter, Valpuri Virolainen (in alphabetic order), I wish to thank you for all the delight and refreshing viewpoints that you have brought into my life – you are the true jewels of my life. I also wish to cordially thank my parents, my

mother Hilda and my already deceased father Heikki Virolainen, for providing me with safety and support particularly during my early years in life. I am deeply grateful to my one and only sister, Paula Virolainen, for sharing her views on education and life with me. Finally, I wish to thank Ari Flyktman for the joy he has brought into my life and the confidence he has given me throughout the last steps of this dissertational work.

Jyväskylä, February 2014
Maarit Virolainen

1
Introduction

1.1 Increased interest in learning through work experience

Learning through work experience as a part of higher education has become a more and more typical phenomenon recently and is the focus of this doctoral dissertation. There are three major reasons for this. First of all, enhancing the higher education (HE) institutions' contacts to the working world is seen as a way to improve graduates' employability (e.g., Tynjälä, Slotte, Nieminen, Lonka, & Olkinuora, 2006). Secondly, higher education institutions' close connections to the working world have been seen as a means to energise the national systems for innovation. Of course, the enhancement of innovation systems is crucial for the competitiveness of a national economy (Schienstock & Hämäläinen, 2001). The internships are a groundbreaking part of the cooperative relations between higher education institutions and the working world: the organising of internships promotes the exchange of novel ideas and experiences between the two worlds.

Thirdly, the massification, diversification and internationalisation of higher education have intensified discussions on the competences that higher education produces (e.g., Schomburg & Teichler, 2011; Tremblay, Lalancette, & Roseveare, 2012). Especially the relation to general skills and competences needed in the world of work, have become an increased focus of interest. Growing demand concerning HE graduates' employability has on its part vitalised research on the relations to general skills and competences needed in the world of work. Accordingly, the importance of comparative international research

and quality management of HE has increased (Bernhard, 2011; Huusko & Ursin, 2010; Kettunen & Kantola, 2007; Schomburg & Teichler, 2011).

The interest in competences has been further increased through the establishment of the European Qualification Framework (EQF). It aims to enhance the mobility of the workforce, the comparison of qualifications, and the accreditation of prior and informal learning in Europe (Brockmann, Clarke, & Winch, 2008). In parallel, professionals' job profiles are boundary-blurring and require multitasking as well as participation in multi-disciplinary teams. The emphasis on skills – needs balance has shifted (Field, 2000; Field, Gallacher, & Ingram, 2009). As a result of these societal trends, learning through work has become a central part of lifelong learning. The aim to understand opportunities for making learning from and through work a more effective part of higher education studies has thus been a driving force of this dissertation.

1.2 Finnish universities of applied sciences as the context of internships

The most influential form of organising learning through work experience as part of higher education has been internships. In Finland, professional higher education has a long tradition of organising internships. Thus, internships as a form of learning from work experience organised by Finnish universities of applied sciences are the focus of this dissertation.

Universities of applied sciences (UAS) were established during the 1990s. Officially, they were first called polytechnics[1]. They were established in order to raise the standard of qualifications of the former vocational education institutions. In the beginning, they went through an experimental phase. From 1996 onward, they gradually gained a permanent position within the higher education system. The process of accreditation was completed through applications made to the Ministry of Education. The legislation for temporary UAS was established in 1991 (Salminen, 1999). Since then, the role of the universities of applied sciences has been strengthened as part of the national education system. This change has evolved through consecutive legislative amendments applying terminology such as "Laki ammattikorkeakouluopinnoista" (1995) and "Ammattikorkeakoululaki" (2003). In parallel, discussions on the developmental direction of the UAS have continued.

[1] The Ministry of Education and Culture officially uses the English term "polytechnics" as the translation of the Finnish term "ammattikorkeakoulut" (AMK). However, since 2006, the polytechnic institutes themselves have promoted the translation of their name as "universities of applied sciences" (UAS). In this dissertation, I will generally use the terminology "universities of applied sciences" (UAS) for the sake of clarity.

The duty given to universities of applied sciences was to provide a vocational route of higher education alongside the traditional science universities. Establishment of the UAS was meant to deal with the jam of matriculated students not finding their way into higher education. There were not enough study places for students matriculated from the general upper secondary schools to get into traditional academic universities (Ahola, 1997). On the whole, the purpose of the educational policy was (i) to raise the level of education among the population, (ii) to make the vocational higher education more comparable with international examples, and (iii) to enhance international exchange (see Arnman, Kutscha, & Young, 1995; Böckerman, Hämäläinen, & Uusitalo, 2009; Kivinen & Rinne, 1992; Numminen, Lampinen, & Mykkänen, 1996).

The goal set in the 1990s was that 60–65 percent of qualified students would be offered a place in higher education (Ahola, 1997). The majority of the qualified students were expected to go to the UAS, but one-third were expected to choose a traditional science university (Kivinen, 2006; Lasonen & Stenström, 1995). In the educational policy, it was expected that raising the level of education among the population would enhance the society's chances of meeting the demands of a modern knowledge society.

According to the legislative amendment of "Ammattikorkeakoululaki" (2003), the mission of UAS is to prepare experts for their professional duties by providing higher education. The UAS are expected to cooperate with local firms and providers of public services, and to function in a way that enhances the regional economy. The curriculum aims to meet the demands of working life, its development, and regional business and commerce. It draws on research. The UAS are also expected to carry out research aimed at applying of sciences ("Ammattikorkeakoululaki", 2003). Their research is expected to support the development and innovation of products and services that enhance enterprises, work communities and the third sector (Haapamäki, Mäkeläinen, Nokkonen, & Piiroinen, 2009).

Political interest in developing educational programmes in the UAS with a close connection to the working world laid the foundation for qualifications (Ahola, 1995) and internships. This interest has prevailed (Ahola, 2005; Ahola & Galli, 2012). Also, the public financing by the Finnish state through the Ministry of Education and Culture has continued to give emphasis to this direction (see Metsä, 2009).

1.3 Formal regulations for internships

According to the law and decree on UAS studies, internships are an essential part of the qualifications offered by UAS (Ammattikorkeakoululaki, 2003; Valtioneuvoston asetus ammattikorkeakouluista, 2003). According to the decree on studies at universities of

applied sciences (Valtioneuvoston asetus ammattikorkeakouluista, 2003), studies leading to a qualification consist of 1) basic (generic) studies and professional studies, 2) optional studies, 3) learning through work experience that enhances professional development, i.e. internships, and 4) writing a Bachelor's thesis.

The qualifications consist of at least three or at most four study years. In special cases, the extent of the studies may exceed four years. The study years are equal to 180, 210 or 240 study credits. Typically, internships account for 30–120 study credits of the whole qualification, depending on the programme and the length of education in question. The programme with the highest proportion of workplace learning is midwifery (see Salonen, 2005; Placement Development Project, 2006).

Three consecutive developmental projects – *Harjoittelun kehittäminen*, that is, *Developing internships* (HARKE), *Opiskelijan ja työelämän yhteyksien kehittämisverkosto*, that is, *Network for developing relations between students and professional world* (INTO), and *Kolme askelmaa yhteisölliseen työelämäkumppanuuteen*, that is, *Three steps to collaborative partnerships with the professional world* (STEP-IT) – have aimed at enhancing the internship model by providing quality criteria, quality assurance, and quality development tools (Hopia & Laitinen-Väänänen, 2010; Laitinen-Väänänen, Vanhanen-Nuutinen, & Hyvönen, 2011; Placement Development Project, 2006; Salonen, 2005, 2006, 2010; Vanha-aho, 2009; Zacheus, 2009). Despite these initiatives, the internships are regionally based on more or less formal contracts between the UAS, the student and the employer. Accordingly, in this dissertation, internships are approached as a non-uniform phenomenon. It is presumed that there is no one generic workplace and there is no one generic model for internships either (see Fenwick, 2006b).

The adoption of a work experience methodology as part of the UAS internship programme has developed across three overlapping phases. During the first phase, the internships were generally based on existing models. Emphasis was placed on the renewal of the curriculum, on overall organisation, and on a pedagogy that would meet the demands set for higher education (Auvinen, 2004; Kotila & Mutanen, 2004; Panhelainen, 2007). The second phase, which began in 2004, involved the intense development of internships through national networks mentioned earlier: HARKE, INTO, and STEP-IT.

The third phase brought enhancements to research and development in the UAS education programme. This third shift, toward innovation orientation, began in the early 2000s (Haapamäki et al., 2009; Hyrkkänen, 2007; Lumme, Sarajärvi, & Paavilainen, 2009; Rissanen, 2003; Suomala, 2003). In conclusion, the adoption of work-based learning as part of the UAS education programme has been a confluent process of traditions, national networks and local innovational aspirations. However, the development of internships has only been one part of the developmental projects that the UAS have been involved in.

1.4 The challenge of researching internships

The purpose of this dissertation is to contribute to the discussion on developing internships of the universities of applied sciences. Previous research on internships has laid the following foundation for this study. In Finland, internship-related themes have been explored in some educational fields. However, no known studies have compared the experiences of several groups of students from several educational fields and many UAS. For example, the dissertations by Laitinen-Väänänen (2008), Lähteenmäki (2001) and Vesterinen (2002) explored issues like meaning making in supervising interactions between educators and students in physiotherapy, the development of expertise in problem-oriented physiotherapy education, and the promotion of business students' practical learning at work. Furthermore, in some studies, internships have been discussed as a sub-phenomenon of pedagogy or curricula and in relation to effectiveness with respect to working life (see, e.g., Kotila, 2000; Mikkonen, 2012; Raij, 2000, 2007). Other types of work-related learning, such as through writing a Bachelor's thesis based on working life and project work, have also been studied in dissertations by others (Rissanen, 2003; Vesterinen, 2001).

Despite several studies having been written regarding the field of work-related learning offered at universities of applied sciences in Finland, employer views have not been elaborated on much in the research. The views and experiences of employers have not received a great deal of attention even in international studies on learning from work experience as part of higher education programmes (see Blackwell, Bowes, & Harvey, 2001; Garraway, 2006; Reeve & Gallacher, 2005). Furthermore, the instructor beliefs have been given only limited attention (Owen, 2009).

In short, the previous research into internships provided me with the following challenges for my study of internships: a multidisciplinary approach featuring experiences of several UAS as well as employer perspectives was needed. Accordingly, my dissertation has aimed at targeting these gaps. I wanted to contribute to the discussion on developing internships of the UAS by utilising the perspective that the model of connectivity (Griffiths et al., 2001; Guile & Griffiths, 2001) provides. The overarching research task was to elaborate on internships from the perspective of different practitioners in terms of connectivity. The connective model has been used in this study to examine how learning at school and work has been combined in internships: what kind of factors co-construct and institutionalise patterns of internships and how participating students, teachers and employers experienced the internships and their organisation to conform with the ideals of the connective model, that is, the combining of theory and practice, the horizontal and vertical expansion of knowledge and skills, the guidance of students, and boundary crossing (Guile & Griffiths, 2001). The concept of connectivity is used to study how the formation of internship curricula takes place; it was chosen as the yardstick for analysing

internships because it places emphasis on reflective dialogue needed in guidance and allows picturing workplaces as changing and developing contexts.

However, the purpose of this study is not only to introduce the connective model but also to redefine it in light of the study results. The explication and compilation of the redefinitions was one core challenge of this report. This dissertation summarises and reflects upon the four empirical sub-studies (Articles I–IV) conducted to investigate how the internships of the Finnish UAS conform to the model of connectivity. These sub-studies have evolved across a time span reaching from 2002 to 2011. The focus of the sub-studies has been on internships as a model of learning from work experience in Finnish UAS. They picture the internship as a co-construction of actors. The views of the different participants – the UAS, students, graduates, and employers – are presented in separate articles (with one exception: Article II combines the perspectives of all the participating groups). Furthermore, the dissertation proposes starting points for future research. The four articles that report on the sub-studies are appended to this report[2].

1.5 Structure of the dissertation

The dissertation consists of four empirical sub-studies and this summary. In this summary, I first reflect on how research on internships as a form of learning from experience is approached in my dissertation in light of the major shift in research (Chapter 2) that has turned the study of learning outside traditional school settings into a research field of its own. The next chapter (Chapter 3) is committed to the purpose of reviewing the origins of the concept of connectivity and its successors, in particular the discussion on the recontextualisation of knowledge and boundary crossing. Research tasks and research questions are presented in Chapter 4. The presentation of methods and data sets follows in Chapter 5, and Chapter 6 summarises the research findings. The findings show, how the internship models adopted by the UAS, and the experiences that the practitioners have had regarding these models and their organisation, are in congruence with the criteria given by the model of connectivity. Furthermore, in Chapter 6, the dissertation's four attempts to redefine the concept of connectivity are presented. Finally, in Chapter 7, the dissertation concludes the main empirical and theoretical findings, suggests future challenges of introducing connectivity in internship curricula, reflects on methods, and addresses future research needs.

[2] The first two articles of the four featured have been written by the author of this dissertation alone. Two of the articles (Articles III and IV) have been co-authored with Professor Marja-Leena Stenström as the second author. In addition, Mauri Kantola, Manager of Educational Services, co-authored the fourth article (Article IV). The empirical data used in Articles I–III have been analysed and published elsewhere in Finnish (Virolainen, 2004, 2006; Virolainen & Valkonen, 2007; Virolainen, Vuorinen, Stenström, & Valkonen, 2008). The articles referred to in this report only utilise a part of the original data corpus. Therefore, I would like to advise Finnish readers interested in the subject to familiarise themselves with those reports in order to get a better view of the empirical sub-studies on the whole.

2

Learning at the boundary of school and work

2.1 Work-based learning as a part of formal education

This section addresses internships as a form of learning from work experience. It explores the shift of research, where learning in places other than schools has become more and more topical in research. The section identifies how this study of Finnish UAS internships is related to the body of research investigating learning from work experience.

2.1.1 Emerging dissonances of learning place and formality of learning

Introducing work-based learning as a part of formal education appears to be one of the solutions for the educational system to keep up the pace with changes in the working world. Accordingly, EU policies have increased the approval of informal and non-formal learning as well as work-based learning as part of higher education. They are expected to make the national educational system more responsive to the demands of a knowledge economy (Chisholm, Harris, Northwood, & Johrendt, 2009; Malcolm, Hodkinson, & Colley, 2003).

Already for a long while, educators have been engaged by the question of how learning at school differs from learning at work or other lifeplaces. For example, in her well-known article from 1987, Lauren Resnick characterised how learning at school differs from learn-

ing at the workplace (Resnick, 1987). She described the differences in the ways that these two settings support learning with the help of four discontinuities. These discontinuities are related to (i) the supposed role of the learner in a social context, (ii) the meaning memorising and experiencing have in learning, (iii) the relevant symbolic representation of cultural objects for learning, and (iv) specific versus generic knowledge.

According to Resnick (1987), learning at school dominantly focuses on individuals working independently, which is both planned and assessed as individuals' performance. Also, it is based more on the training of knowing by heart than knowing with the help of media. Furthermore, at school, learning focuses more on working with symbols than on working with concrete objects of thought. Knowledge that is taught is generalised knowledge. By contrast, at workplaces, mental work is shared among participants and learning involves tools and objects that aid cognition in specialized contexts. Knowledge that is learnt at work focuses on situation-specific competences.

Resnick's (1987) critique of school knowledge and learning at school has inspired the reforming of school curricula, even though Resnick focused on basic education in her article. It has shifted the emphasis to relating the curriculum to practical contexts and social learning. Despite the benefits of Resnick's approach, its limitations have also been brought up by scholars like Lewis (Lewis, 2005). He thinks that Resnick's (1987) focus on curriculum renewal does not pay sufficient attention to the principles of theory and knowledge transfer, thus supporting teaching of particular rather than systematic approaches. Critics have also pointed out that Resnick's view does not address the problems that arise when the curriculum content is only marginally related to the workplace activities (Gowen, 1992, referred to in Lewis, 2005). Furthermore, due to the time of its publishing, Resnick (1987) was unfamiliar with the problems that competence-based assessment procedures have met in practice when they guide curriculum planning.

Much of the legitimate and acknowledged status of school learning is based on its role as the assessor and certifier of the quality of qualifications. Learning that has occured in places other than schools may be verified by portfolios, project work, written assignments, oral assessments or direct observations of practice (Chisholm & Davis, 2007). At the same time, much of the distrust in places of learning other than schools is based on the questioned legitimacy of giving the right to assess learning to bodies other than the school. The distrust is based on the socially shared and acknowledged view that the school system's teachers are experts of learning and its assessment. They have the opportunity to observe and support the path of learners and to assess their development in many situations over several years. Even if the standardised system has been developed with the aim of assessment, it has not been unproblematic. For example, competence-based assessment has been developed in order to assess the quality of performance in authentic work situations in England. In the English National Vocational Qualifications (NVQs)

scheme, competence-based assessment of vocational skills has been based on detailed standards for occupational competencies. These standards have shaped the curriculum. Even though the competences aimed at were broad-based, the NVQs have been criticised as being "atomistic" and task-based (Green, Wolf, & Leney, 1999; Raggatt & Williams, 1999; Sadler, 2013; Wolf, 1995). Altogether, the importance that our society places on the acquiring of new knowledge has caused the atomistic and task-based assessment of learning at the workplace to be questioned all the more.

2.1.2 Learning at school, work (organisations) and lifeplaces

Since the 1980s, the need for learning new knowledge has pervaded the working world and expanded out of schools in a surging way that has continuously been reflected upon in discussions on lifelong learning (Field, 2000; Ingram, Field, & Gallacher, 2009; Mäkinen, Olkinuora, Rinne, & Suikkanen, 2006; Silvennoinen & Tulkki, 1998). Parallel to this expansion, the former, strict division between learning at school and learning at the workplace has been interpreted as an outcome of the early development of the school system. This division has played a key role in the institutionalisation of the school system as a specific societal institution that takes care of citizens' learning. While the ongoing introduction of work-based learning as a legitimate part of the school system has taken place alongside the development of the tertiary education system, many academics have disapproved of it as they see it as a threat to academic practices (see, e.g., Chisholm & Davis, 2007; Chisholm et al., 2009).

However, even the definition of some sort of learning as "work-based learning" has been contested. While some researchers have suggested that work-based learning is learning that takes place in paid or unpaid work, others have seen this as a far too limited interpretation because it neglects life-based and lifeplace environments. According to Chisholm et al. (2009), it would be better to also consider such environments as the home and the community as well as leisure environments, and to look for the learning mechanisms and processes operating there. Also Fenwick (2006b) has brought up that focusing on learning at work excludes vast groups of individuals who are not in paid work but are learning from the work they do in their circumstances. She states that if it is argued that anything that involves doing and thinking is learning, and anything that involves doing and thinking is also work, then there is no reason to leave non-workers out of the scope of the research. She claims that while leaving non-workers out of the focus of research on learning at the workplace is an ideological issue, the object of study (learning through work) may end up being interpreted quite differently as a result.

Furthermore, Chisholm et al. (2009) have claimed that a wider view on workplace

learning would lay a firmer foundation for a future research framework that is sensitive to individual differences. It would lend specificity to comparing learning environments, not depending on whether they are workplaces or other lifeplaces. Expanding the view on places of learning – from schools and workplaces to lifeplace learning environments – would lead to including the factors of knowledge, skills, behaviours and attitudes that have been acquired in the past, are being acquired at present, or will be acquired throughout life, irrespective of timing, place, reason and methods, in the frame-work of research on learning (Harris & Chisholm, 2011).

Neither has the type of workplace been agreed on in determining a denominator of workplace learning place, nor has formality in learning been accepted as a decisive differentiator of the quality of learning from work. Malcolm et al. (2003) suggest that attributes of formality and informality are present in all learning situations, but their interrelationships as attributes of learning vary from situation to situation. They discussed four further aspects to consider concerning the issue of formality versus informality in learning: process, location and setting, purpose, and content. With respect to these aspects, the central question is: who defines the process (including assessment), location and setting, purpose, and content of learning. When the definers are not the learners themselves, there is a shift toward formalised learning contexts. Malcolm et al. (2003) see the contradictory and advocatory presentation of formal and informal education as separate paradigms to be rather unanalytical. They state that it is typical of the informal vs. formal discussion to present the approaches as being exclusive. Thus, informal learning is thought to be equivalent to learning "horizontal knowledge" acquired through common everyday practices in non-educational settings. Following the same line of thought, formal education aims at individual, vertical or propositional knowledge acquisition, and it takes place in educational institutions (Malcolm et al., 2003, p. 314).

Even learning from work as such, without reference to the level of its formality, has been understood in many ways. A meta-review of workplace learning literature conducted by a Canadian research team (Fenwick, 2006b) found conceptions of workplace learning to be altogether complex and contested, as well as comprising significant distinctions to a troubling extent. Different studies referred to workplace learning as either a process or an outcome of creating new knowledge. Furthermore, workplace learning can consist of the communication of information or changes in individuals, organisations, practices and human existence. Many researchers have found defining workplace learning difficult and preferred not to address it. This sort of avoidance has resulted in partial and generalised definitions of workplace learning that do not take the differences in activities between different places of work into account. Partial definitions were also found to be problematic with respect to theory (Fenwick, 2006b). Thus, Fenwick (2006b) has questioned whether it is possible to theorise the different activities of different contexts, taking into account

that these differences are not alike objects of study. As a solution, and in order to reach an improved level of theory, she recommends that researchers define their object of study more explicitly by asking: who is the learner, what is the work, what is the workplace, what is the position of the workplace in the market economy, and what is its relation to the state and civil society (Fenwick, 2006b).

Altogether, the discussions on different types of learning at work organisations have been identified to have formed three different concurrent discourses on organisational learning (Rhodes & Scheeres, 2004; see also Chappel, Scheeres, Boud, & Rooney, 2009; Eteläpelto, 2008; Eteläpelto & Vähäsantanen, 2006). These discourses mainly pertain to understanding and organising learning at work. Firstly, there is the tradition of "shadowing", that is, following the guidance of a more experienced worker. This is a form of apprenticeship training that continues the old tradition where guilds provide a system of expert personal guidance with respect to the tradition of the craft. The apprentice approach originated in the pre-modern era, when formal vocational education did not exist. Secondly, during the modern era, formal training was introduced. Standardised rules and procedures were created as a system of vocational education. These rules were expected to assure that students achieve predefined skills and competences in accordance with a given curriculum. Thirdly, in the postmodern era, the informal learning of apprentice training has incorporated a reflexive trait (Rhodes & Scheeres, 2004). As a result, semi-formal and informal training programmes have been adopted as part of organisational learning. According to this organisational learning discourse, the responsibility of learning has become the duty of every worker. The worker is expected to have adopted an innovative, entrepreneurial identity typical of a learning organisation (see, e.g., Nonaka, Toyama, & Konno, 2000). This role of the flexible innovator is, however, contested by power relations at work. Work and learning practices do not necessarily follow the ideal of organisational learning that empowers workers to become reflective learners who may plan their own learning and question the workplace practices. On the contrary, they may represent management control, pervading the affective domain of work through a demand to obey the values of the corporation (Rhodes & Scheeres, 2004; see also Edwards & Nicoll, 2004). In positive cases of flexible innovation, it is possible that employees are empowered to create new jobs for themselves and others by anticipating new tasks of importance and reframing their job profiles (Chappel et al., 2009). Accordingly, reflecting the three discourses on learning in work organisations, the identity position of the learner in the work organisation may combine traits of a craftsperson, technician or flexible innovator (Rhodes & Scheeres, 2004).

In addition to the variance in the locality and formality vs. informality of learning, as well as the approach that learning follows in organisational settings, the timing of learning through work experience has been recognised as varying as well. It is possible to learn

from past (work) experiences with the help of more theoretical insight, reflection and comparisons of professional experiences (Eraut, 2004, 2011). Thus, the time it takes for learners to learn through work experience is not the same in all cases either.

2.2 Studying internships on the tide of strengthening workplace learning research

This dissertation focuses on internships as a model of learning that is situated in the cooperative networks of the UAS and workplaces. Considering the criticism Fenwick (2006b) presented above, studying learning in this context is challenging. The possible learners of the research arena involve not only students but also teachers, educational planners, personnel of the cooperative workplaces, UAS, and workplaces acting as learning organisations. Furthermore, the object of this research, i.e. internships, has been changing and developing through the years of the research process. The first data set, utilised in Articles I and II of this dissertation, reflects the time before the developmental networks of HARKE, INTO, and STEP-IT came into effect. In addition, this dissertation compiles three other data sets on graduates' and employers' views on in-ternships. They reflect the experience gained during and after the developmental work of the networks mentioned above.

With respect to the other critical definitions demanded by Fenwick (2006b, see section 2.1.2) – i.e., who is the learner, what is the work, what is the workplace and its position in the market economy and its relation to the state and civil society – the approach of this dissertation may be questioned. The learners studied over the course of this research are former students (graduates) of the Finnish UAS. But the graduates who participated in this study collectively learned from more than just one type of work or workplace during their internships, and neither was the status of the workplaces in the market economy and their relation to civil society uniform. Moreover, we barely learned to understand the students and graduates as learners in the course of this study report. The workplaces involved and their status in the market economy will however be sketched, describing some of the features. Considering the loose definition of internships, the object of this research, one might critically ask what this dissertation will contribute. The answer is that the Finnish model of internships offered by the universities of applied sciences is studied in order to explore it as a social construct of learning through work experience having a resemblance to the connective model. This research explores what the decisive characteristics of learning through work experience in internships are with rescpect to connectivity and how internships are co-constructed in the Finnish UAS by teachers, employers and students.

Learning, in this context, is understood as the adoption and reconstruction of concepts, conceptualisations and theoretical approaches, activities and operations. It enables

a shared recognition of phenomena, the production of concrete artefacts and abstract models and their presentation individually or in groups, as well as benefitting training aimed at this purpose. It involves getting acquainted with new knowledge and methods of action, at least for some of the members of the group (community of learning). And for other members of the group, it may primarily involve the reconstruction of earlier acquired knowledge, as well as repetition, variation and the creative combining or enhancement of previously learned knowledge and skills. This definition is indebted to the sociocultural approach and authors such as Beach (2003), Billett (2002), Hager (2004), Illeris (2004), and Lave and Wenger (1991).

The model of connectivity is used as a kind of yardstick that the internship are evaluated against. It still has to be kept in mind that it is only one of many possible reference points for examining internships in research. Yet, it was chosen on purpose for two reasons. First, the model of connectivity makes the relations of learning at the workplace vs. educational institutions explicit, and second, it provides conceptual tools for understanding this relation. Other possible theoretical reference points might have included approaches such as sociocultural theory, actor–network theory, work-based learning as experiential learning, and agency or learners' identity development in transitions. However, the inclusion of any of these would have made the research bring up completely different sides of the internship phenomenon, which would have yielded a less focused result. In the following chapter, I will explore the concept of connectivity in more detail.

3

Toward connectivity

This chapter addresses the concept of connectivity. The concept of connectivity has provided the central theoretical background for this dissertation. It has guided the data collection and analyses of the factors that are essential to learning from work experience taking place through employers' collaboration with the universities of applied sciences.

The conceptions of connectivity were chosen as a starting point for the study because it gives emphasis to the aspects of change, guidance and reflection on action. These were considered to be important because the present knowledge society privileges knowledge creation, dissemination of new knowledge and technological innovation. In Finland, the UAS have been envisioned to form a part of the national innovation system. They are a part of the higher education system and its knowledge dissemination and creation (see Schienstock & Hämäläinen, 2001). The induction of newcomers to the labour market is an important link for enforcing the fluid processes of innovation systems, disseminating new knowledge and enhancing collaboration. Thus, the underlying logic of the research approach was that the fulfilment of connectivity in internships is essential not only for students' learning from work experience but also for the enhancement of the knowledge society. At the same time, the effect of organisational culture on planning learning through work experience has been an under-researched theme (Owen, 2009).

In the following sections, 3.1 and 3.2, I will first introduce the concept of connectivity used by Guile and Griffiths (2001), which I became familiar with at the beginning of the research process. Secondly, in the section 3.3, I will explore the origin of the concept in

the British discussions of curriculum theory and connective specialisation presented in Michael F. D. Young's compiled work (Young, 2008). Finally, in section 3.4, I will link the previous discussion of connectivity to the later discussion and research on the recontextualisation of knowledge described by Evans, Guile, Harris and Allan (2010; Evans, Guile, & Harris, 2011) as well as to the processes of boundary crossing described by Akkerman and Bakker (2011). In the last section of this chapter, 3.5, I will very concisely sum up the theoretical approach of this dissertational research.

3.1 The concept of connectivity

Connectivity is a concept that Guile and Griffiths have addressed in several of their articles (Griffiths & Guile, 2004; Guile, 2002, 2006; Guile & Griffiths, 2001). According to them, the concept of connectivity has its roots in sociocultural tradition, adult education and curriculum theory. Reconstructing the history of the concept is not an aim of this study, but rather a selective view that is, a short introduction and sense-making to help the reader to get involved with the concept and to understand how it has been utilised as a part of this research process.

The concept of connectivity can be thought of as a metaphor for a curriculum aiming to support learning across contexts, similar to Sfard's (1998) metaphors of learning through 'acquisition' and 'participation' described in her renowned article. The difference between the 'connectivity' metaphor and the 'acquisition' and 'participation' metaphors is that connectivity puts emphasis on the contexts of individuals' learning. In their article *Learning Through Work Experience*, Guile and Griffiths (2001, p. 113) introduce the concept of connectivity in order to *"provide the basis for a productive and useful relationship between formal and informal learning"*. They argue that the influence of context has too often been ignored in the models of learning from work experience. They underline that students need to be supported in relating learning *"that occurs within and between different contexts of education and work"* (Guile & Griffiths, 2001, p. 113).

In their argumentation, they make two powerful shifts of agenda with respect to the current thinking on learning, which they aim to criticise. Firstly, they state that thinking about curriculum frameworks cannot be concerned with only the context of learning at school but should also include the learning that takes place in other contexts. Secondly, schooling is not only about formal but also about informal learning. As a result, despite the context and formalities of learning, learning is about the development of knowledge, skills and identity, and this should provide the basis for a curriculum whether it engages general or vocational education. Whatever the context of learning, students need to learn to negotiate their learning and they need support in relating formal and informal learn-

ing. The reason for the need for guidance in relating and translating knowledge is an outcome of the fact that knowledge at the workplace is embedded in work roles and is not evenly distributed. Guile and Griffiths also refer to Vygotsky's (Vygotsky, 1982) concept of *zone of proximal development*, which gives emphasis to the role of more competent and knowledgeable others as promoters of learning (Griffiths & Guile, 2004; Guile & Griffiths, 2001; Guile, 2002, 2006).

Guile and Griffiths (2001) further address students' need for support as situated in the demand for relating 'vertical development' to 'horizontal development'. *Vertical development* involves individuals' cognitive development and progress through a hierarchy of knowledge and skills toward higher levels of abstraction. Vertical development is typically thought to take place in formal education where curricula are organised through classification, typically within frames of discipline-based knowledge. *Horizontal development* occurs when an individual moves from one context to another. It concerns both individuals' sense of identity and their capacity to develop mediating concepts that help to cope with the demands of different organisational settings and their various work roles.

Guile and Griffiths (2001) argue that vertical and horizontal development cannot be viewed as separate and distinct. Instead, there is a need to build curriculum frameworks that encourage students to create links between different types of learning, work experience, and the cultural, social and technological context. They mention, in particular, three sources of ideas and concepts that might help in thinking about the process of learning through work experience in a new way. First, Vygotsky's (Vygotsky, 1982) ideas on the zone of proximal development and mediation, secondly, the ideas of Lave and Wenger (Lave & Wenger, 1991) regarding situated learning and Wenger's (1999) communities of practice, and thirdly, Engeström's activity theory (Engeström, 2001; Engeström, Y., Engeström, R., & Kärkkäinen, 1995; Tuomi-Gröhn & Engeström, 2003). Guile and Griffiths (2001) appreciate Engeström's approach to analysing work situations in networks that are not stable and demand boundary-crossing between individuals. In such networks, individuals need the ability to make social practices explicit and to develop new kinds of perspectives.

The emphasis that Guile and Griffiths (2001) put on the sociocultural perspective brings to the fore that workplaces are not necessarily transparent. The power relations embedded in the communities of practice do not enable straightforward zones of proximal development. Workplaces do not necessarily have human resource development strategies that engage personnel in students' guidance in order to support their own professional development (Guile & Griffiths, 2001). Nonetheless, the supposition that workplaces are stable and transparent environments where it is easy for students to learn has governed educational policy in Europe lately. This has resulted in the thinking that educational institutions only need to manage the arrangements of the cooperation.

The inadequacy of workplaces in providing support for learning has been recognised in other studies as well. For example, Billett (2002, p. 31) lists the following limitations of learning through work: inappropriate learning, work practices that inhibit access to activities and guidance, knowledge that is not readily accessible at the workplace, difficulties in accessing appropriate expertise and experiences, and workers' reluctance to participate in learning practices.

In conclusion, the core of the connectivity concept, on the individual level, emphasises the guidance of students, which supports their ability of learning to learn, to adopt reflexivity, and to combine learning that takes place in and across different contexts, as well as helping students to develop boundary-crossing skills. The question then remains, what about the other levels of operation and the relations between educational institutions and workplaces. What does connectivity state about these? In the typology that Guile and Griffiths (2001; Griffiths & Guile, 2003) presented in their five models of learning from work experience, the role of the education provider is one key characteristic that differentiates the models from one another. The role of the education provider that has been presented in their model of connectivity concerns issues of curriculum, pedagogy and guidance as individual, dominant characteristics of the other models (see Griffiths & Guile, 2003, p. 72). These individual aspects of provision, facilitation, building and support differentiate the other models from the model of connectivity. These characteristics, typical to the roles of education and training providers of the other models, include: a formal preparation programme (traditional model), briefing and debriefing regarding work experience (experiential model), portfolio of achievements (generic model), and reflecting on action (work process model). When it comes to the model of connectivity, the role of the education and training provider is challenged by the development of partnerships. Otherwise, the role of the education and learning provider has not been discussed much, nor empirically studied. Rather, it seems to be an under-researched theme. As the discussion on the relations of educational institutions and workplaces has been quite restricted and limited to curriculum input, it has been one of the challenges of this dissertation to study that field in more detail.

3.2 The connective model compared to other models

In their formation of the connective model of learning from work experience, Guile and Griffiths (2001) aim to find beneficial features of learning from work experience in order to construct an ideal model of connectivity. The beneficial features they see as desirable to be included in the connective model are based on the standpoints of the sociocultural approach, curriculum theory and developments in adult education. In presenting

the connective model, they contrast its features with four other models: the traditional model, the experimental model, the generic model, and the work process model. These five models were formulated as a result of a research project that was completed under the EU Fourth Framework, Targeted Socio-Economic Research (TSER), in 1997–2000. The research project was entitled *Work Experience as an Education and Training Strategy: New Approaches for the 21st Century*. The research project pertained to the 16–19-year-old age group and examined how models of learning through work experience had been embedded in the curriculum in the United Kingdom, Sweden, Ireland, Spain, Denmark and Hungary (Griffiths et al., 2001).

The five models introduced by the project (Griffiths & Guile, 2003; Guile & Griffiths, 2001) are differentiated on five levels: (i) the purpose of work experience in the programme, (ii) the assumptions about learning and development, (iii) the practice of work experience, (iv) the role of the education and training provider, and (v) the outcome of the work experience. The models were presented as analytical rather than descriptive models. However, their features have been applied in educational programmes in various countries at different points of their economic and technological development. The models do not describe vocational programmes of the time as such, nor do they aim to depict them concretely. Nonetheless, these models have existed and may still exist and co-exist in structuring various parallel educational programmes of different countries. As follows, the four models presented by Guile and Griffiths (2001) are described very briefly, trusting that readers who are interested in the models will familiarise themselves with the original articles:

(i) The *traditional model* of learning from work experience takes sending students to the world of work as a rather unproblematic form of action (Griffiths et al., 2001). Students are launched into working life, they adapt to their work tasks and learn by assimilating new information. The model does not demand much collaborative effort from the educational institution and the workplace.

(ii) The *experiential model* of learning draws on Kolb's ideas of the experiential learning cycle (see also Griffiths & Guile, 2003; Guile & Griffiths, 2001; Järvinen & Poikela, 2000; Kolb, 1984). It gives emphasis to students' interpersonal and social development as well as reflection on action. The model of experiential learning gives privilege to learning that has practical applications, takes place within education–business partnerships and helps students to adjust to changes in the labour market.

(iii) The *generic model* reflects the learning outcomes approach which has become part of vocational education and training in the UK through NVQ programmes,

provided for students aged 16–19 years. It assumes that it is possible to assess learning outcomes without prescribing the forms of learning. The generic model emphasises learner autonomy and learner-centred organisation concerning learning. With respect to learning through work experience, this has required students to design personal plans for work experience placement. Both the planning and process of learning are verified by evidence such as portfolios which teachers have assisted with (see also Griffiths & Guile, 2003; Guile & Griffiths, 2001; Raggatt & Williams, 1999; Virolainen, 2001; Wheelahan, 2009; Wolf, 1995).

(iv) The *work process model* has its roots in the German Vocational Education and Training (VET) tradition with its dual system. Work process knowledge has been introduced in the German context to help apprentices and teachers to figure out what kind of knowledge is needed in work processes (see also Guile, 2006). It has changed the knowledge and skill demands of VET programmes by introducing the need to develop the formal elements of study programmes as well as the work experience that is part of it, giving emphasis to assisting students in tasks and activities, and recognising expected behaviour in the work contexts. It has underlined the need to understand work experience and the meaning of individual tasks in the broader context of the production process. Despite the enhanced curriculum, the emphasis of the model is placed on adjusting or being able to modify working students' performance to meet the requirements of the workplace (see also Boreham, Samurcay, & Fischer, 2002; Fischer, Boreham, & Nyhan, 2004).

Each of the four models elaborated in the project (Guile & Griffiths, 2001) can be interpreted to have produced a novel extension to curricula, that is:

- the context of the world of work (traditional model),
- reflection on action (experiential model),
- self-organisation of learning (generic model),
- understanding the wider context of the workplace as a denominator of the work role (work process knowledge).

While all of the four models can be appreciated with respect to the features they have brought to learning through work experience as part of the formal education, Guile and Griffiths (2001) also criticise these models for their shortcomings. In contrast to these models, the fifth model – the connective model – is presented as an ideal that tries to solve the problems that the previous models, despite their advancements, have not sufficiently dealt with. The connective model by Guile and Griffiths (2001) is presented as an alternative model of learning through work experience. It encompasses paying rigorous

attention to the context of the work organisation as a facilitator of the student's learning and how this context affords 'boundary crossing' and the learner's knowledge expansion. With respect to school organisations, the model sets the target of reformulating the education curriculum to enhance horizontal and vertical learning by facilitating both formal *and* informal approaches to learning. Futhermore, the model underlines that the guidance aims to resituate theoretical knowledge and encourage learners to criticise existing practices. Accordingly, the target of the connective model of learning through work experience is to support learners to create new knowledge in collaboration with others in the workplace by providing guidance and proactively participating in the communities of practice of the workplace (see also Griffiths & Guile, 2003). In the following sub-section, I will elaborate on the background of the concept of connectivity in curriculum theory. I will describe its characteristics in more detail to present what the problems are that the model and concept of connectivity have aimed to solve, and the solutions that these offer.

3.3 Connectivity in curriculum theory

The concept of connectivity introduced by Guile and Griffiths (2001) has its origins in earlier discussions on curriculum theory. In the Finnish context, the concept of connectivity has also been utilised before, but not scrutinised widely (see, e.g., Tynjälä, 2009; Virolainen, 2004; Virtanen, 2013). In particular, few accounts have been given from the viewpoint of how the perspective of connectivity has developed. In this section, the development of the concept of connectivity will be explored through Young's (2008) discussions because he has addressed it from a broader historical perspective. This perspective adds insight to present discussions concerning the development of curricula and the challenge of addressing informal learning as well as the renewal of practices. The discussion on this topic will first be reviewed with regard to the way *connective specialisation* has been defined, and secondly regarding how it is related to the discussion on curricula in the British context (sub-section 3.3.1). Third, the topic of discussion will be reviewed in order to address the classifications of different types of knowledge, such as *everyday knowledge* and *curriculum knowledge,* and how they are related to social divisions (sub-section 3.3.2). After that, I discuss the challenges that the present discussions posit (sub-section 3.3.3).

3.3.1 The background of connectivity in connective specialisation

The need for the term *connectivity* arises from the fact that the production of knowledge takes place in various contexts and networks. Also, students learn knowledge in specific

circumstances that are embedded in myriad webs of social networks, and not only at school. Most importantly, there are networks that are specialised in knowledge production at universities and elsewhere, as well as networks that plan curricula for educational institutions and that choose the knowledge and its related pedagogy to be taught. The term *connective specialisation,* as Young (2008) presented it, tried to capture the need for connecting different types of knowledge formed and learned in different, specified contexts. However, Young did not give advice on how to organise the pedagogy. In addition to being concerned with changing forms of specialisation in regard to the production of knowledge, Young (2008) also addressed the division of labour and how it is related to the construction of knowledge (Guile & Young, 1998; Moore & Young, 2001; Young, 1998, 1999, 2008).

The concept of *connective specialisation* originated in a specific historical context in England as a response to specific research discussions on education (Young, 2008). In the English context, it was related to the unification debate on post-16 education and the modularisation of the curriculum. On the one hand, digital technologies created possibilities for horizontal and non-hierarchical relationships between peers. On the other hand, unification and connectivity, as curricular features, were expected to address the threat of disintegrative tendencies resulting from specialisation and the division of labour, as has already been identified by Durkheim (Young, 2008). In the English context, the idea of connective specialisation was related to the idea of a unified curriculum, introduced in the 1990s, which was to involve:

- a modular structure enabling the locating of modules within a single set of levels,
- subject and field specifications expressed as modules that could be combined,
- rules for students on how to combine and group modules, and
- a compulsory core curriculum of "connective" knowledge and skills for all students (see Young, 2008, p. 168).

The distinction between *insular and connective specialisation* was introduced to differentiate between various curricular dimensions and to capture some of the underlying tensions and contradictions in curriculum debates. This distinction further appeared as a tool to link these debates to changes in divisions of labour, including relationships such as:

- the learner's own everyday knowledge and curricular organisation,
- tacit knowledge acquired in any context versus codified knowledge organised in curricula,
- component parts of the curriculum and the curriculum as a whole,
- knowledge taught at school versus workplace knowledge acquired through work experience, part-time jobs or work placements (Young, 1998, 2008).

While criticising the idea of the unified curriculum based on the principle of connective specialisation as it was depicted in the English context then, Young (2008) underlined the need to consider the social basis of connectivity. He questioned whether a modular unified curriculum, as proposed, would provide a solid social basis and construct professional identities. Rather than utilising modularisation and unification as curricular principles, Young (2008) suggested to begin with specialists as teachers in academic subjects and occupational fields and their collaboration with other specialists. This was expected to develop new cross-disciplinary forms of specialisation (Young, 2008).

The challenges of the vocational curriculum were later discussed in terms of the concept of dual recontextualisation used by Barnett (2006; see also Young, 2008, p. 170). Barnett (2006) suggested that a dual recontextualisation of the vocational curriculum involves two processes. Firstly, the *professional* recontextualisation of disciplinary knowledge, such as of physics for engineering. Secondly, the *pedagogic* recontextualisation of professional knowledge, that is, the sequencing of professional knowledge. This implies paying attention to the differences between groups of learners and their current knowledge and skill levels, and between workplaces as learning environments.

The recontextualisation of knowledge taking place in curriculum development was later developed further by Evans et al. (2010, 2011) and it will be discussed in more detail in subsection 3.4.2.1. Their model succesfully theorises and underlines the phases of resituating knowledge in the process of learning. While their approach focuses on the recontextualisation of knowledge in the curriculum and by learners, it does not address issues of social division related to knowledge production in particular. Young (2008), on the contrary, explores how divisions of labour and participation in knowledge production are related to identity construction. This aspect of participation in knowledge construction is discussed in more detail in the following section (3.3.2), utilising particularly Young's (2008) discussions on the issue, and later by developing some aspects of his framework (section 3.4.1).

3.3.2 The problem of knowledge as a constituent of the vocational curriculum

In investigating how knowledge construction, curriculum building and social divisions of labour are related to one another, Young (2008) has explored the ideas of Bernstein, Durkheim, Engeström and Vygotsky. Although all of these authors address these relations, Young finds their approaches somewhat unsatifactory. I will now first elaborate how Young (2008) perceives these authors to have approached the relation between knowledge construction and social divisions of labour and why he posits social realism as an epistemological starting point for curriculum building. After that, I will discuss the issues

that demand further elaboration with respect to the present understanding (sub-section 3.3.3). These concern in particular participation in several more or less knowledgeable communities and the challenge this posits regarding identities. Thereafter (sub-section 3.4.1), I will present an elaborative model of the types of learning and social divisions related to knowledge construction, utilising the conclusions drawn by Young (2008). Furthermore, I will address how recent discussions have addressed the issues of boundary-crossing and recontextualisation (sub-section 3.4.2).

Young (2008) argued that Durkheim's distinction between "profane" and "sacred" knowledge provides a basis for deeper understanding concerning the insular nature of the social production of knowledge. Durkheim made this distinction on the basis of anthropological studies on primitive societies and how tribes classified their knowledge. Among the observed tribes, knowledge was related to either the profane, everyday world, or to a sacred, collective world of religion. On the one hand, *sacred, religious beliefs* were based on collective representations and attributed an objectivity that was seen to be independent of individual perceptions (see Young, 2008, p. 41). On the other hand, *profane knowledge* was rather particular, related to practical issues at hand, for example, using tools or gathering food, that is, in molding nature in everyday life (Young, 2008).

While Durkheim's view of knowledge is rather static and not explanatory of knowledge development, Bernstein and Vygotsky describe a framework for the changes in the types of knowledge in societies. According to Young (2008), Bernstein draws on Durkheim's distinction between sacred and profane knowledge. Bernstein distinguishes between vertical and horizontal knowledge structures to depict the differences between disciplinary and everyday knowledge. Unfortunately, also in Bernstein's distinction, the relations between classifications remain unclear. In a similar manner, his view of scientific knowledge as a resemblance of vertical knowledge is also too idealistic and generalised with respect to all types of knowledge. However, Bernstein's strength is that he treats educational knowledge, the selections that are made for it and its sequencing into curricula, as an object of thought in its own right. In addition, Bernstein views the classification structures of educational knowledge to be consequential with respect to identities. The classification structures of knowledge are inclusive and exclusive in their hierarchical ordering. Access to knowledge differs between groups of people and produces knowledge relations and identities (Young, 2008).

Differing from Bernstein, Vygotsky refers to Piaget and his distinction between spontaneous and scientific concepts (Young, 2008). According to Young (2008), Vygotsky's theory has an advantage over that of Bernstein. It provides a framework for different types of learning and their sites. Young (2008) has elaborated this framework as a table (see Table 1). In Table 1, a move from (1) to (3) would mean a move from the routine use of everyday concepts to a reflexive use of everyday concepts.

Table 1. *Young's Model of Types of Learning (2008, p. 53)*

Site of learning	Out of school		In school	
Types of concepts / Use of concepts	Everyday	Scientific	Everyday	Scientific
Routine	1	2	5	6
Reflexive	3	4	7	8

Similarly, a move from (1) to (4) would mean a move from the routine use of everyday concepts to a reflexive use of scientific concepts[3]. Despite Vygotsky having explored the distinctions between scientific concepts and everyday concepts, Young (2008) finds his approach too narrow for thinking about their relations to curricula. For Young (2008), Vygotsky's theory has two major shortcomings. First, it gives little attention to the transitioning between everyday and scientific categories of knowledge, and between school and other contexts of learning (Table 1, categories 1–8). Second, and this problem he sees also in the work of such a post-Vygotskyan as Engeström, the development of knowledge is described to form according to the dialectic logic presumed to take place in any productive activity. In line with this kind of thinking, it is presumed that knowledge generation in any field takes place according to the dialectic method, proceeding from perceptually concrete phenomena to substantial abstraction. Accordingly, everyday thinking would have the same theoretical potential as purposefully elaborated concepts of science. Young (2008) finds this approach problematic with respect to curricula. Its view of knowledge is methodological and not substantive, that is, it does not acknowledge scientific knowledge as standing independently on its own. Young defends the meaning of context-independent scientific knowledge for the curriculum by further arguing that the boundaries of knowledge communities resemble the primitive clans that Durkheim observed. He claims that from a Durkheimian perspective, curricula should enable access to context-independent knowledge. The context-independence criteria of scientific knowledge is important because it is a characteristic that separates scientific knowledge from everyday knowledge: (i) generalisations and explanations are not only based on or valid for singular cases, and (ii) acquiring scientific knowledge enables abstraction and the power to imagine alternatives (Young, 2008, p. 166).

In discussing the meaning of different categories of knowledge (scientific vs. everyday knowledge) for the curriculum, Young adopts social realism as his epistemological standpoint, (Young, 2008; see also Moore & Young, 2001; Muller, 2000; Young, 1999,

[3] The meaning of these categories will be discussed in more detail later, in section 3.4.1. Young (2008, p. 53) does not elaborate the categories individually.

2000, 2003). In their co-authored article, Moore and Young (2001, p. 450; see also p. 456) argue that *"it is the social nature of knowledge that in part provides the grounds for its objectivity and claims to truth"* (referring to Collins, 1998). The argument was made in a context where the authors wanted to separate themselves from relativist epistemological positions taken by some postmodernists. Moore and Young (2001, p. 452) believe that postmodernist views of the inseparability of knowledge and "knowers" have been used to challenge the claim that natural sciences could *"provide access to a truth that is outside society and history"*. By distancing themselves from the relativist epistemology, Moore and Young participate in the discussion on scientific realism and conceptions of social construction, and posit themselves as realists (for *scientific realism*, see also Boyd, 2002; Chakravartty, 2011; Niiniluoto, 1999).

These arguments concerning social realism are also of importance in my further development of the role of knowledge in vocational and professional curricula and its relation to different types of learning (section 3.4). In the following section, for further elaboration of the issue of choosing and combining different kinds of knowledge and practices into a curriculum, I discuss the focal points of the challenges that the previous debates have set.

3.3.3 Present challenges for the recontextualisation of knowledge in vocational and professional education and for building a curriculum

On the whole, the concept of connectivity can be understood as a metaphor (Young, 2008). It brings up the problem of relating theoretical and practical learning to each other and organising them into a curriculum. In attempting this, there is a need to make choices regarding the types of knowledge and skills to develop, as well as to determine the "right" theory for a curriculum. The chosen approach should provide a key to vocational and professional learning/practices in the professional tasks at hand (Young, 2008).

The expertise of networks of specialists is crucial in defining the suitability of knowledge for a curriculum (Young, 2000, 2009). While information technology is making all sorts of information available and shareable through various peer networks, the status of scientific knowledge included in curricula is at stake. Students question the authority of teachers as "knowledge passers". For example, a group of so-called "trendsetter learners" has been recognised (du Bois-Reymond, 2004). These trendsetter learners are critical about the gap between theory and practice in formal education and their teachers' attitudes toward them. Therefore, they focus on learning outside formal educational institutions (see also Brooks & Everett, 2008; du Bois-Reymond, 2004). These changes underline the need to make the moves between knowledge categories explicit (Young, 2008).

Since learning is increasingly seen as the construction of identitities (Lave & Wenger, 1991; Billett, 2002; Beach, 2003) this aspect of learning also needs to be addressed in the theory of curriculum. In line with this discussion Young (2008) suggests that participation in communities of practice that are involved in knowledge construction generates identity construction. Participation in communities of practice and knowledge production produces a quest for identification. It demands that learners differentiate themselves with respect to social categorisations and power relations: who am I with respect to these groups; do I belong to or do I separate myself from this group, and if so, in which respects? For example, learners can choose to become disengaged learners who are not interested in what is taught in formal education (Bright, 2011; Colley, James, & Diment, 2007; Willis, 1984). Learners have to negotiate their identity in accordance with respectable professional practices and the social status of the profession, partially agreeing to and partially separating themselves from the existing practices or criticising them, or they can disidentify themselves from them (e.g., Colley et al., 2007; Ecclestone, 2009). Still, they have to act within the hierarchies of the work organisations' economic and occupational conditions. In this sense, their agency is "bounded" because it is still dependent on structurally governed factors such as their social class, ethnicity and gender (Eteläpelto, Vähäsantanen, Hökkä, & Paloniemi, 2013; Evans, 2002, as cited in Ecclestone, 2009).

Although Young (2008) has successfully addressed the meaning of participation in knowledge-constructing communities of practice, he does not in particular discuss the challenges that participation in multiple knowledge communities have posed for identity work. Other recent research has pointed out that there have been several changes taking place in societies with respect to identity work. These changes have been partly discussed in terms of Western society's entering an era of "institutionalised reflexivity", as Giddens (1990) has called it. As an outcome of individualisation and massified higher education, having a higher education is not necessarily anymore a guarantee of high social status in later life (Beck, Giddens, & Lash, 1994). Identity work involves everybody, despite social classes having been persistent in determining individuals' learning trajectories (Nori, 2011; Quinn, 2010). Concerning learners' future horizons, being an acknowledged agent in one community and in one workplace has been replaced with uncertainty. Networked participation in short-running patchworked communities of practice has become a widespread model and trait of present day careers. Accordingly, individuals have to construct and reconstruct multiple identities with respect to virtual and real-life communities. Their identity constructions are constantly challenged by the multiple roles in which they have to act over the course of their life (see, e.g., Eteläpelto, 2008; Eteläpelto & Saarinen, 2006; Quinn, 2010). These identities draw on available cultural narratives which are more or less classed and gendered (Ecclestone, 2007; Ecclestone, Biesta, & Hughes, 2010; Fenwick, 2006a).

In conclusion, the existing debate on connectivity posits a further challenge when considering the factor of participation in multiple knowledge communities and its relation to knowledge production and processing. Having criticised the classic predecessors, Young (2008) does not elaborate further on the issue of resituating knowledge in the curriculum, nor does he entirely settle the difficult question of its relation to social divisions. Recently, Evans et al. (2010, 2011) have continued developing the framework of recontextualisation taking place in curriculum development (see section 3.4.2.1). However, they do not address the issues of social division related to it in particular. Therefore, in the following section, I will first address the issues related to social divisions with respect to knowledge construction by presenting a model based on what Young has already presented, utilising Vygotsky's views on different types of learning (Table 1, section 3.3.2). Thereafter, the issues of the resituating of knowledge and boundary-crossing are discussed further.

3.4 Revisiting boundaries where connectivity is challenged

In this section, I explore opportunities for developing the concept of connectivity. In order to do this, I have elaborated the types of learning presented by Young (2008, see section 3.2.2, Table 1) in a classification based on Vygotsky's work. Furthermore, I reflect on the four modes of recontextualisation presented by Evans et al. (2010, 2011), and on the discussion on boundary crossing reviewed by Akkerman and Bakker (2011). The aim of these explorations is to reflect and search for areas of research that might help in developing and redefining the concept of connectivity further.

3.4.1 Types of learning and the construction of concepts

The concept of connectivity as Young (2008) presented it, was devised to bring up some challenges that the traditional, insular curriculum was bound to meet due to the changes that had taken place in society. Due to the shift toward a knowledge society, schools do not play the role of the one and only dominant knowledge deliverer in citizens' lives any more. The roles of peers, family and media in learning have been acknowledged. At the same time, occupational roles have changed to meet the shifts in work roles that are contextualised by the global market economy. As a result, the right to define which knowledge is worthwhile, relevant, correct and meaningful to learn is not self-evidently left to disciplinary experts. Rather, it is questioned by learners, teachers, society and the labour market.

In Table 2, as follows, I have elaborated Table 1, which I adopted from Young (2008, p. 53) in order to put more emphasis on the networks that produce knowledge and pursue

curriculum planning. By the way of this explication, I would like to underline the fact that learning is not organised in every context, it is not systematically structured vertically or horizontally. The distinction between vertical and horizontal knowledge structures made by Bernstein has already been criticised by Young (2008): knowledge structures of all fields do not follow a similar pattern that would be easily divided into two dimensions (horizontal or vertical). The organisation of knowledge in some sciences, like sociology, may appear to critics to be more horizontally structured, but the history of sociology as a science and its related development of concepts and theories give structure to it. That structure may be considered vertical, and deepening in the domain. The core structure of the domain may be pictured as vertical or horizontal, metaphorically. There are both deeper and more superficial ways of being an expert in a domain and being a connoisseur of a domain's core corpus.

Young (2008) refers to the role of disciplinary experts in producing knowledge and making choices regarding curricula. He also discusses the question of power related to these interest groups, but focuses on the use of concepts in and out of the school context. Widening the table, as I have done in Table 2, with the lines related to the 'I. Production of concepts' (in scientific communities) and 'II. Organisation of concepts in curriculum planning' underlines the differences between the specialist networks. There are differences in their knowledge production and participation in curriculum development, as well as in their relations to disciplinary, transdisciplinary and everyday versus scientific knowledge. In order to do this, I have adopted Young's 'Use of concept' (Young, 2008, p. 53) as a third sub-category of 'Steps of processing concepts', as an addition to the first two sub-categories of 'I. Production of concepts´ and 'II. Organisation of concepts in curriculum planning'. In doing so, I want to bring attention to the challenges of the network society in recognising the differences in knowledge and concepts produced by many kinds of experts in various contexts. The importance of recognising the differences between groups producing concepts and knowledge increases when scientific concepts chosen from the overall groups are organised into disciplines and shown side by side with everyday concepts. This is also done, for example, in traditional newspapers and social media for various aims of argumentation.

Furthermore, in science, the differentiation between Mode 1 knowledge, that is, the traditional disciplinary knowledge, and Mode 2 knowledge, which is carried out and produced in the context of its application, has become more important (Gibbons et al., 1994). It has been stated that Mode 2 knowledge is problem solving oriented, and it is transdisciplinary in that it is concerned with both empirical and theoretical components. Furthermore, it is produced through a multidisciplinary, participatory process in a reflexive and dynamic manner. It nevertheless interacts with Mode 1 knowledge and its production (Gibbons et al., 1994; see also Ramos-Vielba & Fernández-Esquinas, 2012).

As follows, I explain Table 2 in more detail. First, I give examples of the (I.) Production of concepts in differing contexts (institutionalised and contingent settings), and (II.) Organisation of concepts in curriculum planning (systematic versus spontaneous organisation of everyday and scientific concepts). Lastly, I address their (III.) Use out of school and in school.

Institutionalised production of everyday concepts refers to associations or other semi-formal organisations as producers of everyday concepts (Table 2, number 1), in contrast to scientific communities. These concepts might, for example, be developed in relation to tools or equipment used in a hobby. If the action related to the hobby (sport, etc.) is developed systematically, the everyday concepts may form a group of new concepts referring to the form of action (a new sport). The concepts related to hobbies or activities of voluntary organisations may also be contingent if they are created by single, occasional users and do not get generalised by the group (Table 2, number 5). In such a situation, the production of concepts would be similar to what Durkheim referred to by types of knowledge that primitive societies had developed as practical knowledge to survive through everyday practices.

The production of institutionalised scientific concepts outside of school (outside of

Table 2. *Types of Learning (elaborated from Young, 2008, p. 53, see Table 1)*

Construction of concepts		**Site of learning**			
		Outside of school (workplace, lifeplace, media home, peer group, non-governmental organisations, associations)		*In school*	
Steps of processing concepts / Types of concepts		Everyday	Scientific	Everyday	Scientific
I. Production of concepts	Institutionalised Contingent	1 5	2 6	3 7	4 8
II. Organisation of concepts in curriculum planning	Systematic Spontaneous	9 13	10 14	11 15	12 16
III. Use of concepts	Routine Reflexive	17 21	18 22	19 23	20 24

universities and their faculties; Table 2, number 2) may take place in established research institutes that have a somewhat autonomous standing. For example, medicine companies might develop novel ways to cure diseases. Likewise, they might find phenomena that are relevant for improving their understanding of a disease and creating new medicines to cure it. Also, information technology (IT) companies might create technologies in a rather institutionalised manner. The boundary between institutionalised and contingent scientific concepts is rather vulnerable, and it is questioned by traditional science institutions. A concept may remain in a contingent position until it is accepted, approved and its use is institutionalised (Table 2, number 6). The status given to such concepts would be dependent on other interest groups, like universities, and other associations or networks of expertise who would acknowledge their value.

The production of scientific concepts at school refers to faculties and workshops at universities as producers of concepts (Table 2, numbers 3, 4, 7, 8). When they are producing scientific concepts, theories, and explanations, they make science. This work may be innovative and sporadic (Table 2, number 8), but also an outcome of very institutionalised practices (Table 2, number 4). Also, in faculties, the everyday understanding and theories of praxis are used as an explanation and source of understanding in regard to the latest scientific theories (Table 2, numbers 3 and 7). This kind of usage may become institutionalised, but it may also remain rather contingent.

The next step in the processing of concepts, their adaptation and integration as a shared knowledge base is their *organisation into a curriculum*. This phase is the area where the differentiation of informal, non-formal and formal learning takes place. Learning may take place at school, as a result of systematic curriculum planning (Table 2, number 12). Teachers may use scientific concepts spontaneously alongside the actual curriculum in order to explain something that students have asked (Table 2, number 16). Also, at school, everyday concepts may be used systematically to explain something better (Table 2, number 11) or they can be used spontaneously to elaborate the subject in focus (Table 2, number 15). Scientific concepts may be applied outside of school, for example, by trainers or instructors in hobbies like sports, systematically or spontaneously (Table 2, numbers 10 and 14). They may even be structured according to a curriculum, for example, as part of a sports training programme. Likewise, the application of everyday concepts or even the purposeful use of non-scientific models for explanation may be systematic or spontaneous outside of school, for example, in religious or marketing groups and clubs (Table 2, numbers 9 and 13). The difference between using scientific concepts spontaneously rather than systematically, both in and out of school (Table 2, numbers 14 and 16 vs. 10 and 12), is that the spontaneously introduced concepts are adopted in a rather insular manner. They are not presented as part of a curriculum or programme, which would make them identifiable as part of a larger body of knowledge.

The final step in the *processing of concepts*, regardless of the learning context, is their application. The application of concepts may take place as a matter of routine or with reflection, depending on which concepts are used, why and how. When this reflection takes place at school, and the types of concepts used for this purpose are scientific, it may result in innovative new approaches and ways of looking at existing practices (Table 2, number 24). If the concepts are used only as a matter of routine and adapted as such, as a basis for learning, then the outcome is likely to be ordinary learning (Table 2, number 20). Alongside scientific concepts, everyday concepts are used routinely or reflectively (Table 2, numbers 19 and 23). Out-of-school use of everyday and scientific concepts is a result of their adaptation, but they may be used routinely or reflectively in the way that scientific concepts are used at school (Table 2, numbers 17, 18, 21 and 22). The planning and methodical consciousness that has been applied in choosing what shall be learnt according to a curriculum or learning programme is what differentiates the organisation of concepts in curriculum planning and their use.

3.4.2 Developing the concept of connectivity

In this section, I bring up some of the major points in the model of connectivity proposed by Guile and Griffiths (2001) and examine Young's (2008) version of the concept of connectivity. Secondly, I will suggest development ideas for future research on themes relating to connectivity that are discussed in this dissertation.

The major difference between the model of connectivity described by Guile and Griffiths (2001) and the concept of connectivity described by Young (2008) is that Young places much more emphasis on the curricular questions. Guile and Griffiths (2001) underline educational practices. By educational practices, I mean, on the one hand, the guidance of students. Guile and Griffiths (2001) underline student guidance by utilising the concept first presented by Vygotsky, that is, "zone of proximal development". On the other hand, they speak of the need to develop "boundary-crossing skills", referring to learners' need to cross boundaries of knowledge and work communities, in other words, to aim for expansive learning. The concept of boundary crossing referred to by Guile and Griffiths (2001) has been presented, for instance, by Engeström (2001; Engeström et al., 1995; Tuomi-Gröhn & Engeström, 2003; Tuomi-Gröhn, Engeström, & Young, 2003).

Since Young (2008) saw connectivity as a rather metaphoric and limited concept with respect to pedagogy, he adopted the concept of dual recontextualisation from Barnett (2006). Dual recontextualisation involves professional and pedagogic recontextualisation. The first kind of recontextualisation refers to the need to recontextualise disciplinary knowledge in the vocational curriculum. The second kind of recontextualisation refers to

the need to plan the sequencing of professional knowledge, paying attention to learners' background.

Both the concepts of recontextualisation and boundary crossing have remained a focus of research. With respect to recontextualisation, the discussion on the challenges of recontextualisation has been continued by Evans et al. (2010, 2011; see also Carpentier, Pachler, Evans, & Daly, 2011). The learning potential that boundary crossing generates has been further explored by Akkerman & Bakker (2011).

In fact, these developments depict the emerging of a research arena that is an outcome of the increasing role of new knowledge in all vocational and professional positions (e.g., Hakkarainen, Palonen, Paavola, & Lehtinen, 2004). Knowledge work has become more important, independent of the experience of the agent with respect to the task at hand. The research arena conceptualises the ways of acquiring, constructing and sharing new knowledge within workplaces and at the interaction of work and school life. Accordingly, other researchers have also presented frameworks, models and distinctions to capture knowledge processes. For example, Tynjälä (2009) has presented a model of integrative pedagogy that describes the central elements that demand integration in expert work: theoretical knowledge, practical knowledge, and self-regulative knowledge (see also Eteläpelto, 1997). In addition, Eraut (2011, p. 187) has, in his typology of early career learning, discerned ways of learning that are typical for novices. He differentiates three ways of learning: (i) work processes with learning as a by-product, where the learner is participating in the work processes and learns alongside the work; (ii) learning actions located within the work or learning processes, where the learner is the agent of learning and actively looks for ways to expand his or her understanding; and (iii) learning processes at or near the workplace, where the learner is the object of a more or less formally planned and goal-oriented knowledge sharing.

In the following section, I will further investigate, although briefly, two developments related to the concept and model of connectivity in particular: the modes of recontextualisation and boundary crossing.

3.4.2.1 The four modes of recontextualisation

The discussion on the recontextualisation of knowledge has been developed by Evans et al. (2010, 2011). A recontextualisation of knowledge takes place when knowledge is constructed to ultimately become a part of individuals' personal competence, to be utilised in practice. Evans et al. (2010, 2011) present the recontextualisation of knowledge as a four-mode phenomenon. Their four modes involve recontextualisation regarding content, pedagogy, the workplace, and the learner.

First, there is *content recontextualisation* (CR), which refers to the process whereby knowledge produced in a scientific discipline, or within a scheme of another research and development institution, is adopted to become part of a formal learning programme (Evans et al., 2010, 2011). This is the task of the designers of a learning programme. The CR involves the selection, simplification and customising of content. Secondly, when the mode of *pedagogic recontextualisation* (PR) is considered, there is a need for making pedagogic choices and organising learning activities within the programmes (Evans et al., 2010, 2011). Pedagogic recontextualisation is the part of recontextualisation where practical examples are combined with disciplinary knowledge that goes beyond specific jobs and tasks. The practical examples can be rooted, for example, in local corporate experience or chains of marketing. Thirdly, *workplace recontextualisation* (WR) takes place in the actual workplace (Evans et al., 2010, 2011). Workplace recontextualisation is guided by mentors, that is, coaches and other arrangements that are designed to help a novice to find out about the workplace activities and norms of conduct. In the workplaces, the challenges of recontextualisation are embedded in the participation in workplace activities and the more or less routine use of protocols of artefacts. Fourthly and finally, there is the *learner recontextualisation* (LR) (Evans et al., 2010, 2011). Learner recontextualisation refers to when novices or experts take their own former experience and cohere it with their new experiences. This process of convolution may include distancing oneself, showing resistance, expressing criticism, and the development as well as acceptance and approval of one's own earlier habits and behaviour. LR is the mode of developing a professional identity. It entails self-assessment as well as the interpretation of feedback.

Evans et al. (2011; Carpentier et al., 2011) have remarked that the theorisation of these four multifaceted modes of recontextualisation draw on two sources of literature in particular. Firstly, it draws on the development of Bernstein's (2000) idea of considering the transformation of the concepts. He emphasised that concepts change as they become part of a curriculum. Secondly, van Oers (1998) has pointed out that while concepts are an integral part of practice, the practices themselves vary from one workplace to another. In his study on children's play, the developing of new activities was considered to be dependent on the creation of a new context. Where playing developed toward more abstract forms, it was a result of *continuous progressive recontextualisation*. Eventually, the meaning of concepts receives a different emphasis in different contexts (Carpentier et al., 2011; Evans et al., 2011).

The focus of the four modes of recontextualisation, according to Evans et al. (2010, 2011), is on how the recontextualisation of knowledge takes place in work-based learning or workplace learning adopted as part of planned learning programmes. It gives privilege to learning in acknowledged, accredited learning programmes. Still, it underlines the importance of context, how the use of knowledge as part of different practices in various

contexts changes it, and the role of the learner as the "recontextualiser". Their presentation has its origin in the UK context of vocational education. Their description of the modes of recontextualisation concern learning at the workplace or work-based learning, but leave aside most of the questions related to other forms of lifeplace learning and their meaning with respect to the learner's identity. The theme of informal learning was acknowledged in the model of connectivity (Guile & Griffiths, 2001), but it is left more unproblematised in the four modes of recontextualisation. In its emphasis on planned learning programmes, it neglects such learner groups as the "trendsetter learners", that have been referred to by du Bois-Reymond (2000, 2004). Trendsetter learners can be pictured as a somewhat asocial group, because these learners do not acknowledge that there could be an unambiguous body of knowledge defined in a curriculum that could be worth knowing. Similarly, they do not necessarily accept the position of experts as self-evident (see, e.g., Charisius, Friebe, & Karberg, 2013). At least, they distance themselves from any part of such a defined curriculum and hierarchic standpoint.

The categorisation that I have presented in section 3.4.1, in Table 2, may help in understanding these kinds of shifts between knowledge categories and the relations of learners to the types of knowledge and knowledge production. It gives tools for identifying shifts between formal and informal contexts and the relations of communities of practice to knowledge production. Compared to the modes of recontextualisation, the *organisation of concepts* presented in my categorisation (Table 2) is related to content and pedagogic recontextualisation (CR and PR). The *use of concepts* (Table 2) is related to workplace and learner recontextualisation (WR and LR). The model presented in Table 2 points out and underlines the fact that the border between scientific and other concepts is in practice permeable, and many kinds of concepts are used in parallel and intertwine to construct relevant narratives that help to guide practices.

3.4.2.2 Boundary crossing

Boundary crossing is the concept that has been used to refer to the continuation of knowledge or activities from one context to another (Akkerman & Bakker, 2011). In other words, it concerns the shift in or translation of cognitions and skills from one sociocultural work or professional community to another. According to Akkerman and Bakker (2011), a boundary is the marker of the border where persons are in transaction between two or more communities. These communities have a culture of their own. People need to interact across different sites to cross the border. When tools are used in order to help to communicate the differences between sites, they are referred to as "boundary objects" (Akkerman & Bakker, 2011).

In their review article, Akkerman and Bakker (2011) relate the conceptualisation of boundary crossing to two learning theories, namely the (i) *cultural–historical activity theory of expansive learning*, and the (ii) *situated learning theory of communities of practice*. Well-known proponents of the former are Engeström (2001), and of the latter, Lave and Wenger (1991).

The reason that questions related to boundary crossing have gained increasing interest from researchers, are problems related to communications and learning arising in multiprofessional communities of practice (Akkerman & Bakker, 2011). Multitasking, patchworked groups of professionals combining the expertise of several fields have become more common in our networked society. The need to communicate your professional view of "the case studied" to other professionals coming from totally different educational backgrounds poses a challenge. It demands framing the case with concepts that different parties can understand and presenting the reasoning behind your professional decision making.

Akkerman and Bakker (2011) refer to communication theories and social sciences as the two scientific areas that have given rise to research on boundary crossing. They remark that in communication theory, more attention has been paid to the meanings of concepts and words being interpreted in very different ways by different people. In social sciences, boundary issues have received more attention as a result of a growing interest in marginalised groups be they related to class, gender, or ethnicity with respect to the power of the centre. In contrast, in educational sciences, the questions related to boundaries owe to the discussion on *transfer* (ibid.). Akkerman and Bakker (2011) state that studies on transfer find it hard to come to terms with the differences between communities of practice, more so than do studies on boundary crossing. In discussions on transfer, the differences between communities of action, such as school and work communities, are seen as rather problematic, whereas discussions on boundaries emphasise the overcoming of discontinuities. In the studies on boundary crossing, the process of addressing sociocultural differences is rather seen as an empowering opportunity for learning in itself (Akkerman & Bakker, 2011).

As an important concept for understanding, what is happening in boundary crossing, Akkerman and Bakker (2011) suggest the concept of *dialogicality*, as presented by Marková (2003, 2006). Marková has defined the meaning of dialogue in human interaction as crucial for communicating meanings between persons. This communication of meaning is needed in regard to all human symbolic activity, not only concerning what is expressed in words, be it written or orally expressed. The starting point for the need to communicate meaning is the difference between interpretations.

As a result of their review of studies on boundary crossing, Akkerman and Bakker (2011) have presented an overview of the mechanisms that are at work in dialogues

related to boundary crossing. In their overview, they have presented what kind of dialogical learning mechanisms take place in boundary crossing. In addition, they have paid attention to how the dialogical learning mechanisms function at work when boundary crossing occurs, that is to say, what is characteristic of them. According to their review, research on boundary crossing has covered the mechanisms of *(i) identifying, (ii) coordinating, (iii) reflecting, and (iv) transforming the discontinuities of conceptualisations* from one community of practice to another (see Table 3). They identify several characteristic processes in regard to each of these four mechanisms.

Firstly, learning at the boundaries has been described to take place through the mechanism of *identification* (Akkerman & Bakker, 2011). Identification concerns the sites, identifying their core identity by questioning their diverse practices. The identification of differences leads to renewed insight. The boundaries of organisations' or professionals' work are recognised and reconstructed. The encounter invites participants to *"a renewed sense-making of different practices and related identities"* (Akkerman & Bakker, 2011, p. 143). When practices of one site are seen in a different light than another site's practices, a process referred to as "othering" is taking place. In the case that a "*legitimate coexistence*" takes place in the identification, groups of professionals from different organisations define their identities and shared identities on the basis of the project as part of which the organisations collaborate in a network (Akkerman & Bakker, 2011).

The characteristic processes related to the dialogical *learning mechanism of coordination* involve seeking means to cooperate work across the sites of the communities (Akker-

Table 3. *Overview of Dialogical Learning Mechanisms and Their Characteristic Processes of Boundary Crossing (adopted from Akkerman & Bakker, 2011, p. 151)*

Dialogical learning mechanisms	Characteristic processes
Identification	"Othering" Legitimate coexistence
Coordination	Communicative connection Efforts of translation Increasing boundary permeability Routinisation
Reflection	Perspective making Perspective taking
Transformation	Confrontation Recognising shared problem space Hybridisation Crystallisation Maintaining uniqueness of intersecting practices Continuous joint work at the boundary

man & Bakker, 2011). This may demand the establishment of a *communicative connection* through various media in order to exchange the information needed. Secondly, it may demand *efforts of translation* that help representatives of different organisations to understand what is meant by the other party. Occasionally, coordination of the operation between two parties happens smoothly as a result of *increased boundary permeability*. Increased permeability is taking place when new practices are adopted and managed repeatedly without problems. As a result of repetition, the new practices may become routinised and automatised. When the coordinating of practices becomes automatised, the fourth process of coordination, that of *routinisation* occurs. Coordination as a mechanism of learning across boundaries emphasises the overcoming of boundaries between representatives as well as the facilitating of future exchanges (Akkerman & Bakker, 2011).

The third dialogical learning mechanism that may take place in boundary crossing is *reflection*. Akkerman and Bakker (2011) found two forms of reflection in their study: perspective making and perspective taking. *Perspective making* means explicating one's own knowledge and understanding of a common object of work or of a work process. *Perspective taking*, on the other hand, is about assimilating others' view of the world and looking at one's own work through their eyes. Both processes demand the creation of a new perspective by the "reflector", they are dialogical by nature, and they do not take place by simply copying the views of others (Akkerman & Bakker, 2011).

The fourth dialogical learning mechanism that Akkerman and Bakker (2011) found is *transformation*. They suggest that studies that have investigated transformation processes have usually concerned interventions, where new practices have been created. A process of transformation is possible when a *confrontation* occurs. It entails coming across a problem or encountering a discontinuity that has to be acted upon, such as when something is not running smoothly between parties. Being confronted with disruptions, estranged perceptions and irritating features relating to the work process can lead to the recognition of a common problem. The needed transformation of current practices can be directed toward a "*shared problem space*" that is the result of a confrontation or other dialogical origin. When the problem has been confronted and a space for its solving has been organised, the parties can engage in a creative problem-solving process. The outcome of the creative process can be the emergence of a new hybrid, cultural form of action or product. *Hybridisation* combines different approaches, tools or organisatory solutions into new hybrid entities. *Crystallisation* is the positive outcome of a transformation where the newly created form of action is adopted and used. Crystallisation is not a self-evident outcome of every transformational process. Rather, in many developmental projects, the lack of it has shown how difficult it is to actually change existing practices. In the process of transformation, something that resembles a legitimate coexistence may take place. Namely, the established practices of a familiar field may be reinforced. When this hap-

pens, the *uniqueness of the intersecting practices is maintained*. Finally, the parties or work groups aiming at boundary crossing may commit themselves to continuous joint work if they want to maintain the fruitful process of transformation (Akkerman & Bakker, 2011).

Akkerman and Bakker's (2011) overview, however, does not analyse the types of knowledge that are at work in dialogical learning. As Young (2008) already noted, the sociocultural approach, which has provided an important basis for boundary crossing research, does not make distinctions between groups of knowledge production. In a similar manner, Akkerman and Bakker's (2011) approach to mechanisms of boundary crossing leaves aside power issues that may exist between professional groups. These issues often arise tacitly, in communication. Research that combines the analysis of shifts between knowledge categories in the manner pictured in Table 2 with Akkerman and Bakker's (2011) analysis of dialogical learning mechanisms might be fruitful in addressing the issues of power groups and knowledge work. The legitimate basis for argumentation may vary. The legitimacy may be based on scientific or other argumentative reasoning, such as on agents' status in their organisation's hierarchy. Therefore, identifying the way that different sources of knowledge are used in identifying, coordinating, reflecting and transforming the discontinuities between communities of action might enable new viewpoints in professional learning at the boundary of work and (higher) education. It might enhance the understanding of how the various discursive positions are embedded in the boundary work, and which rhetorical positions are more or less useful for the building of a bridge between communities.

3.5 Summary of the theoretical framework

In the previous sections of this chapter, I have explored the concept of connectivity, its origin, and some theoretical starting points that might provide a deeper understanding of the issues at hand, that is, internships, their curriculum, and how they are formed through the collaboration of agents such as UAS teachers, employers and students. In presenting the theoretical background, I have placed special emphasis on how knowledge is constructed and co-constructed in the interplay of various actors (Tables 1 and 2). In doing so, I have elaborated the discussion on the construction and co-construction of knowledge in multiple contexts and the meaning of the heterogeneous background of those participating in such construction.

To sum up, the main pillar of my theoretical framework is the concept of connectivity (see Figure 1). The concept of connectivity is used to study how the formation of internship curricula is undertaken. The *concept of connectivity* helps in conceptualising the extent to which learning through work experience is organised, that is, the different levels

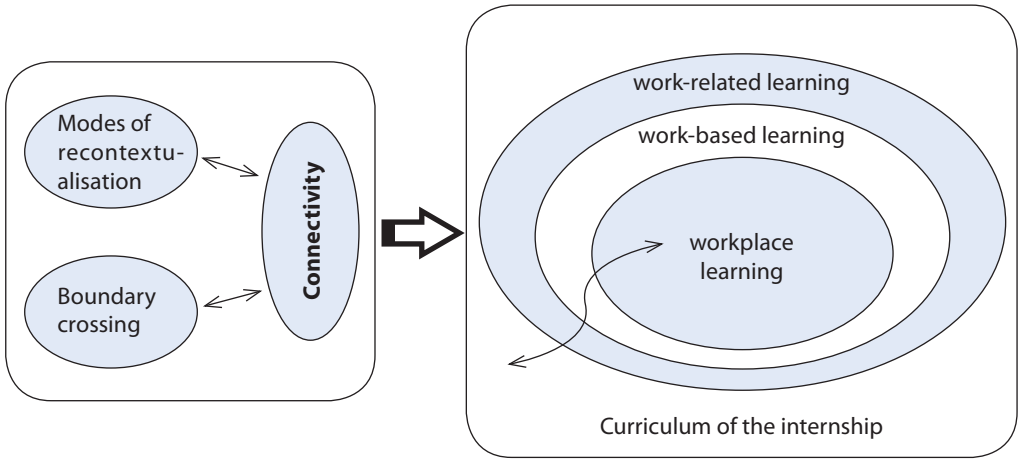

Figure 1. Theoretical framework and learning from work experience in internships.

of intensity with respect to the involvement of theoretical discussions and reflection. Accordingly, *work-related learning*, *work-based learning and workplace learning* are adopted in practice as part of curricula. In Figure 1, I illustrate how these forms of learning through work experience are bound to wider curricula and internships, shaping them more or less formally and conceptually. The curved arrow depicts that the intensity of curriculum-related material organised as part of internships varies. The central part of an internship is the students' participation in workplace practices and their learning at the workplace. However, it is a curriculum's content and guidance that structures this experience in the form of learning tasks, reports, self-evaluation tasks and so forth that require the student to combine theory and practice formally and systematically.

Learning from work experience may take place on the spot, in the middle of the work. It may also take place more indirectly through the learner's use of memorisation and reflection on earlier experiences. The model of learning through experience moves from sheer workplace learning toward work-based learning and work-related learning, when experience gained at the workplace is reflected upon. The more, that the experiences are viewed with the help of theoretical concepts, models and theories, the more there is a shift toward work-related learning.

The amount of conceptual tools used to understand something that is being worked on may vary considerably. Therefore, Figure 1 is only tentative and refers to a simple shift in concepts that takes place when concepts, a conceptual framework, and guided reflection are systematically added to learning through work experience. The shift is related both to the timing of conceptual construction and to the reflecting on and construction of new conceptual frameworks in order to capture what is emerging in the

process. Work-related learning is more distanced and conceptually structured in terms of timing than workplace learning or work-based learning (see, e.g., Hills, Robertson, Walker, Adey, & Nixon, 2003).

In addition to discussing the concept of connectivity, the modes of recontextualisation and discussion on boundary crossing are explored in this dissertation. They are used to find ways to conceptualise and construct the learning from work experience taking place in internships and to redefine the concept of connectivity. In this dissertation, internships and various forms of learning from work experience – be they work-related, work-based or workplace learning – are studied mainly within the theoretical framework of connectivity defined by Guile and Griffiths (2001; Griffiths & Guile, 2003). The features on the modes of recontextualisation and boundary crossing provide a basis for discussion and for the recognition of future challenges for research. Overall, in this dissertation the concept of connectivity is treated as an umbrella concept, as an approach that combines aspects that are crucial for learning through work experience as part of a curriculum. While the empirical studies that make up this dissertation have been conducted by utilising mainly the conceptualisations of connectivity provided by Guile and Griffiths (2001), the approach of connectivity is considered, in this dissertation, as a combination of critical aspects that have been but also could be further explored on their own. These aspects include guidance for proactive and reflective participation in communities of practice, individuals' reflective resituation of knowledge and experience, the selection and resituation of knowledge into curricula, the combining of informal and formal learning in curricula, the mediation of knowledge and skills for the benefit of knowledge construction, and the innovation of tools and practices in communities of practice. The importance of these aspects has already been theoretically explored by Guile and Griffiths (2001) in their initial conceptualisations, but the research of this dissertation confirms that they deserve still further investigation.

4

Overarching research questions

4.1 The purpose of the dissertation

The main purpose of this dissertation is to contribute to the discussion on the development of internships as a part of professional higher education. Accordingly, the dissertation participates in the discussion on the challenge of combining learning at work as a part of professional and vocational education. This is done by exploring the internships from the perspective of different practitioners in terms of connectivity.

The challenge of the dissertation with respect to previous research was to get a view on internships that would explore experiences of several UAS, several educational fields, and several groups of participants: the UAS, students, graduates and employers. While the four sub-studies of this dissertation explored the internship programmes of several UAS from the viewpoints of numerous involved parties, the conceptions of learning through work experience that all of these parties had in their minds were not predefined. Generally speaking, the interviews and questionnaires conducted during the course of the study focused on internships as the shared phenomenon that all the participants of the study were involved in. An important part of the research project was to find out whether specific learning tasks aiming at connectivity were part of the models of learning through work experience in question. The sub-studies investigated to what extent the model used by the UAS placed emphasis on workplace learning or more work-related learning, and how prevalent connectivity was seen to be in the models according to the participating teachers, students and employers.

4.2 Overarching research questions

The main task of this dissertation has been to investigate internships as a model of learning through work experience as part of a Finnish UAS education. The overarching aim has been to find out what the decisive characteristics of learning through work experience in internships are with rescpect to connectivity and how they are co-constructed in the Finnish UAS by the teachers, employers and students. The dissertation explores internships from three perspectives with respect to connectivity, that is, first, from the viewpoint of the teachers and educational planners as the representatives of the universities of applied sciences, second, that of the students and graduates who are the "end users" of the planned internships, and third, that of the employers involved as the collaborative partners of the UAS. Furthermore, the dissertation addresses practices that co-construct and institutionalise the learning from work experience that is taking place through internships. In addition, the dissertation elaborates the concept of connectivity, and later redefines it in a theoretical discussion related to connectivity and the results of four empirical sub-studies (see Chapter 6, section 6.5). The overarching research questions addressed in this summary are:

1. How do teachers perceive the internship model of learning through work experience with respect to connectivity?
2. Which practices co-construct and institutionalise the internship model as it is presently organised by the Finnish UAS?
3. How do graduates perceive the internship practices regarding connective learning?
4. How do employers perceive the application of a connective internship model?
   4.1. How do employers assess the target of aiming for a model of connective learning in internships?
   4.2. What kinds of benefits and barriers do employers see in aiming for connectivity?

The overarching research questions will be answered on the basis of four sub-studies that were reported as Articles I–IV. All of the four articles focus on the internships of the Finnish universities of applied sciences. They present how connectivity has been constructed in the internships from the viewpoints of the UAS (teachers, field managers and educational designers), graduates and employers. The first overarching research question focuses on teachers' experiences of the internships. The second question combines findings on different parties involved in internships. It addresses the element of co-construction of internships as perceived by individual groups of participants. The answer to the second question is an outcome of the researcher's conclusions based on the research findings.

The third question underlines graduates' perspectives. Finally, the fourth overarching research question investigates the employers' experiences. The relations of these overarching research questions and how each article contributes to them are presented in Figure 2.

The articles (I–IV) used four sets of research data collected by the author on her own or in collaboration with other researchers. Only Article II utilised data from several data sets, presenting results considering several involved groups (teachers, graduates and employers). Thus, overlapping research findings are presented in Article II, where the same data sets were used as in Articles I and III. The same data sets used in Articles I–III are those of teacher interviews (in Articles I and II) and the first employer questionnaire (in Articles II and III).

The first article, *Workplace learning and higher education in Finland: reflections on current practice* (Article I), describes and analyses the model of embedding workplace learning in the curricula of the UAS. It also investigates the conflicting factors that define the construction of the internship model and have to be dealt with by the network of experts collaborating between the UAS and the working world. Furthermore, it suggests questions that networks could reflect upon to explicate similarities and differences between workplace learning

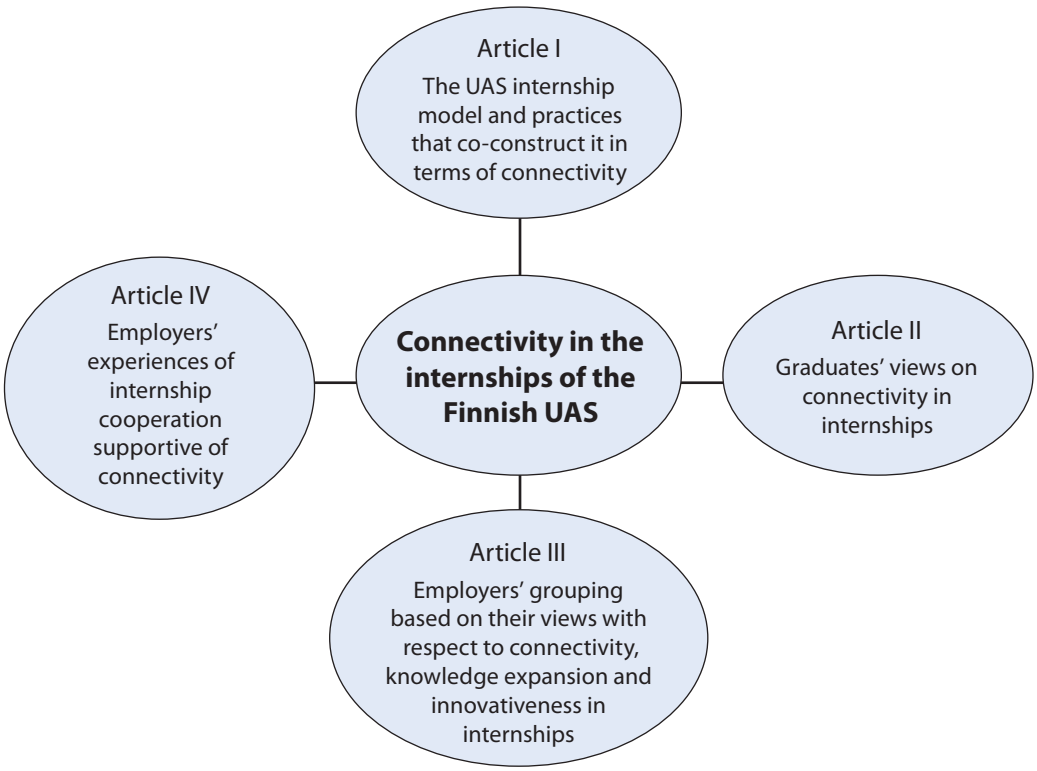

Figure 2. How the four sub-studies contribute to the research task.

and learning at school. Article I was based on interviews with teachers, field managers and internship developers. It addresses the overarching research questions one and two.

The second article, *Work experience constructed by polytechnics, students, and working life: spaces for connectivity and transformation* (Article II), examines how the model of connectivity conforms to the patterns of higher education. It discusses the meaning of the model of connectivity for higher education and the factors that influence the construction of the internship model of Finnish UAS. Organising internships at the interface of school and the workplace is discussed from the viewpoints of UAS, workplace supervisors, students and graduates. In particular, the results pertaining to graduates' views differentiate this article from Articles I and III. Article II contributes to answering the overarching research questions two, three, and four (4.1).

The third article, *Building workplace learning with polytechnics in Finland: multiple goals and cooperation in enhancing connectivity* (Article III), investigates the orientation of workplaces in terms of cooperating with UAS in the organising of work placements, asking to what extent employers' conceptions are in congruence with the ideas presented in the connective approach and in what ways workplace supervisors' views are compatible with the aim of knowledge expansion and innovativeness. It is based on three UAS' collaborative employers' views collected using a questionnaire. The third article argues that employers' orientation with respect to connectivity has important implications for the planning of curricula. Accordingly, the article aimed at contributing to understanding the significance of employers' views in planning a curriculum. The employer profiles are discussed in terms of prioritising work-based learning or work-related learning within curriculum planning. The third article provides answers to the overarching research questions two and four (4.1.).

The fourth article, *The views of employers on internships as a means of learning from work experience in higher education* (Article IV), explores employers' experiences in organising internships and collaborating with one specific university of applied sciences. It is based on a questionnaire conducted in collaboration with this UAS. In its conclusion, the problems that arise when employers' views are silenced and targets for developing partnerships are left undefined were discussed. The fourth article answers the overarching research questions two and four (4.2).

The findings of the four articles will be discussed in terms of redefining the concept of connectivity. The redefinition is informed by the recent discussion concerning the issues of recontextualisation and boundary crossing; these approaches were introduced in the previous chapter. In addition, the redefinition utilises the findings of the sub-studies reported in Articles I–IV. The relations of the overarching research questions to Articles I–IV are presented in the Figure 3.

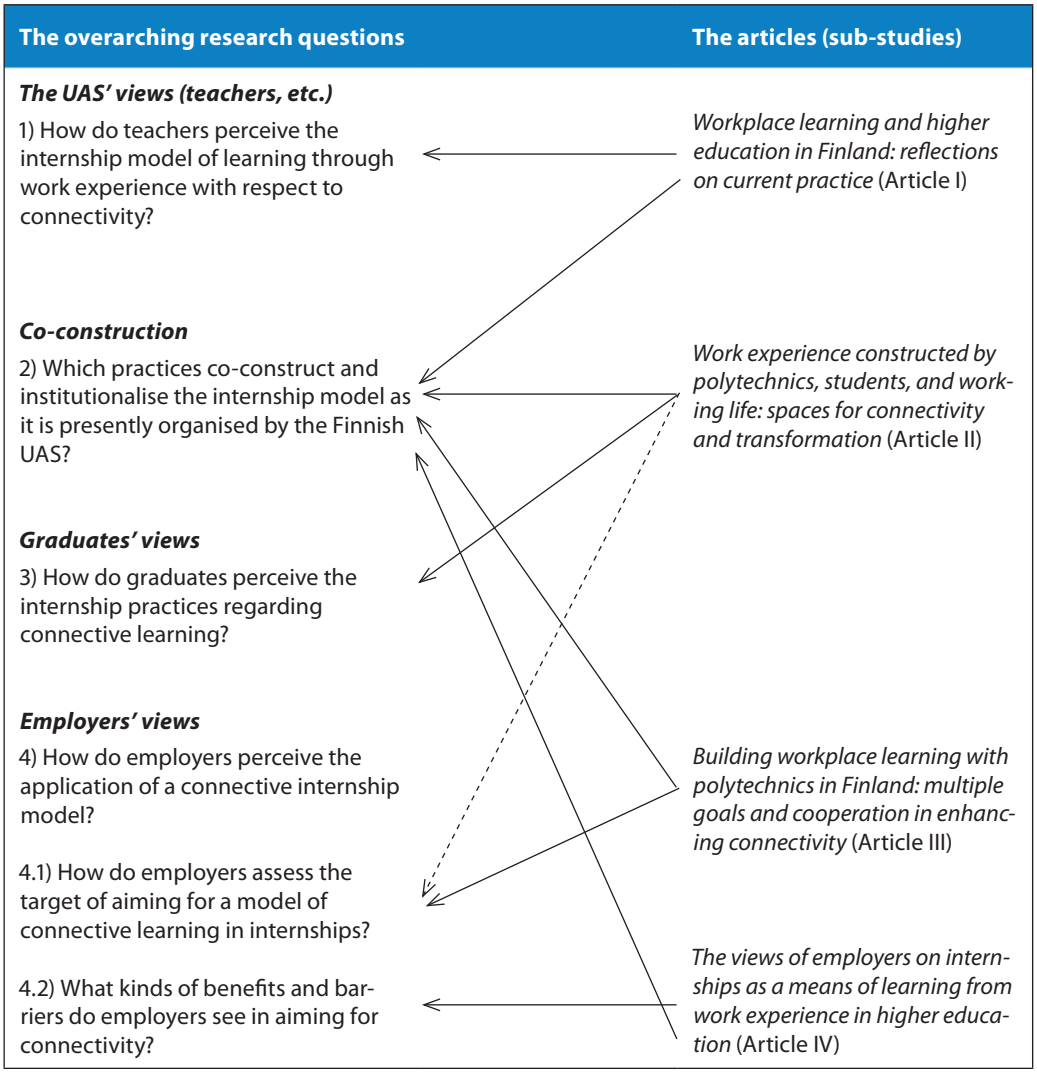

Figure 3. The relation of the overarching research questions to Articles I–IV.

5

Methods, data, and data collection

This chapter describes the methods that have been used in the data collection of the empirical sub-studies of this dissertation in more detail. The methods are described in short as part of each article, but here I want to share some more general remarks and reflections that the word limits of the articles did not allow. First, I describe the methodology (section 5.1) and then the data and data collection process (section 5.2). The next section (5.3) is devoted to reflections on the use of qualitative content analysis and thematic analysis in the research, and the section following it (5.4) reflects on the use of quantitative methods in the sub-studies. The final section (5.5) focuses on the issues of credibility arising from the research approach.

5.1 Methodology

This study follows the epistemological principles offered by critical scientific realism. Accordingly, it is assumed that scientific knowledge attempts *"to give a truthlike description of mind-independent reality"* (Niiniluoto, 1999, p. 92). The knowledge assessed by scientific methods can be incomplete or imprecise and conceptually relative, but it is truthlike (Niiniluoto, 1999; see also Boyd, 2002; Chakravartty, 2011). In other words, there are knowledge categories whose objectivity in their reference to the outer world is defined by scientists of the field. I believe that these knowledge categories are independent in their

existence of their interpreters and their standpoint perspectives. However, the histories of scientific concepts and theories used and provided as a basis for scientific research can be made explicit and are a subject of research of their own. Also, scientific disciplines are used in different ways in different fields to secure and define the objectivity of concepts and theories; for example, cultural studies differ from biology in this regard.

The methodological choices, that is, the decisions made concerning the best methods for pursuing knowledge in my dissertation, have been driven by the purpose of the research and research questions in order to get a multi-UAS, multi-actor and multi-field record of internships as providers of learning through work experience as part of a UAS education. That is why several questionnaires have been used for the data collection, in addition to standardised, open-ended interviews. In the following section, I describe the data and data collection process.

5.2 The data and the data collection process

The dissertation at hand was designed to explore internships – as a form of learning from work experience as part of a UAS education – from the perspectives of the institutions (educators and teachers), graduates (former students) and employers. Qualitative and quantitative methods were combined to reach this aim. In this section, I first present the four data sets that were collected during the course of the research process, and then reflect on the methods used and their fit for their purpose (sections 5.3–5.5).

Firstly, the model of organising internships and factors that co-construct them were studied by conducting *standardised, open-ended interviews with teachers from the UAS*. Five multi-field UAS were contacted and asked permission to study the models of learning from work experience that were applied in their internship programmes. Altogether 28 teachers, field managers and educational developers of internships were interviewed. They were responsible for organising and supervising internships, and represented three educationals fields of each of the five UAS that agreed to participate in 2002–2003. The three fields were social services and health care, business administration, and engineering. The main aim of the interviews was to assess how the internships were organised and how the collaboration between the UAS and employers affected their construction. The constructing of questions was influenced by the model of connectivity in the sense that special attention was given to how students were guided to combine theoretical and practical knowledge, to expand knowledge and to develop their skills, as well as to how the guidance counselling was related to internships.

The questions asked were mostly knowledge-oriented, aiming to get factual information from the respondents about the internships (see Appendix 1 for the structuring of

the interviews). In posing knowledge-oriented questions, the aim was to find out, what the respondents found to be factual about the subject of internships (Patton, 1982). Knowledge-oriented questions have been differentiated from other types of questions, such as those concerning experiences, opinions, or sensory information (Patton, 1982). In the analysis, the concept of connectivity was used as the theoretical starting point in order to recognise and reflect on features of good practice.

The interviews were conducted by the researcher at each UAS in question, usually at a teacher's office or faculty meeting room. The researcher travelled to the five participating UAS that were chosen, situated outside the metropolitan area of Helsinki. The reason for choosing UAS outside the Helsinki metropolitan area was that most of the Finnish UAS are situated outside the city. It was thought that the context is somewhat different in the sparsely populated communities, where less employment opportunities are available.

The interviews lasted from approximately one to two hours. They were tape-recorded by the author as the interviewer and transcribed by research secretaries. Altogether, the transcribed interviews amounted to nine hundred single-spaced pages. On average, one interview resulted in 26 transcribed pages, with the variance having been between 9 to 44 pages. The researcher, that is, the author of this dissertation, categorised the transcribed interviews into thematic categories using the *Atlas.ti 4.2* software programme. Only the themes related to workplace learning as part of the curriculum and its organisation were analysed in detail. The method of analysis was qualitative, theory-led content analysis (Krippendorff, 2004; Tuomi & Sarajärvi, 2003). In other words, the analysis followed a rather deductive pattern. The results, which provided answers to the overarching research questions one and two, have been reported mostly in Article I, but also partly in Article II.

The aim of the *second data collection* was to find out about students' experiences of learning in the internships. Data on graduates' experiences were collected using a questionnaire, in 2005 (see Appendix 2 for the questions). The questionnaire was completed as part of a sub-study in a research project on graduates' employment (Vuorinen & Valkonen, 2007). The research project was completed by the Finnish Institute for Educational Research and financed by the Ministry of Education. Researcher Päivi Vuorinen-Lampila, and the project's leaders, Professor Marja-Leena Stenström and Professor Päivi Tynjälä, kindly allowed the questions related to internships to be adopted as a part of the larger *Questionnaire on University and UAS Graduates' Employment*. The two internship-related questions were formed by the author of this dissertation. These two questions covered one page of the 11-page questionnaire. The structured questions requested graduated students to assess the significance of their internship for their own professional development (question 34, Appendix 2), and the guidance that they had received during their internship (question 35, Appendix 2). Only the responses to the last question (question 35, Appendix 2) were reported in Article II. In response to that question, graduates assessed guidance aspects on a Likert-type scale.

The graduates who expressed their views on their internship experience came from the two largest educational fields. They were Bachelors of Business Administration and Bachelors of Engineering (n = 1,050). They had finished their studies in 2002, and answered the survey questionnaire in 2005. Results on graduates' experiences in internships are reported and compared to results on students' views in Article II. They are used to answer the overarching research questions two and three.

Data on employers' experiences were collected using two questionnaires and reported in two articles (Articles III and IV). The first of the questionnaires was sent to the employers collaborating with the UAS in 2005. It addressed the same UAS-collaborative partners who had participated in the earlier phase of the study. Three of the original five collaborative UAS volunteered to provide their contact details (N = 693; n = 269). The *questionnaire* was conceived by the author (see Appendix 3). It was sent *to collaborative employers representing the following fields: social services and health care, technology,* and *business and administration*. The questionnaire ascertained information on: the employer's background, intake of interns, cooperation with the UAS, experiences of interns (e.g., regarding the role and success of the UAS in collaborating with the employer, the employer's interest in the collaboration, the utility of interns, the aims of the internship, the requirements of interns' roles at the workplace), and the organisation of human resources development (HRD) at the workplace. The analysis and findings based on this data, presented in Articles II–III, answer the overarching research questions two and four (4.1), pertaining to which practices co-construct and institutionalise the model of internships and how employers assess the target of aiming for a model of connective learning in internships.

Lastly, another questionnaire was devised to collect more *data on employers' experiences of cooperation* with one UAS. This UAS had not participated in this study earlier. This part of the study was partially financed by the Leonardo da Vinci project DEQU (Development of Elements for Quality Assurance within Practice-Oriented Higher Education, Humpl, 2007). The questionnaire was developed in collaboration with two universities of applied sciences, utilising the experience gained from the previous questionnaires. However, only the questions conceived by the author of the dissertation were used in the study reported in Article IV (see Appendix 4 for the parts of the questionnaire that were used in Article IV). The reason for this choice was that, the focus of the questions posed by the second collaborative partner UAS was mostly related to guidance, whereas the author's interest as researcher was more in the organisation of the cooperation. The questionnaire addressed the following areas: background information of the respondents, the extent of cooperation with the UAS, the availability of information on qualifications provided by the UAS, students' guidance and assessment, and assessment of the cooperation. The collection of this data set was organised as follows.

The request to answer the questionnaire and other necessary information was sent to

the target employers by the one collaborating UAS, by e-mail. The employers answered the survey on the Internet in 2007. They were employers from the field of social services and health care, participating in the organising of internships for students aiming for a degree of Bachelor of Social Sciences (n = 169). The analysis of this data set is used to answer the overarching research questions two, asking which factors co-construct internships, and four (4.2), asking what kinds of benefits and barriers employers see in aiming for connectivity. The last overarching research question (4.2) is answered in Article IV. The research questions addressed in each article, and the data and methods used in answering them, are summarised in Table 4.

In the analysis of the quantitative data sets (used in Articles II–IV), the following methods were adopted: tests of significance for analysing the significance of differences between groups (chi-squared testing, two-way ANOVA, one-way ANOVA, Scheffe's test for testing post hoc intergroup differences), factor analysis (principal axis factoring), construction of sum variables (Cronbach's alpha), hierarchical cluster analysis (Ward method), and content analysis of answers to open-ended questions (see Table 4). The quantitative data analyses were computed by an application designer at the Finnish Institute for Educational Research, using the SPSS Statistics programme (see section 5.4 for more details on the quantitative analysis).

5.3 The use of qualitative content analysis and thematic analysis in the dissertation

The two qualitative data analysis methods that were used in the course of the dissertation's research are qualitative content analysis and thematic analysis. On the whole, in the course of this research, these qualitative methods were used in analysing the first and the last data sets, that is, the interviews with UAS personnel and the open-ended comments given by workplace supervisors in the questionnaire of the fourth data set (see the previous chapter, section 6.2). These data sets were used in Articles I, II and IV. Qualitative content analysis was used in analysing the first data set pertaining to UAS teachers, field managers and educational developers of internships. It can also be thought that parts of the analysis of the first data set combined thematic analysis and content analysis, because the data set was first organised thematically. Thereafter, themes related to internships were further content-analysed.

Qualitative content analysis and thematic analysis have some similarities as qualitative research methods. Both of them have been stated as being suitable for several purposes, which makes them different from discourse analysis. It has been stated that, the difference between qualitative content analysis and discourse analysis is epistemological

Table 4. *Research Questions, Data, and Methods of Analysis Used in the Sub-Studies*

Article	Research questions	Data sets	Methods of analysis used in the sub-studies
I	1) What models of workplace learning are used by UAS in Finland? 2) How are workplace learning periods organised? 3) What factors define the outcome of workplace learning? 4) What kind of features of good practice in organising workplace learning do the models present?	– 28 standardised, open-ended interviews with UAS personnel responsible for organising and supervising workplace learning, completed in five multi-field UAS in 2002–2003, in the fields of social services and health care, business administration and engineering – as transcribed, the interviews totalled 900 pages (single-spaced)	– qualitative, theory-based content analysis
II	1) How does the model of connectivity conform to the patterns of professional higher education?	– 28 interviews with UAS personnel (the same as above) – survey conducted in 2005 among graduates of the year 2002, covering qualifications in two fields: Bachelor of Business Administration and Bachelor of Engineering (n = 1,050) – workplace supervisors' views on UAS as the organiser of placements and on the benefits of having interns at their place of work (n = 269); from three UAS' cooperative partners in the fields of social services and health care, business administration, and engineering	– qualitative, theory-based content analysis and quantitative methods: factor analysis, sum variables (Cronbach's alpha), tests of significance: one-way analysis of variance, two-way analysis of variance (ANOVA)
III	1) How do workplaces organise guidance in accordance with the ideas presented in the connective approach? 2) Do workplace supervisors' views on workplace learning provide room for aiming at knowledge expansion and innovativeness?	– workplace supervisors (n = 269) surveyed in 2005; from three UAS cooperative partners in the fields of social services and health care, business administration, and engineering	– quantitative methods: factor analysis, sum variables (Cronbach's alpha), hierarchical cluster analysis (Ward method), tests of significance (one-way ANOVA, chi-squared, Scheffe's test)
IV	1) How do employers perceive their cooperation with the UAS in regard to internships? 2) What kinds of issues do employers raise in regard to the quality management of cooperation with universities of applied sciences (UAS)?	– placement supervisors (n = 165) surveyed in 2007; from the field of social services and health care	– tabulation of percentages (as the only quantitative method) and qualitative thematic analysis of answers to open-ended questions

(Tuomi & Sarajärvi, 2003). In discourse analysis, communication is seen as a constructive form of reality. In the tradition of content analysis, on the contrary, communication is seen as a description of reality (Tuomi & Sarajärvi, 2003). Content analysis, the method used in this research, is in congruence with the epistemological approach of the dissertation, which is that of *critical scientific realism*. In the tradition of critical scientific realism, it is thought that produced knowledge aims at "truthlike" descriptions (Niiniluoto, 1999).

The approach of qualitative content analysis in this dissertation was guided by the model of connectivity. The transcribed interviews were first grouped thematically using a data-driven approach. On the basis of the thematic grouping, themes related to internships were formed into a data set. The first grouping organised the data under themes such as:

- the strategy of the UAS,
- taking care of human resources – teachers' working life knowledge,
- evaluation of educational outcomes,
- planning of education,
- teaching: the sub-components of the curriculum and factors of the learning process,
- working life otherwise incorporated in the curriculum, and
- cooperation with employers and factors affecting the cooperation.

The "internship" theme is a sub-theme of the main theme: *Teaching: the sub-components of the curriculum and factors of the learning process.* The other main sub-themes of this theme include: *Guidance counselling,* and *interaction with teachers and the working world.* In addition, some aspects related to internships were codified under the title *Cooperation with the working world and factors affecting the cooperation*.

The "internship" sub-theme was further divided into sub-categories, such as:

- preceding studies,
- internship contract,
- insurances,
- internship salary,
- internship diary,
- the format of the internship report,
- the internship reporting,
- the demanded tasks,
- the interrelations of curriculum and internship,
- student assessment discussions,
- internship assessment,
- competence demand in internships and related applications,

- guidance at the workplace, and
- guidance for students to make observations at the workplace.

These first thematic groupings consisted of the steps: i) familiarisation with the data, ii) generating initial data codes, and iii) searching for themes across the data (see also Braun & Clarke, 2006). After these steps, I conducted a content analysis related to the internship model. Here, the analysis of the sub-themes related to the "internship" theme was concluded as a theory-led content analysis, and the initial sub-themes formed in the previous phase were not utilised as such. The data set pertaining to the "internship" theme was constructed into the internship model described in Article I (Figure 1, p. 292), through a process where the sub-parts of the internship process were first marked as a tentative list of "main characteristics of workplace learning organised by polytechnics". These included:

- planning a curriculum,
- preparation for workplace learning,
- realisation of workplace learning, and
- outcome of workplace learning periods.

In the next phases of the analyses, I went through the "internship" data set and organised findings related to the "dimensions of workplace learning procedures" in relation to the phases of the internship process initially organised, as described above. In a similar manner, the internship-related practices mentioned in the data set were organised under the heading "workplace learning and curricular procedures" (see Article I, p. 292). As a result, the various internship models practised at different UAS were initially combined into a tentative single model. After this initial formation of the model, the next steps consisted of going through the data set again and checking the tentative model by comparing the data and the model, and then refining the model further. Accordingly, contents of the internships were described and formed into one "ideal" model, described in Article I (Figure 1, p. 292).

The issue of saturation is often discussed in regard to the collecting of qualitative data. The relevance of reaching saturation depends on whether a repeated appearance of similar patterns or a variety of patterns is being researched (Tuomi & Sarajärvi, 2003). In this dissertation, the question of reaching the level of saturation can be thought relevant with respect to the first data set, because similar characteristics between internships were looked for. The aim was to find out if internships had characteristics typical of the model of connectivity. Similar characteristics started to appear repeatedly in the 28 interviews. Thus, it may be stated that a level of saturation was reached in that data set.

Sometimes data on the frequency of the phenomena are presented in relation to the results of qualitative content analyses. Subsequently, it may be asked why the articles of the dissertation did not provide frequency data relating to the characteristics typical of

the connective model (Krippendorff, 2004; Tuomi & Sarajärvi, 2003). The reason why quantitative analysis and calculations were not featured in the content analysis here was because the five participating UAS did not in any manner form a representative sample of the Finnish UAS. Counting the appearance of certain characteristics of the model would not have offered added value with respect to finding out whether or not the model is generalisable to all Finnish UAS and all educational fields. At the time of collecting the data, there were – and at present still are – more than twenty UAS. The five UAS of the first data set make up a considerable proportion of those, but their surrounding economic regions, combinations of educational fields as well as number of students vary to a substantial degree. If the repetition of certain characteristics in the data had been counted, it would have told about their frequency in the data collected from the teachers. However, their frequency and relation to students or employers would have been left unknown. Also, the aim and ethics of gathering and selecting the characteristics into one combined, "idealised" model was chosen in order to be supportive rather than judgemental of the developmental work of the UAS. Thus, it was not considered meaningful to count the frequency of certain characteristics' appearance in the data. Presenting the calculations would have provided deceptive information.

The overarching research question two investigates the practices co-constructing and institutionalising internship models. When the first data set was analysed in order to answer the second overarching research question, the task was not to study similarities but to ascertain the differences between the UAS and their educational fields. As a result, the question of saturation is not relevant to the overarching research question two. When studying the second overarching research question, presenting the findings was not as easily reducible to a single table as was the case for the "ideal" internship model. Accordingly, the practices co-constructing internship models are mostly discussed as part of sectional themes (see Articles I–II, in particular). This approach was chosen because the co-constructive factors were multilevel factors and formed joint effects. Describing these influencial factors needed explanation, especially as the factors varied from one educational field to another. This part of the analysis was actually quite challenging. On the one hand, challenges arose as a result of the huge amount of data in the first data corpus, that is, 900 pages of transcribed interviews. On the other hand, the differences between the educational fields made presenting a generalised overview impractical. In addition, the study of students' experiences and employers' views brought up some more factors. In the following chapter (section 6.2) addressing the findings, I have tried to combine the analysis presented in Articles I–IV. Furthermore, I answer the overarching research question two more concisely there than in the separate Articles I and II.

Thematic analysis (Braun & Clarke, 2006) was used to analyse the open-ended comments made by workplace supervisors in the fourth-and-last data set. This analysis was

completed inductively, because the amount of data was quite limited and enabled it. The qualitative data were produced as a sub-product of an Internet questionnaire. Less than one-third of the total number of workplace supervisors (n = 165) wrote an open-ended comment in the space provided for it on the Internet questionnaire asking, *"What else would you like to bring up in regard to the internship collaborations?"* (see Appendix 4, 16.7). This question was a sub-question of the main question: *"What kinds of difficulties have you experienced in organising internships?"* First, respondents ticked their opinions on statements (on a scale from 1 to 5) and then wrote their comments. The given statements were quite critical, as can be seen from question 16 of the survey (see Appendix 4 for the full survey questionnaire) in particular. The statements that could be chosen included, for example: *"We have not have enough information on students' competences"*; *"We have not had enough resources for organising guidance: too little time, not enough employees"*; *"We have not had work tasks that would be suitable for interns"*; *"We have not been given enough information about what we are expected to do"*. Despite the statements being explicitly critical, many respondents also wanted to bring up positive features of the collaboration, which confirms that the respondents were not misguided by the phrasing of the questions.

In the analysis of the open-ended answers that were part of the fourth data set, three major themes were formulated as sub-categories. These were: (i) *Issues related to students*, (ii) *Curriculum issues*, and (iii) *Organisation of cooperation*. What helped to a great extent in analysing this data set was the fact that this data set was rather limited, comprising less than seven pages of written text in total. In practice, the process of analysis proceeded through typical phases of thematic analysis (see Braun & Clarke, 2006). First, I read through the data a couple of times in order to become familiarised with it. Secondly, initial major themes and initial sub-categories related to these themes were generated (see Article IV, Table 3, sub-themes). For example, the sub-categories of the theme *Relations with students* included:

- cancellations of placements,
- interviewing students,
- negative experiences with students,
- positive experiences with students, and
- demands related to guidance.

Following this phase, I refined the titles of the main themes and sub-themes and cross-checked the data. In other words, I read through the data set to check if all of the themes that appear relevant to a particular research question were present in the list of themes generated during the analysis. The titles of the themes and sub-themes were refined through this process and cross-checking. The visibility of case numbers in Table 3 (Article IV) allows for the other authors to check the interpretations. Finally, I decided on the final names for the themes and sub-categories as presented in Table 3 (Article IV).

The appearances of sub-themes could have been counted (see Article IV, Table 3), but making calculations was found to be rather irrelevant for the general argumentation. Collaborative employers have been found to be quite a challenging group to get to answer the questionnaires. The respondents of our survey did not form a random sample or another, deliberate kind of sample of collaborative employers of the single UAS chosen for Article IV, in the first place. Therefore, making arguments based on calculations did not seem appropriate.

5.4 The use of quantitative data analysis in the study of graduates' and employers' views

In this dissertation, quantitative data analysis was conducted in relation to analysing the data collected on graduates (the second data set) and employers (the third and fourth data sets). The results considering these groups have been reported in Articles II, III and IV. The quantitative methods used in the data analyses have been described in varying detail as part of each article. Here, I will make some complementary notes. For example, the methods used in Article II are described in more detail here because their presentation in the article itself is very limited. Likewise, the methods used in the other articles are described in less detail as they have been discussed more thoroughly in the articles themselves.

The graduates' (n = 1,050) views on how the guidance for learning in internship placements had been organised were reported in Article II (see p. 209). The results presented compare the views of graduates (Bachelors of Business Administration and Bachelors of Technology) from the two educational fields. The mean averages of graduates' responses to the given statements were compared item by item. The scale of possible responses ranged from one to five (*1 = I totally disagree; 5 = I totally agree*). The significance of the differences between graduates representing the two educational fields was compared using a one-way analysis of variance (ANOVA, Figure 12.1, p. 209). One-way analysis of variance was used because it is suitable for comparing the statistical significance of differences between variables when there is only one explanatory variable. In this case, the explanatory variable was the educational field.

The employers' views collected as part of the second data set (n = 269) were reported in Articles II and III. In Article II, two questions were investigated: (i) employers' expectations of the role of the UAS in organising internship placements, and (ii) employers' views on how their company had benefitted from having interns. The analysis of employers' expectations of the role of the UAS in internship placements was based on the factor analysis (principal axis factoring) of 11 statements (see Appendix 3, question 12). The

statements had been responded to on a five-point scale ranging from '1 = not at all important' to '5 = very important'. In order to increase reliability, aggregate scales were constructed on the basis of responses to the statements. The aggregate scales formed were: 1) *The polytechnic (UAS) as an organiser and source of expertise*; 2) *The polytechnic (UAS) as an instiller of the right attitudes*; and 3) *The polytechnic (UAS) as career guide*. Cronbach's alpha was used in testing the internal consistency of these factors. The respective Chronbach's alpha reliability coefficients that resulted from the analysis were .718 (for the first scale, five items), .681 (second scale, four items), and .642 (third scale, two items). The statistical significance of the differences between the professional fields was tested with a two-way analysis of variance (ANOVA). Two-way analysis of variance was used because it is suitable for comparing the statistical significance of means *between groups and within groups*, when there are several explanatory variables. In this case, several groups of employers were being compared. The test results were reported in Article II (Figure 12.2, p. 213).

The analysis of employers' views on how their company had benefitted from having interns was based on the factor analysis (principal axis factoring) of eight statements. The statements were responded to on a five-point scale ranging from '1 = not at all true' to '5 = very true' (see Appendix 3, question 16). The aggregate scales formed were: 1) *Quality of the work to be done and its development*; and 2) *Workforce and recruitment*. The respective Chronbach's alpha reliability coefficients resulting from the analysis were .844 (for the first scale, five items) and .527 (second scale, two items). One item of the original eight-item battery was dropped in order to increase the consistency of the factors; the item ('*no benefit at all*') did not differentiate the employers. The statistical significance of the differences between the professional fields was tested with a two-way analysis of variance (ANOVA). The test results were reported in Article II (Figure 12.3, p. 213).

The same data set on employer views that was reported in Article II was further analysed in Article III. The question used in the factor analysis above was also used in the hierarchical cluster analysis. Here, the groups of employers constructed on the basis of the hierarchical cluster analysis (Ward method) were further described with the help of three groups of variables: (i) the characteristics of the workplace (Article III, Table 4); (ii) the expected outcomes of the work placement with respect to connectivity (Article III, Table 5); and (iii) the importance of the developmental measures (Article III, Table 6). The statistical significance of the differences between the employer groups were tested using chi-square (Table 4) as well as one-way analyses of variance (Tables 5–6). In the last two analyses, the post hoc intergroup differences were also tested, by using Scheffe's test.

In Article IV, the presentation of quantitative study results was based on descriptive measures. Accordingly, the results regarding employers' views were presented as simple cross tabulations of percentages, item by item. The reported results covered employers' views on the benefits of having students as interns in the workplace (Table 1, p. 473), the

guidance provided for interns (Table 2.A, p. 474), and the measures employers had taken to organise guidance (Table 2.B, p. 474).

The reliability of the quantitative data sets of the dissertation varied from data set to data set. The data set pertaining to graduates is based on a random sample of the graduates of the target year from two targeted educational fields. It portrays the views of the target group in a quite reliable way, but due to the limited number of questions, the validity of the questionnaire was not as high as would have been ideal. The results cannot be generalised from one field to another because the results show that the differences between the educational fields are significant. The differences between educational fields have also been found to be significant in other studies (Saarikoski, Luojus, Taam-Ukkonen, Tarr, & Meretoja, 2013; Zacheus, 2009).

The results of the two employer studies can be interpreted as complementary and confirmatory of one another. The first sub-study on employers' views, using the third data set (n = 269), presents views of collaborative partners of three UAS from four professional field categories (technology, business and administration, social services and health care, and "others"). The second sub-study on employers' views, using the fourth data set (n = 169), focused on one professional field (social services and health care) of one collaborative UAS. Thus, the latter sub-study gave a deeper view of the specific professional field represented by the employer collaborating with the one, specific UAS of that sub-study. The reliability of the employer studies could have been increased by involving more collaborative UAS in the study and adding more triangulation by method to the same target group. However, because the results of the two sub-studies are confirmatory of one another, the number of studies and respondents can be taken as quite satisfactory. The results seem to be generalisable to a wider group of employers.

5.5 Reflections on the credibility and validity of the dissertation

This section discusses the issues of credibility, especially in two steps. First, the use of triangulation in the research is discussed. Second, considerations concerning the credibility, the frame of reference, and study design are elaborated.

Triangulation

Two types of triangulation have been used in the dissertational research to enhance credibility: methodological triangulation and data triangulation (Patton, 2002). In this study,

triangulation has been used in the following ways. First, data have been collected through both qualitative and quantitative methods. Second, data collection has targeted several groups of participants. In more detail, the following methods have been used to collect data on parties participating in the organising of internships as well as on the interns: qualitative content analysis of thematic interviews with teachers (Article I); thematic analysis of open-ended comments made by employers (Article IV); and quantitative analysis of questionnaires that portray the views of graduates (Article II) and employers (Articles II, III, and IV). The consistency of the different data sources has been assured by collecting viewpoints from several groups of actors.

The triangulations could have been completed in many different ways (see Patton, 2002). For example, it would have been possible to collect both qualitative and quantitative data on all participatory groups. The checking of the consistency of the results would have been improved both by utilising more data sources (e.g., UAS, groups of employers, educational fields) and data collection methods per group. In practice, that could have meant, for example, interviewing or observing students and graduates as well as their guides and guidance, besides interviewing workplace supervisors and teachers and making questionnaires aimed at employers.

Nevertheless, more triangulation was not completed because the research aimed at portraying a multi-field picture. The research projects' time schedule and financing would not have enabled such a systematic process to be undertaken for all groups of participants from all educational fields. Collecting data on employers was emphasised among the choices of target groups that could be assessed because employers were considered to be the least studied group. Actually, one anonymous referee of Article III would have preferred even more data triangulation, particularly regarding employers. The referee asked whether the classification of employers entered in Article III had been validated by collecting feedback. That would have been one possible way of enhancing the validity of the data analysis by method triangulation. The option of applying more triangulation per participatory group should be taken into consideration for future studies if possible.

Relations between the dissertation's frame of reference and study design

The core of the frame of reference for this dissertation has been that of the model of connectivity. Accordingly, the issues of credibility (Rasmussen, Østergaard, & Beckmann, 2006) led to the following questions: (i) *Does the model of connectivity bring up the relevant characteristics that determine learning from work experience in internships?*; (ii) *Are the research problems formulated with satisfactory precision?*; (iii) *Have the best possible research methods been chosen considering the frame of reference and the themes to be examined?*; (iv) *Have the*

central characteristics guiding learning from work experience according to the model of connectivity been operationalised into questions when data were collected; that is, have the abstract themes deriving from the frame of reference been successfully transformed into concrete topics?; and (v) *Are the respondents capable of yielding data that will answer the problem addressed?*

Next, I will shortly explore answers to these questions relating to credibility in their respective order. First, I will reflect on whether or not the model of connectivity provides a satisfactory framework, in answer to question (i) *(Does the model of connectivity bring up the relevant characteristics that determine learning from work experience in internships?)*. The dissertation places more emphasis on the cooperation between UAS and employers than on the individual learner. The *model of connectivity* outlines the role of the education and training provider as the organiser of the learning from work experience, but it also provides certain criteria for how the cooperation should support learning from work experience. These criteria include combining theory and practice, horizontal and vertical expansion, and guidance that aims to increase the zone of proximal development and boundary crossing with respect to students' and workplaces' earlier levels of activity. However, the model's direction concerning the cooperation between employer and education provider was a central reason for choosing it as the frame of reference.

It would have been possible to study the relations between employers and educational institutions in terms of network theories, but they would not have provided conceptual tools related to learning from work experience. It would also have been possible to focus more on students' learning with the help of, for example, integrative pedagogy (Tynjälä, 2009) or teacher agency, but then the emphasis of the research would have been different, leaving out the factors that define cooperation. Furthermore, questions related to employers' collaboration would have been left out of the framework. Nonetheless, the model of connectivity has many overlapping characteristics in common with integrative pedagogy, even though it is not quite as explicit about the pedagogy for learning. Both approaches give emphasis to combining theory and practice, appreciate guidance, and acknowledge (at least implicitly) the aim of expansive learning (see Tynjälä, 2009, p. 19). However, integrative pedagogy seems to place more emphasis on pedagogic devices and students' self-regulation. On the whole, the framework of connectivity provided by Guile and Griffiths (2001) is a more satisfactory framework for discussing issues of cooperation. Their approach places more emphasis on the system or policy level. In addition, another aim of this dissertation has been to redefine the connective model. Accordingly, the limits of the approach have been scrutinised in the course of the study.

In answer to question (ii) (*Are the research problems formulated with satisfactory precision?*), the research problems were formulated and reformulated several times during the course of the research. First, to begin with, they were formulated in the applications for the financing of the research. Second, the data sets reported in Articles I, II and III

were also reported in Finnish and the research questions were formulated for the needs of those reports. Finally, the research questions have been formulated for the articles and in order to form the overarching research questions of this dissertation. Altogether, the research questions were based on the model of connectivity, but it might have been possible to target some characteristics of the model more specifically. However, that would have been rather contrary to the holistic approach of looking at internships that was aimed at. Also, the research has aimed at analysing the internships in their societal context, as is apparent in the overarching research question two. I would like to argue that this approach of not focusing on singular characteristics of connectivity has both strengths and weaknesses: particular characteristics of the model are not studied in detail, but a valid overall picture of internships in their context is achievable.

Now, I will address question (iii) (*Have the best possible research methods been chosen considering the frame of reference and the themes to be examined?*). Part of the aim of the dissertational research was to get a nationwide impression of the state-of-the-art internship programmes being offered by universities of applied sciences in Finland. Therefore, the data were collected from several UAS, their graduates and collaborative employers. Quantitative methods allowed reaching as many of the cooperating partners and graduates as possible. However, it was not possible to study all of the models of learning from work experience offered by all of the UAS, and neither was it possible to study all of the collaborative employers' and graduates' views. However, the data allowed several crossovers beyond the targeted educational field: in the first phase, data were collected from five UAS, and three of those enabled access to their collaborative employers. Later on, one additional UAS enabled reaching their collaborative partners. In addition, the graduates' views represent a random sample of all Finnish graduates of one school year in two educational fields. Naturally, both the validity and reliability (see Tynjälä et al., 2006) of the results would have been enhanced if it had been possible to conduct more data triangulations. Nevertheless, the present approach has yielded satisfactory generalisability. For example, there was a time gap between the first and second data collections pertaining to employers, and the results were quite consistent. Also, the considerable number of individuals from several involved parties that were approached during the course of the research have enhanced the reliability of the results.

The number of UAS covered by the dissertation may be criticised on the basis that the teacher interviews conducted as part of the research covered only five of the existing twenty-five UAS. Thus, the "ideal" internship model constructed on the basis of their experience is not based on all of the UAS. However, a level of saturation was reached during the course of the interviews conducted in cooperation with the five UAS that participated. At one point, no more new features seemed to appear with respect to internships. The analysis was based on a deductive approach. In the qualitative theory-led

content analysis, the leading motif used was the connective model, and thus similarities with respect to its characteristics were scrutinised. I would like to argue that the "ideal" internship model presented in Article I is valid for the educational fields that it is based on, and it may well be applicable to other fields as well – but confirming that would demand further investigation. The systemic characteristics that define the organisation of internships vary from one educational field to another and therefore studies on other fields would probably reveal field-specific effects.

The groups of employers that were addressed during the course of this dissertation make up two different samples. The employers in the first sample (Article III) stemmed from the collaborative partners of the three UAS whose teachers had participated in the previous study (Article III). In this sample (n = 269), employers from several fields of production and from different cities in Finland were represented. The second sample focused on one field, the field of social services and health care. It represented collaborative employers of an UAS situated in a fairly big city in Finland (n = 165, Article IV). The groups of employers represented by these two samples may be criticised from four perspectives in particular. Firstly, the respondents probably represent the most active employers. Thus, the views of the less active collaborative employers have been left out of this dissertation. Secondly, only a minority of participants comprising the samples of this dissertation stemmed from major cities. Thus, issues related to dealing with larger student populations are underrepresented in the dissertation. Thirdly, in both surveys, only one person from each particular workplace was selected and participated in the surveys, which is a limitation in terms of viewpoints that were considered. Also, the individual participants do not represent the official views of their organisation. However, participants' views do not have to reflect the strategic plans and commitments of their workplace to be a valuable source for gaining insights into organisations and working life. Nonetheless, addressing several representatives of a workplace/organisation could be fruitful in future research. Fourthly, the fields of production addressed by the dissertation were limited to the fields of technology, business and administration, social services and health care, and a minor group of "other" types of employers. Accordingly, there are a considerable number of fields of production that are not addressed by this dissertation. For example, the field of culture was out of the scope of this dissertation.

One central starting point for the interpretation of the research results has been that the internship model that has been studied is not the only one. Otherwise, it would have sufficed for the research to have focused on only one field and one UAS. Thus, the internships experienced, assessed and described are perceived differently by most of the individuals of the involved parties. In the course of the research, we do not so much see the internship models themselves that the involved individuals came across, but rather how they *experienced* the models with respect to connectivity.

Therefore, a central question related to credibility is the *fourth* criteria of credibility (Rasmussen et al., 2006): whether the questions that the participants asked reflected the characteristics of the connective model sufficiently; to paraphrase the question: (iv) *Have the central characteristics guiding learning from work experience according to the model of connectivity been operationalised into questions when data were collected; that is, have the abstract themes deriving from the frame of reference been successfully transformed into concrete topics?* The answer to this challenge of credibility is that the questions have reflected the characteristics of the connective model substantially, but not completely. In other words, I would like to argue that the exploration of characteristics such as the expansion of knowledge, boundary crossing, the combining of theory and practice, guidance, and self-reflection has been consistent with the connective model, but it certainly could have been completed in many other, more thorough and in-depth ways. The emphasis that has been given to the characteristics of connectivity is, however, explicit in the structures of the open-ended interviews and questionnaires appended to this report.

The final aspect of credibility to be discussed here is whether or not the respondents have been capable of providing data that will answer the problems addressed, as asked in the question: (v) *Are the respondents capable of yielding data that will answer the problem addressed?* All of the UAS personnel interviewed had completed a professional teacher education. Accordingly, they were familiar with educational research and its terminology. In the course of the interviews, they did not complain that they do not understand the questions, even though they sometimes asked for the approach to be explained in more detail. Also, the large majority of employers who participated in the research were competent, experienced and had high educational qualifications; nevertheless, their response rates were the least satisfactory. In a somewhat ironic contrast, the response rates of the graduates were very satisfactory (56.2%, Vuorinen & Valkonen, 2007, p. 26). At the same time, it may be scrutinised whether collecting a similar questionnaire from students would not have yielded more information compared to the graduates' responses. It might be critically questioned whether graduates remember their internship experiences sufficiently. The comparisons of students' and graduates' views that were reported in Article II were based on rather different questionnaires and may therefore be criticised as well. However, in response to such criticism, I would like to argue that the overall conclusions made on the basis of the student–graduate comparisons carefully acknowledge the differences between the data sets.

6

Findings: Internship models and connectivity

In this chapter, I will answer the overarching research questions by utilising the findings of the four empirical sub-studies (see Articles I–IV). The relations of the sub-studies and overarching research questions are presented in Figure 3. First, the findings will be investigated in relation to the four overarching research questions, and findings of recent, related studies are discussed (see sections 6.1–6.4). On the basis of these empirical findings and further research discussions, I then redefine the concept of connectivity (see section 6.5).

6.1 Models of learning from work experience adopted in internships (Article I)

The aim of the sub-study reported in the Article I was to find out whether the internship model practised by the UAS had some congruence with the model of connectivity in their approach to combining theory and practice, and which institutionalised practices co-constructed them. Accordingly, elaborations on the models of embedding workplace learning in curricula make up the first part of Article I. Secondly, the factors encountered in building a network of expertise to support students' workplace learning were investigated. Thirdly, five dimensions of connectivity were presented in the Figure 6, in order to emphasise the differences and similarities between school learning and workplace learning (see Article I, p. 293; Figure 6, section 6.5). For each of the five dimensions, a list of

related questions was introduced. This reconstruction of the concept of connectivity into five dimensions was my first attempt to redefine the approach of connectivity. It will be discussed further in section 6.5.

With respect to the first overarching research question, *"How do teachers perceive the model of learning from work experience constructed in internships with respect to connectivity?"*, the challenge, as compared to earlier research, was to gain multi-field and multi-UAS perspectives on the internship model of Finnish UAS. In Article I, the main characteristics of learning from work experience forming internships were unified into one overall, "combined" model that was presented in Figure 1 (Article I, p. 292). The data set included information on five Finnish UAS, including their Bachelor's degree -programmes in the fields of social services and health care, business administration, and engineering (see section 5.2).

Even though the proposed "ideal" model combines characteristics of the internship models of all the participating UAS, it is not entirely "ideal". In the middle of the column in Figure 1 (Article I, p. 292), continuums of dimensions for organising workplace learning are indicated. The "minimum" ends of some of these continuums present the minimal structuring of the workplace learning at the time. Thus, the model also portrays the variance in the organising of workplace learning as part of the curricula.

The presentation of one combinatory model that combines the characteristics supportive of the connective model was a choice that was made purposefully. This aim was justifiable on both an ethical and practical level. Firstly, presenting one model was more efficient than describing fifteen models and comparing them. Secondly, it was chosen to help keep the participating UAS anonymous. Thirdly, it was thought that it is more constructive and helpful for the UAS to see the best practices presented in one combinatory model. The idea was that they can compare and reflect upon the features of their own model and get inspired. In other words, another reason for presenting one model was to enhance the sharing of good practices and to identify the characteristics that support connectivity. The model aimed to identify features related to these dimensions. (In section 5.3, on methods, the deductive approach of building the model is discussed in more detail.)

In Figure 1 (Article I, p. 292), the characteristics of the models practised by the UAS are compiled into one model. When the model presented in Figure 1 (Article I, p. 292) was discussed at one of the UAS that participated in the sub-study, the reaction of their representatives was that many of the characteristics look familiar. Nevertheless, there were some characteristics that they felt should receive more emphasis in order to more accurately depict their model of learning from work experience. The author suggested that each UAS, and in regard to each educational field, could choose to emphasise one of the four phases in their developmental work per scholastic year, because the list of characteristics that the model combines is quite exhaustive. In other words, they could focus on the planning of their curriculum, or the preparation of workplace learning, or the realisation of workplace

learning, or on the outcome of learning periods in different years. Accordingly, the developmental work would be structured and less loaded with too much to focus on annually. The weakness of one combined model as depicted in Figure 1 (Article I, p. 292) is that it does not suit all educational fields as such. Rather, for each educational field, the UAS have to figure out what suits their curriculum and their collaborative employer best.

There are also some limitations that affect the combined model shown in Figure 1 (Article I, p. 292), such as the impossibility of depicting the future. For example, the use of moderated online activities was quite limited at the time the data were collected in 2002–2003. The usage and development of various ICT-based tools to support work-based learning in internships of the UAS provides a future research theme and target of developmental work on its own. This could be organised in collaboration with networks of educational fields. Organising communication between teachers and students has been tackled with social media like Facebook and Skype, for instance, in a tourism and hospitality internship organised by some British universities (Busby & Gibson, 2010; Gibson, 2009). Both of these media tools were found useful for keeping in touch with supervising teachers.

The combined model in Figure 1 of Article I (p. 292) has some similar characteristics as another model presented in the Finnish context by Vesterinen (2002). The model described by Vesterinen (2002) was constructed as the result of a developmental project regarding practical learning at work. The project was implemented at South Carelia Polytechnic in 2000–2002, and focused on business studies. The similarities of the two models are, however, limited mostly to the pedagogical devices used to enhance workplace learning, such as in regard to learning diaries, reports, seminars, assessments and self-assessments, and the interpretation of internship as a process. The model presented in Figure 1 (Article I, p. 292) presents a few more devices that utilise the role of learning groups to enhance work-based learning, like mid-term reflection days with the supervisor and other students, as well as workshops and seminars as an outcome of workplace learning periods. The model by Vesterinen (2002) brings up the meaning of social interaction and discussion, and thus does not exclude learning groups. The difference between the two models regarding the role of peer groups is probably an outcome of the cross-fertilisation between educational fields in the model shown in Figure 1 (Article I, p. 292).

It is important to note though, what the criticism has pointed out: literature on work-based learning has a tendency to put emphasis on individualised approaches (Siebert, Mills, & Tuff, 2009). Supposedly, the reason for this is that such pedagogy fits more easily into curricula. On the one hand, the tradition of individualised learning which has been dominating school curricula has equally pervaded workplace learning. On the other hand, workplace learners appreciate individually negotiated study plans (Siebert et al., 2009). The development of learning groups in relation to work-based learning might definitely deserve more attention as it has been found fruitful (Siebert et al., 2009). Organising

such learning groups has been found to be beneficial in allowing students to learn from others by reflecting on matters: sharing each other's understanding, knowledge and interpretations, and creating new solutions (Siebert et al., 2009). Secondly, students also learn by observing others coping with their learning, tackling their projects, combining theory and practice, and managing their relations with employers. Research has further shown that changing from a "workplace" perspective to a "learning group" perspective adds another aspect to learning, that of abstraction (Siebert et al., 2009). When novices move from talking the language of practice as it is typical at work, to talking about practice within a learning group, they need to switch to abstract thinking and bring theory into their expression. There may not necessarily be room for this during the placement at the workplace (Leinhardt, McCarthy, Young, & Merriman, 1995). Siebert et al. (2009) emphasise that within situated learning, it is also possible to use and develop forms of knowledge that are not situated. Furthermore, students can be embedded in several learning communities simultaneously.

Earlier research has suggested practices such as observation of planning, collaboration and development projects, interviewing members of work communities, as well as encouraging peer exchanges pertaining to enhancing collaborative learning as part of work-based learning. These procedures could be used as a way to engage students to pay more attention to the collaborative nature of workplace learning (Collin & Valleala, 2005). The development of collaborative forms of learning as part of internships seems to deserve further investigation.

The models of workplace learning that UAS had adopted for their internships varied considerably both by educational field and per UAS. This is in accordance with graduates' experiences (Article II) and employers' reflections (Articles III–IV). Thus it appeared that there were some factors that predetermined the adopted models. These were dependent on the various histories and cultures related to educational fields, and on contracts made between UAS and employers in their specific field. In addition, there were some models of action and traditions that were typical for particular UAS, related to the organising of internships and sharing of models internally. In the next section, the practices co-constructing the models of learning from experience adopted by UAS are investigated in more detail.

6.2 Cooperative practices institutionalise and co-construct internships (Articles I–IV)

The second overarching research question *(Which practices co-construct and institutionalise the internship model as it is presently organised by the Finnish UAS?)* concerned practices that co-construct and institutionalise the Finnish internship model as organised by the Finn-

ish UAS. Initially, the practices that institutionalise internships were identified in Articles I and II on the basis of teacher interviews included in the first data set. In Article I, the practices were discussed under themes (and headings) such as contingency, workplace guidance, remuneration, and rewards (pp. 299–304). In the second article, they were discussed more concisely (pp. 209–211). Here factors such as the position of the placement in the overall curriculum, the contract between the UAS and the employer, the reward for the student and compensation for the employer, guidance at the workplace, students' reports and self-assessment, and assessments were mentioned. In addition, in Article III, practices such as decisions on students' participation in workplace activities and (learning) tasks, employers' recruitment strategy and related strategy of taking interns, and human resource development were explored. Finally, in Article IV, the UAS' and employers' collaboration with other educational institutions was brought up, as well as the role of national networks that enhance curriculum development. The last article also gave emphasis to students' guidance and collaboration related to curricula. These central dynamics that co-construct the internships that have been described in Articles I, II, III and IV have been summarised in Figure 4 of this dissertation. The aim of Figure 4 is to give a better, more holistic depiction of the larger learning field that structures internships. The practices identified in Articles I–IV are both empiric findings and factors that have been found, on the basis of previous research, to be effective for learning from work experience. Such factors include, for example, self-assessment (see Boud, 2000).

The heading of Figure 4 is *"Dynamics of practices that co-construct student internships"*. Some of the factors mentioned in Figure 4 have become rather institutionalised forms of conduct, such as compensations for employers and rewards for students. These are dependent on the educational field. For example, in the field of social services and health care, employers received compensation for their guidance, and in the field of technology the rewards that interns received were often better than in other fields (see Salonen & Hietalahti, 2006).

At first, I hypothesised that very many of these practices are institutionalised. However, when designing Figure 4 and re-reading the findings, many practices appeared not to be institutionalised. On the contrary, formally structured practices are intertwined with contingent factors, which is part of the challenge in constructing internships. As a result, the designing of this overarching figure was demanding; the factors were multilevel and they formed joint effects. This is typical for processes of institutionalisation (see Scott, 2001).

In research on institutionalisation, it has been stated that institutions do materialise themselves in many forms. For example, Scott (2001) has defined institutions as multifaceted systems that combine several symbolic systems: cognitive constructions, regulations and norms, and regulative processes. These forms of conduct materialise themselves in social action and reform it. According to Scott (2001), they integrate meaning systems,

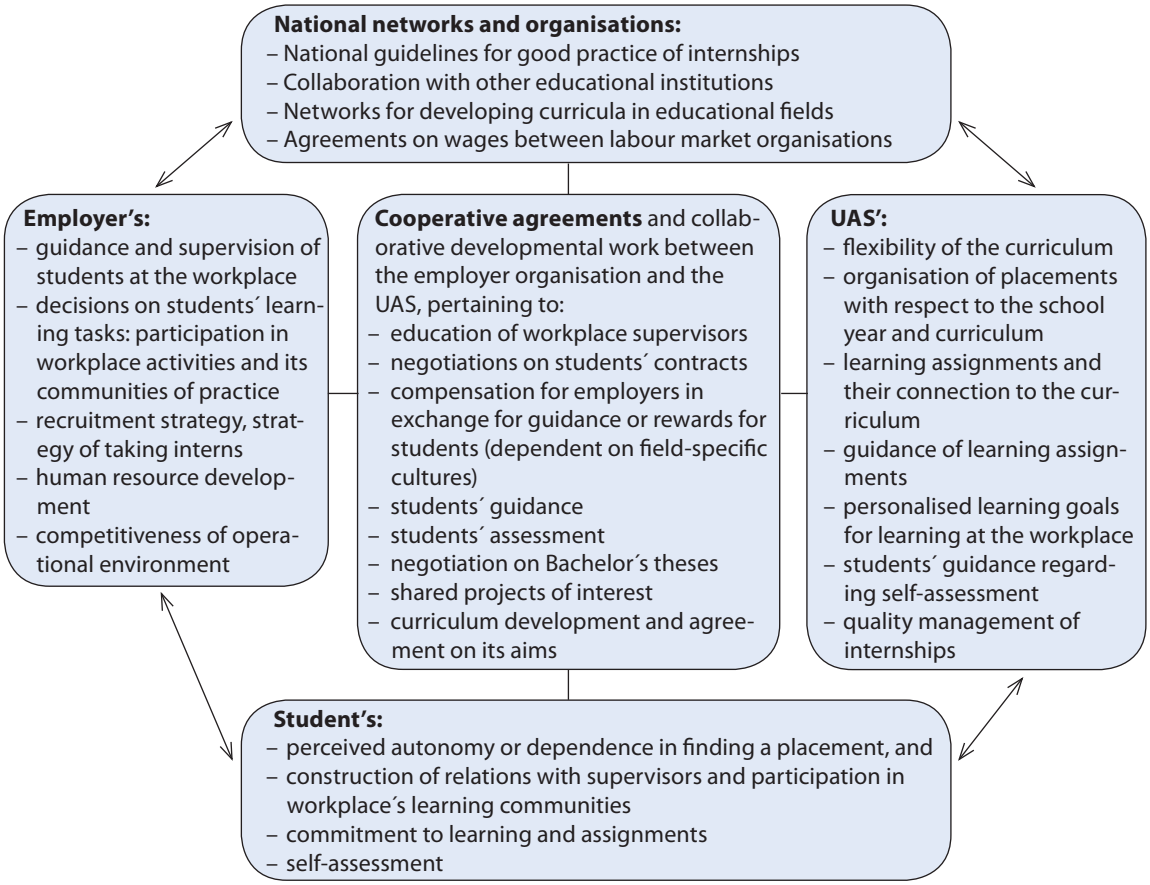

Figure 4. Dynamics of practices that co-construct student internships.

regulations and actions. Cognitive, normative and regulative structures constitute institutions and bring continuity and meaning to people's actions. At the same time, cultures, structures, and routines support the continuity of institutions. Repetitive conduct of actions is needed to keep the institutionalised practices continuing. The introduction of change to institutionalised practices may raise objections (Scott, 2001).

When looking at specific practices and comparing them, it can be noted, for example, that the paperwork around students' internship agreements is typically quite institutionalised. The forms of conduct that are less institutionalised are related to cooperative agreements and collaborative developmental work in particular. Initiation of collaboration and wider cooperative agreements are an endeavour that demands the activity of individual UAS and their teachers. The contingency in relation to these practices is an outcome of the fact that employers' collaboration in internships is voluntary and embedded in their interest. It is not solely an expression of their appreciation of mutual benefit

from the collaborative work (see Articles III–IV). Thus, each collaborative relationship is individual, and the collaborative relationships have to be built regionally. In some instances, the problems in regard to these forms of conduct are the lack of institutionalised ways to act and the lack of information and shared vision of common activities, which causes insecurity locally. Especially the results of Article IV showed this, in that many employers assessed information on qualifications to be student-based (43%), and only less than half of the employers (46%) found the level of background information on internships satisfactory.

Later, since the year 2004, HARKE (the national network for developing internships), produced recommendations for good practice. It has offered guidelines for organising various practical matters around internship placements (Salonen, 2006). These recommendations represent one attempt to institutionalise internships. At the same time, the UAS have been experiencing a time of reconstruction, where teachers' roles are changing and tasks are reorganised among personnel. In the United Kingdom, for example, a survey of business school managers' employer engagement showed that not only managerial predilections, but also a university's financial situation can have an effect on the extent of the personnel's engagement (Bennett, 2009). Also, in the case of trainee teachers' work-based learning in English further education colleges budgetary constraints and organisational exigencies were experienced as prohibitive of a more expansive work-based learning (Orr, 2011). In the same way, also in Finland, inter-UAS organisational practices and changes have been forming joint effects, which may have acted in directions opposite what was intended at the official level. At the same time, the issues of hierarchy, power and competition at workplaces affect inter-UAS collaboration in the workplaces (Billett, 2002; Järvensivu & Koski, 2012; Owen, 2009). Workplace learning was being contested even if only as a side effect.

One typical example of the joint effects of the practices that co-construct internships is the common organisation of internships in the summertime (see also Articles I–II). In the summertime, a lot of places for internships are available, but on some occasions this timing problematises the setting of individualised goals for the internships and employers' opportunities for contacting the UAS, because teachers are on their summer vacation. If the internship model is highly student-driven, the contacts with the UAS may become narrowly focused on the exchange of the necessary documents. Thus, opportunities for teacher–employer exchanges and discussing larger aims for collaboration between the UAS and the employer are less frequent. This is unfortunate, since internships and Bachelors' theses are the most frequent form of cooperation according to alumni (Laitinen-Väänänen et al., 2011).

Likewise, the question of salaries is a double-edged sword. Students prefer being paid and appreciated, but at the same time, if they are paid they are expected to be more

independent and mature professionals (see Articles I–II). This, in turn, may limit the employers' interest in organising guidance and mentoring. Building better relations with employers, improving guidance and having long-term aims for personnel development is a time-consuming process. It has to take place regionally, in collaboration with the qualification-giving educational institution. Even the more global, international contacts demand attention from supervising teachers and actions by the educational institution.

Some features of these joint effects of practices are deeply intertwined in the cultures of the educational field, like the question of salaries and the compensation for employers. Also, the characteristics of the work in the professional field affect the organisation; for example, in the field of social services and health care it has to be decided what kinds of tasks can be given to students without risking the safety of patients.

6.3 Graduates' expectations concerning learning assignments and guidance (Article II)

The third overarching research question was, *"How do graduates perceive the internship practices regarding connective learning?"* The graduates' views on the internship models adopted by the Finnish UAS were reported in Article II, p. 209–212 (see Article II, Figure 12.1, p. 209).

The findings of Article II showed that Bachelors of Business Administration and Bachelors of Technology of the year 2003, who were surveyed in 2005, were more critical of their internship experiences than students surveyed by the Ministry of Education in the OPALA survey ("OPALA", 2012). This was possibly an outcome of the measuring instrument used by the Ministry of Education, but it is also possible that graduates were more critical of their experiences due to experience they had gained in the world of work since graduating. The phenomenon that graduates are more critical than students has been recognised in other studies as well. For example, when medical education students, graduates, supervisors and teachers evaluated their curriculum at the University of Graz, the graduates were the most critical group. Graduates rated their competences lowest compared to other groups, but their answers followed a similar trend as other evaluators' answers (Spiel, Schober, & Reimann, 2013). In the sub-study presented in Article II, graduates were particularly critical concerning characteristics related to connectivity that would have enhanced the combinating of theory and practice and boundary crossing. Their assessments of internship characteristics – such as i) the internship learning assignments, ii) instructional support for self-assessment; and iii) support for realising the challenges of professional development – were clearly negative. The assessments were negative despite graduates having been assigned an educational mentor. The role of

the mentor teacher nominated by the UAS was often surprisingly found to be less effective than that of the workplace. Also, students were mostly negative about whether the guidance provided actually helped them to understand their field of occupation better. This indicates that internship experiences were not bound to learning goals beyond one workplace in many cases.

The results suggest that a more general framework for conceptualising the position of the employing enterprises and public organisations in the labour market was missing; the guidance was not very personalised and it did not support boundary crossing to a substantial degree. However, there were some differences between educational fields in this regard. The graduates from the field of technology were more critical than the graduates of business administration. Differences between educational fields were found with respect to the adequacy of information, UAS' provision of guidance, and learning assignments as well as making assessment criteria explicit. Recent study results on UAS nursing students' internship experiences underline the meaning of the educational fields and cultures typical to them. According to Saarikoski, Luojus, Taam-Mikkonen, Tarr and Meretoja (2013), nursing students surveyed in 2009 and 2010 (n = 2,338) were relatively satisfied with their teachers' supervising.

Other quantitative investigations of Finnish UAS students' internship experiences have been quite rare. Two larger surveys are well known, though. Firstly, the Ministry of Education conducts its OPALA survey on a regular basis ("OPALA", 2012). Unfortunately, its questions are somewhat limited with respect to internships, as has already been stated in Article II. A strength of the Ministry's survey is that its published results cover eight years, 2003–2011, and pertained to 17,000 to 19,000 students annually ("OPALA", 2012). The surveys do actually show a slight 5% increase in the group of satisfied students over these years. In 2011, around one-third (35%) of the students affirmed the statement, *"The guidance I received during my practical training was sufficient"* (by selecting the option, *"I very much agree"*), while 47% "agreed" and the rest of 18% "disagreed". At the same time, 49% of students indicated that they "very much agree" that, *"The work experience gained as part of my education benefitted my studies"*. An additional 40% of students "agreed", and the remaining 12% "disagreed" ("OPALA", 2012).

The network for developing relations between students and professional world, INTO (operating 2007–2009), conducted a large survey on students' experiences in 2008 (Zacheus, 2009). The survey was answered by 4,256 students and, as such, it was well representative of the various educational fields, except for the field of natural sciences. Respondents came from most of the UAS, but not quite in equal numbers from each of them. The responding students were, on average, half-way through their studies. The survey focused more extensively on the educational links to the working world and not just on internships. It explored whether students were satisfied with their knowledge of

career opportunities and how to look for employment, as well as regarding the closeness to working life that was present in the pedagogical devices of the UAS. With regard to internships, the results of this survey conducted in 2008 were quite similar to the findings presented in Article II, even though it assessed an earlier period. Students surveyed in 2008 did not evaluate their experienced guidance much better than did graduates surveyed as part of Article II in 2005. Rather, students were somewhat split between those, who were satisfied and those, who were dissatisfied with the guidance provided either by the workplace or the UAS. Half of the students found the support of the representatives of the UAS and the workplaces that guided them sufficient (Zacheus, 2009, pp. 23–24). Students from the field of technology were more negative in their assessments than students from the other educational fields (Zacheus, 2009).

While the survey by Zacheus (2009) was conducted in an earlier phase of students' studies in comparison to our graduate survey, it is probable that the more positive assessments by students at the end of their studies, as presented in the OPALA survey, were somewhat dependent on students' educational phase during which the surveys were conducted. At the end of their studies, students had completed all their internships and had experienced their studies as a whole. Nevertheless, since more extensive up-to-date survey results are not available, the critical results of Article II deserve some further examination and discussion.

According to the findings presented in Article II, graduates were dissatisfied with i) their internship learning assignments, ii) the instruction supporting self-assessment, and iii) the support given for realising the challenges of professional development. The value of setting personal goals for learning from internships has been recognised, for example, in the training of pediatric residents in the United States (Shepard, Sastre, Davidson, & Fleming, 2012). In these programmes, pediatric students appreciated the setting of learning objectives and having weekly meetings with peers and faculty mentors, in particular. Students did not find the exposure to such core competencies as patient care, medical knowledge or professionalism helpful to their learning to a similar degree (Shepard et al., 2012). If there is an opportunity to discuss personalised learning goals with supervising teachers and peer learning groups, students have a chance to talk about the work and construct another level of abstraction. This is an aspect that was also emphasised by Siebert et al. (2009).

Regarding assessment, Boud (2000) has introduced the concept of sustainable assessment, which involves not only making goals of learning explicit but also learning to undertake self-assessment activities. As such, it is closely related to recognising individual learning goals and planning respective assignments. In the Finnish case, internships were typically assessed only on a pass–fail scale. This simple assessment approach is probably a practical outcome of the complexity of developing criteria for the assessment of learning that has taken place in various situations. However, it seems that the question of how to construct personalised goals for learning in internships, and how to assess them, is

quite complicated and worth further investigation. For example, with respect to problem-based learning, research has brought up that the assessment should not only focus on the understanding of concepts but also on understanding the principles that link concepts, as well as on linking concepts and principles to conditions and procedures for application (Gijbels, 2005). If learning is expected to be different from conventional classroom learning, then the expected outcomes should also be assessed.

It has been noted that students who are able to reflect on their experience are better at recognising their own level of competence and how they can apply it in the future (Cord & Clements, 2010). With the help of reflection, which is related to self-assessment, students may develop a learning spectrum that allows them to move from self-awareness to self-improvement and self-assurance (Cord & Clements, 2010). That is, they can move from knowing their own level of, for example, language skills to improving their languages skills, and finally to feeling sure of their language skills (Cord & Clements, 2010).

Graduates expressed their dissatisfaction regarding their ability to recognise challenges for further development and, related to this, the learning assignments, assessments, self-assessment support, and guidance. The supervisors' role as a guide to aid in recognising opportunities for growth is theoretically justified by Vygotsky's (1982) "zone of proximal development", but it has also been empirically proven to be effective (see, e.g., Le Maistre, Boudreau, & Paré, 2006). The activity of the guide is crucial in supporting the students with the recognition of challenges for their own development. Unfortunately, not all supervisor–trainee relations are guided by humanistic, mutually benevolent engagement in learning, but rather take place in the power hierarchies of the workplace (see also Fuller & Unwin, 2010). Thus, being nominated as a guide is not necessarily an entirely voluntary position for the workplace supervisor (see, e.g., Järvensivu & Koski, 2012). In the following section, we will explore the employer views on internships in more detail.

6.4 Employers and the target of connectivity (Articles II, III, and IV)

Employers' views on internship learning were investigated because studying their views offered the opportunity to bridge a gap in the present understanding. Both employer views and instructor beliefs have been given only limited attention in previous research (see Blackwell et al., 2001; Garraway, 2006; Owen, 2009; Reeve & Gallacher, 2005). Employers' views on the meaning and fulfilment of the model of connectivity in the internships of the Finnish UAS were explored in the sub-studies II, III, and IV. Next, in relation to this, the fourth overarching research question will be explored, that is: *"How do employers perceive the application of a connective internship model?"* This question was studied in two sub-questions: (4.1) *"How*

did employers assess the target of aiming for a model of connective learning in internships?", and, (4.2) *"What kinds of benefits and barriers do employers see in aiming for connectivity?"*.

Firstly, in Article II, some of the results of the first employer questionnaire (relating to the third data set) were presented initially. Most of the employers had identified themselves as coming from the fields of technology, business and administration, and social services and health care. In addition, there was a small group of employers who were calculated together as coming from "other" professional fields; this group represented 12% of the respondents.

The results discussed in Article II focused on the employers' expectations of the UAS as an organiser of cooperation, and on the benefits employers expected to gain from having student interns at their workplace. The results highlighted that employers expected active participation from the UAS: to organise the internships, bring expert knowledge, teach the right attitudes toward work, and guide students' careers. However, there were differences between the professional fields with respect to the expectations.

Altogether, employers from all fields had high expectations of the UAS educating students in manners and attitudes toward work and being employed. The employers from the field of business and administration saw career guidance to be even more important. This emphasis is probably due to the recruiting of graduates having been more challenging in the field of business and administration than in the fields of technology and also social services and health care (see, e.g., Virolainen et al., 2008; Vuorinen & Valkonen, 2007). Employers from the field of social services and health care had more trust in the expertise of the UAS and evaluated their participation in the organisation of the internships more positively than did employers from the other industry sectors.

In conclusion to the results of Article II on employers, it is notable that employers expected active input from the UAS with respect to the internships. At the same time, employers of all fields expected the students to have the right attitudes. These "right" attitudes may include having a proactive approach, but they may also emphasise adaptation. Furthermore, the employers' views on the role of the students in the workplace varied from field to field. Thus, the results relating to the model of connectivity in internships were somewhat contradictory. Some further analysis of the employers' views on the benefits student interns bring were conducted in the study reported in Article III, because employers' views varied considerably. Accordingly, the fourth overarching research question's sub-question (4.1) pertaining to employers' views about internships was: *"How do employers assess the target of aiming for a model of connective learning in internships?"*.

This question is answered in Article III[4], where the same employers who were respondents in Article II were assigned to four groups based on their views on the benefits of

[4] In Article III, there is an unfortunate misspelling on page 7: The experiental model described by Guile and Griffiths (2001) is twice called "experimental" model. The same mistake is in Figure 1 of the original article by Guile and Griffiths (2001, p. 120).

having interns. The four groups that were identified were: (i) employers who emphasised the employment perspective, (ii) cooperative developers, (iii) employers with multiple goals, and (iv) employers who were concerned with the development of their own work. These groups were further differentiated with respect to three sets of variables. They were described, firstly, on the basis of their background variables; secondly, in relation to the importance they attached to various possible outcomes of the placement; and thirdly, in relation to the importance they attached to various developmental measures. The differences between the educational fields were found to be significant. There were more representatives from the private sector and the field of technology in the group of employers who emphasised the employment perspective than from other groups. The field of social services and health care dominated the group of cooperative developers. Employers of the two last groups came from a greater variety of professional fields.

Most of the employers fell either into the group of those who emphasised the employment perspective (34%) or had multiple goals (31%). Nevertheless, there were representatives of all professional fields in all groups. The group of cooperative developers was most positive about suggested developmental measures, such as: in-service training for personnel, developing new services and products, developing the efficacy of work processes, and researching customer satisfaction. The other employers were also positive about developmental measures, except for the employers who emphasised the employment perspective: they were the least positive about developmental measures. It was concluded, on the basis of the differences in employer profiles, that it is important to pay attention to employers' goals and interests when planning an internship curriculum. Also, the competitive structure of the field of technology creates very different requirements for recruiting interns than is the case for the field of social services and health care. The differences of context are important, especially in Finland, where the latter field, social services and health care, is organised mostly on the public level.

The ways in which collective beliefs and values mediate the approaches that instructors choose to use in on-the-job training instruction has been demonstrated, for example, by Owen (2009). She concludes that, despite the humanist paradigm dominating learning theories, the aspects of dissonance and contestation are a part of change in the workplace: the context of learning may even be disruptive (Owen, 2009). In parallel, creating an atmosphere of trust has been found to be fruitful for collaboration. For example, Garraway (2006) investigated curriculum knowledge development through the interaction and negotiation taking place between the workplace and the academy. His results underlined the demand for a reflective space, where collaborative parties can meet and engage in hybrid object development. Hybrid object development, such as the analysis of problem worksheets, may take place through a number of boundary practices. These practices include standardisation, context deletion and articulation (Garraway, 2006).

The focus on boundary work as such has overshadowed the factors affecting curricula. The question of curricula on the whole is thus left somewhat untouched, unlike in Article III, where the cultural values guiding the goal orientation of internships and their effects on curricula were investigated. The need for developing pedagogy as a core element of curricula has been acknowledged in the research. For example, in their study on graduates' workplace skills, Tynjälä et al. (2006) have found that incorporating work-based learning in higher education requires the development of pedagogical models. They have suggested a model of integrative pedagogy (see also Tynjälä, 2009). Also, when work-related learning programmes have been developed for employees, models have been elaborated (e.g., Poell, 2001).

Employers' attitudes toward learning are important, because they decide on student interns' participation and related affordances at the workplace. Despite the cultural values of the workplace guiding the affordances expected of student interns, it has to be remembered that students' own perceptions on learning are also influential. This is brought up in the results of Article IV, pertaining to employer experiences, as well as in other studies. University students' learning strategies have been found to be influenced by their epistemological beliefs (see Bauer, Festner, Gruber, Harteis, & Heid, 2004). These epistemological beliefs have been defined as *"fundamental assumptions about the nature of knowledge and learning"* (Bauer et al. 2004, p. 284). However, the results regarding how employees' epistemological beliefs affect their perception of workplaces as learning environments have not been quite that consistent (Bauer et al., 2004).

Regardless of their interest in examining the development of workplace learning, these previous studies have not so much explored the organisation of curricula in the collaboration between the world of work and educational institutions. The four modes of recontextualisation presented by Evans et al. (2010, 2011) explore the process whereby knowledge is adopted in a curriculum. It will be discussed in more detail in section 6.5, in relation to suggestions for redefining connectivity.

At the end of Article III, the issues pertaining to curriculum knowledge development were elaborated. This was approached by figuring out what kind of aspects demand attention with regard to the focus on work-based learning or work-related learning, respectively, in curriculum development. This elaboration presents my second attempt to redefine the concept of connectivity and it will be further discussed in section 6.5.

In conclusion on Article III, it should be noted that the employer profiles are related to employers' willingness to participate in curriculum development through the kind of aims they value as learning goals. Based on the employer profiles, it seemed that the three latter groups of employers were more interested in developing work-related learning. The first group of employers valued the employment perspective and would have given emphasis to work-based learning. Because the employer profiles described in Article III varied considerably, more attention was paid to the frequency of collaboration, and,

in Article IV, to employers' experiences concerning collaboration. The last overarching research question, sub-question 4.2, addresses employers' experiences, that is, in what ways they have found the collaboration related to internships to be supportive of connectivity; specifically aiming to find out, *"What kinds of benefits and barriers do employers see in aiming for connectivity?"* This question is answered on the basis of findings from Article IV.

Article IV was based on a questionnaire that targeted a group of employers from the field of social services and health care whose collaboration with one specific UAS was being studied. The questionnaire responses formed part of the fourth data set collected in relation to this dissertation. The results showed that a wider framework for collaboration was often missing between the employing organisation and the UAS. The majority of the employers (69%) had organised an internship place for only one student of this particular UAS, despite most of the employers normally taking several interns. As many as 77% of the employers took from one to three or more students annually. Students were recruited to an equal extent as a result of the students' own activity or the UAS contacting the employer. Accordingly, in a considerable number of cases (43%) student interns had informed their employer about their studies' contents and purpose. Likewise, employers were familiar with the qualifications as a result of their own personnel's education (40%) (Article IV).

Students' input at the workplace was appreciated by employers (Article IV). The guidance was seen to have a positive effect: it supported the personnel's professional growth. Interns brought new knowledge and their Bachelor's thesis brought up-to-date information. At the same time, the students' internship-related learning assignments were not found to be very useful. This was also reflected in only sporadic occurrences of more demanding forms of support for learning, such as planning small scale projects or producing materials relating to the practices of the workplace.

In their open comments about their internship experiences, the employers revealed that they had been especially concerned about issues related to *"relations with students, the curriculum, and the organisation of the cooperation"* (Article IV). The comments made regarding *student relations* emphasised the resource-intensive nature of guidance, which is to a substantial degree dependent on face-to-face interaction. Employers brought up issues related to the cancellation of internship placements, interviewing student interns, negative and positive experiences of student interns, and demands related to guidance. The number of comments on student relations was interpreted as an outcome of the personal nature of internship relations. Supervisors at the workplace are not education professionals. Therefore, they found negotiating and guidance to be challenging tasks at times. Supervisors were missing more contact and exchanges with teachers of the UAS. In particular, platforms were needed where the other themes brought up by employers related to the internship curriculum and the organisation of the collaboration would also be given attention.

The necessity to recognise the meaning of personal relations for a student's adaptation to the workplace has been noted in other studies as well. For example, the results reported by Campbell, Verenikina and Herrington (2009) underline the importance of the informal encounters between experts and novices. They find the manager's role central in supporting informal learning and creating a social climate that supports the development of knowledge, skills and identity at workplaces (Campbell et al., 2009).

The *curriculum issues* brought up by employers included: the length of placements, the suitability of the task and range of the students, the merging of theory and practice, and assessment (Article IV). On the whole, they suggest the fact that merging theory and practice is a contested area. More forums between the UAS and the workplace for discussing experiences and interpreting the curriculum would be very welcome. Also, the comments made concerning collaboration underline the need for this. Lastly, the interorganisational cooperation between educational institutions in a region was demanded, because many employers collaborated with other educational institutions as well (Article IV).

In conclusion, and as the results of Article III have shown, employers' interest in supporting the connective model as a basis for organising internships depended on their profile as an employer. The issues employers considered to be critical in the collaboration especially concerned relations to students, the curriculum, and the organisation of the cooperation. The benefits and barriers that employers see in aiming for connectivity in their collaboration with the UAS are summarised as follows, in Figure 5.

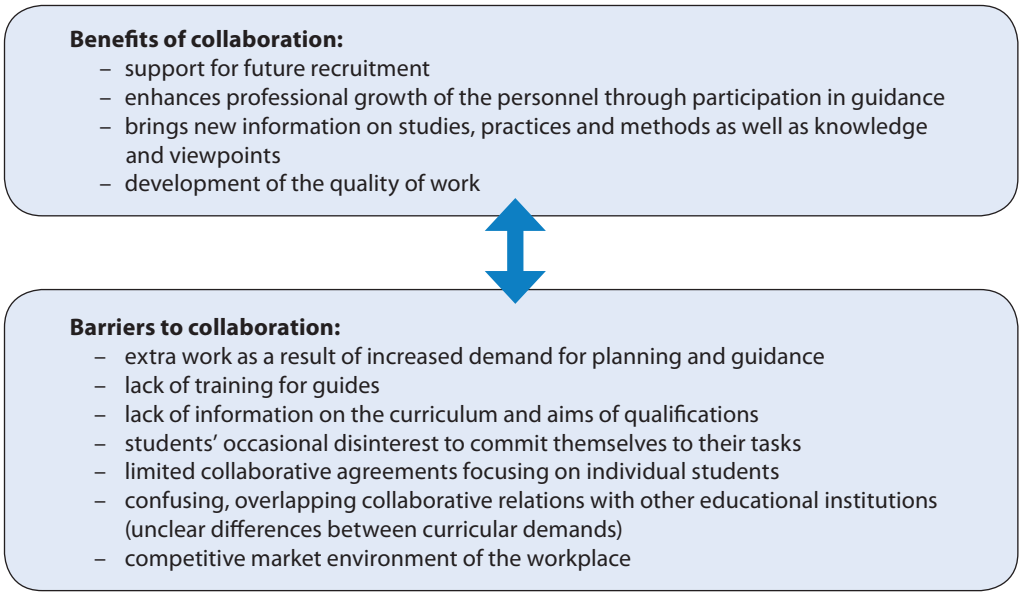

Figure 5. Benefits and barriers of collaboration in aiming to improve connectivity in internships.

6.5 Suggestions for redefining connectivity

As has been stated earlier, the connective model may be thought of as an umbrella that brings up several central features of the organisation of workplace learning as part of a school curriculum. In Articles I and III, I have provided two suggestions to redefine the concept of connectivity. In this section, I will first reflect on these attempts. Then, at the end of this section, I will comment on the two frameworks developed as part of this summary: (i) the types of learning, introduced in section 3.4.1 (see Table 2), and (ii) the dynamics of practices that co-construct collaborative internships in section 6.2 (see Figure 4).

In Article I, a model of five areas of importance in enhancing workplace learning for students is presented. An overview of the dimensions of connectivity is shown in Figure 6 of this dissertation (see also Article I, Figure 2, p. 293). The five areas are: (i) students' participation in formal and informal learning environments at school and (ii) at the workplace; (iii) horizontal and vertical expansion of knowledge; (iv) the expansion of skills (strengthening existing skills and developing new competences); and (v) the guidance of students in constructing and negotiating their own learning, including career counselling and mentoring. Questions for reflecting on each of these five dimensions in relation to the collaboration between UAS teachers and employers are suggested (see Article I).

The five-dimensional model presented in Figure 6 owes to the sociocultural approach (Billett, 2002; Illeris, 2004), and to researchers such as Hager (2004) and Boud (1999, 2000) in its emphasis on informal learning, the enhancement of existing skills alongside the development of new competences (Hager, 2004), and the guidance of students (Boud, 1999, 2000). In addition, it is based on the model of connectivity and the features characteristic of it. The five dimensions represent the characteristics of the connective model: the combining of theory and practice, the expansion of knowledge, boundary crossing, self-reflection, and emphasis on students' guidance. The questions that are posed in relation to each dimension suggest reflection on curriculum and pedagogy, and regarding students' opportunities to participate in learning communities at school and at work. Posing these questions is based on going through the teachers' interviews of the first data set. After presenting the combinatory internship model (Article I, Figure 1, p. 292), presenting the five-dimensional model shown in Figure 6 came to mind as an innovative suggestion based on recognising the characteristics that seemed to be critical in the first data set. The characteristics were critical in terms of learning from work experience and from the viewpoint of connectivity. In relation to the concept of connectivity, this model places greater emphasis on the role of career counselling.

After having collected data on graduates' and employers' experiences of internships, the questions posed in relation to the five-dimensional model (Figure 6) seem to me

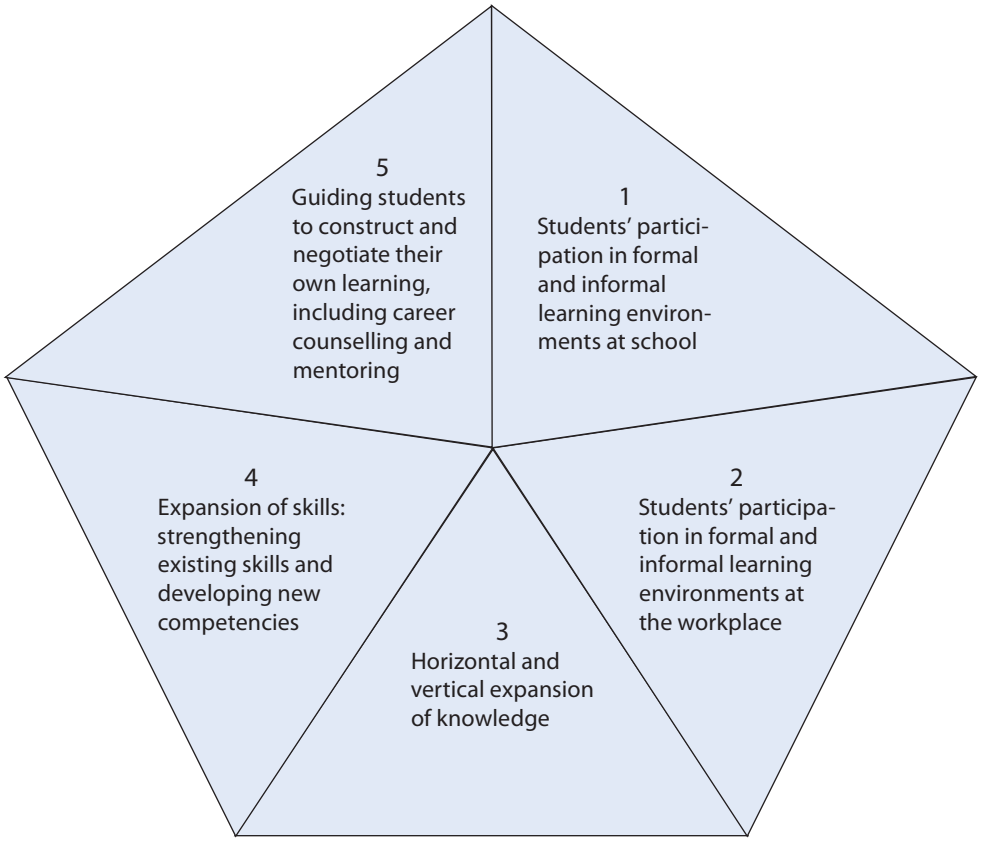

Figure 6. The five areas of importance in improving workplace learning for students (adopted from Virolainen, 2007, p. 293).

quite idealistic and exhaustive. At present, I am quite critical about it being possible to reflect on all of these points. Despite their idealism, I would still like to argue that they bring up points of refinement, indicating where learning from work experience in internships might be improved or given more attention. My impression based on the teacher interviews that comprised part of the first data set was that the Finnish UAS had already paid attention to points 1–4 of the five-dimensional model (Figure 6); however, in regard to the 5th point – guiding students in constructing and in negotiating their own learning – the necessary career counselling and mentoring was not so well integrated in the internship model used. Rather, guidance counselling was mostly a separate part of the curriculum that had no connections to learning from work experience. (Assessing the practised internship model was not, however, a task of this research project).

The second suggestion for redefining connectivity is presented in Article III (see Table 7, Article III). In the third article, the developmental issues of educational systems are

presented from the two perspectives of work-based and work-related learning. The reason for presenting the developmental issues in such a way is that the underlining rationales for employer participation differ: employers' profiles seem to be conducive to either work-based or work-related learning. The developmental issues are appointed to three levels: (i) curriculum development and pedagogy; (ii) the organisation of cooperation between higher education institutions and employers; and (iii) developing field-related education locally vs. nationally. In addition to pedagogic issues regarding internships, the framework brings up the importance of the local networks of expertise, which have to devise more-or-less formal collaborative agreements, engage themselves in guidance development, and exchange on curriculum issues. The level at which these networking bodies are representative of the interests of various groups of employers is crucial.

The redefining of the connective model has been attempted in these two frameworks, particularly in the following respects. In the five-dimensional model (Figure 6) suggested for enhancing students' learning, there is a continuing emphasis on informal learning. This is also emphasised in the model of connectivity presented by Guile and Griffiths (2001), but it is not that apparent in the four modes of recontextualisation suggested by Evans et al. (2010, 2011). In the four modes of recontextualisation, many of the informal combinations of various areas of life are left out as they are seen to be the duty of the learner. Ontologically, it is of course the learner who combines school learning with other lifeplace learning. Institutions cannot define or determine the informal learning of their students. However, I would like to argue that the combination of different forms of knowledge and recognition of their epistemologies and methodology is one of the future challenges of education. For example, in the field of information technology supported learning, the issues pertaining to the relations of personal learning environments and collaborative learning engage researchers (Häkkinen & Hämäläinen, 2010). The Internet-bound exploration of new knowledge has become a part of proactive professional conduct. Therefore, the fact that the four modes of recontextualisation underline purposeful strategic action, but leave the question of where the knowledge is derived somewhat aside, is rather problematic. Naturally, the focal aspects of knowledge vary from field to field. In a generalised model, it is not possible to cover all of them. However, I would like to give two reasons for emphasising informal learning. These include: (i) students' identity work and (ii) perspective of lifelong learning. When students move between two places, such as their school and their workplace, they gain new experiences that can redefine their professional identity (e.g., Beach, 2003). The transitions between school and workplace are just one context like this. In addition, there are the learning contexts of family (parent/s) and leisure time activities. These contexts are more important to and definitive of young adults, who are more influenced and dependent on their parents' and peers' views than are mature or middle-aged adults (e.g., teachers, employers).

In the presenting of developmental issues challenging the Finnish educational system (see Article III, Table 7), I wanted to give more emphasis to the larger learning field of the society and to those networks and governing bodies that participate in defining the internship curricula, that is, those bodies that participate more implicitly in renewing the curricula. The reason for underlining the organisation of work-based learning or work-related learning as part of curriculum is that, while in the knowledge society the multitasking of job profiles constantly questions the content of curricula, the work of the expert communities of practice defining curricula deserves to be acknowledged. The effects of employers' competitive operational environments and hierarchies, which restrict learners' affordances at the workplace (see, e.g., Järvensivu & Koski, 2012), are left unnoticed if the focus is put on pedagogic development alone. Picturing workplace learning as part of higher education may thus become overtly ideal. Especially the developmental issues presented in Article III bring up: i) the connections between learning from experience and the rest of a curriculum, and the processes guiding their construction; ii) how the quality management of collaborative relations is organised; and iii) the aspect of agents, such as networking bodies, who are expected to participate and are responsible for deciding on the knowledge to be chosen. The four modes of recontextualisation (Evans et al., 2010, 2011) focus on the processes of knowledge recontextualisation, but these issues (see Article III, Table 7) represent a rather organisational perspective underlining the strategic choices made by the responsible bodies.

My penultimate suggestion for redefining the concept of connectivity described earlier in this dissertation (see the section 3.4.1, Table 2) determines a difference between contexts of learning (i.e., at school or outside of school), knowledge production, the organising of concepts in curriculum planning, and the use of curricular concepts. In this framework, the focus is not so much on pre-chosen knowledge and the school context, but on various lifeplaces where learners come across many kinds of knowledge. This is not stated to undermine the importance of recontextualising work done at schools and by educational professionals, but rather the contrary. The intention is to highlight the differences and the boundary crossing that takes place when the different forms of knowledge and different contexts of learning are merged together. However, at the same time, it is important to remember that enthusiastic "trendsetter learners" may have adopted more knowledge that has its "finger on the pulse" regarding some subject areas than have some teachers who are not particularly interested in keeping up with the pace of new knowledge on all possible topics (which is impossible anyway).

In my final suggestion for redefining the concept of connectivity in relation to internships, I have underlined the collaboration of the involved parties and their responsibilities in constructing learning from work experience (see Figure 4, section 6.2). This suggestion for redefining the concept of connectivity gives privilege to the relationship between educational institutions (UAS) and collaborative workplaces. The relations

between educational institutions and collaborating workplaces have been a somewhat underdeveloped characteristic of the connective model (see section 3.1).

In conclusion, my suggestions for redefining the concept of connectivity have underlined two major themes that relate to it. Firstly, the need to pay attention to the challenges that informal learning posit to professional and vocational learning at school, especially transitions between knowledge categories (see Table 2 and Figure 6). The need to recognise informal learning, learning in lifeplaces other than school, and lifelong learning is related to the perspectives on career guidance and the recent societal discussion on the accreditation of prior learning (see Figure 6). They are in the interest of proponents of flexible career transitions. Secondly, I have wanted to elaborate the *practices that intervene in the relations between employers and education providers* in order to make the challenges of connectivity more explicit (see Article III, Table 7; see also Figure 4, section 6.2).

7

Discussion – The perennial mission of developing connectivity

In this final chapter, I will first discuss the societal meaning of the dissertation's subject and then discuss the main empirical findings. Secondly, I will draw theoretical and practical conclusions, whereafter I will reflect on the methods and future research needs.

The interest in adopting learning from work experience as a part of vocational higher education has increased in recent decades due to three intertwined societal development trends. Firstly, globalisation has increased competition for new forms of production, innovations and markets. Secondly, the parallel emerging of the knowledge economy has enhanced demand for lifelong learning in a variety of forms. Research is expected to create new knowledge that will boost innovation. Thirdly, thirst for innovation calls for approaches typical of learning organisations that will absorb innovation. This has enhanced the demand for learning through workplace internships. National innovation systems have been planned to confirm the assimilation and dissemination of new knowledge. Higher education institutions have a central role in these innovation programmes.

Alongside these three trends, higher education has been massified. As a result of the massification and globalisation, the discussion on employability has become an issue that has resonance also among higher education graduates (Schomburg & Teichler, 2011). It is no longer a question concerning solely individuals with a lower level of education. As a vehicle of employability, the quality of internships has become a topic of public interest

that has activated labour organisations to demand its assurance ("Nuorille työtä kunnon ehdoin", 2012; "Nuorille töitä kunnon ehdoin", 2012).

In Finland, in particular, the participation in higher education used to be somewhat higher than in other Nordic countries, for instance, in 2000. Recently, in 2009, the percentage of those having attained a tertiary level education in the population aged 25–64 has been similar to that in Norway, that is, 37% (Haagensen, 2012, p. 29). On the whole, the high participation rates in tertiary education have on their part increased the interest in the quality and the efficacy of education. Accordingly, the UAS have aimed at developing their educational programme, connections to the world of work, and internships as an important way to learn through work experience. Internships have been and still are an effective way to enhance competences and employability.

This dissertation has focused on studying how the UAS have succeeded in creating internships that support and engage students in learning through work experience. This has been done with the help of the concept of connectivity adopted from Guile and Griffiths (2001). This research has investigated what the distinct characteristics of learning through work experience in internships are with respect to connectivity and how these are co-constructed in Finnish UAS by teachers, employers and students. Data on teachers, graduates and employers have been collected in this dissertation's four sub-studies reported as Articles I–IV. In addition, the dissertation has aimed to redefine the concept of connectivity on the basis of the sub-studies' research results and recent, related research.

7.1 The main empirical findings

The dissertation's research results show the models of internships as a combined model with respect to connectivity. The combined and thus idealised model of Finnish UAS internships includes characteristics of connectivity (see Figure 1, Article I, p. 292). However, there are great differences between individual UAS and educational fields in how the model is utilised. The combined internship model, built on the basis of interviews presented in the first sub-study of this dissertation (see Article I), shows a continuum of differences across its phases, thus making the differences explicit.

The model of connectivity underlines several aspects that affect learning from work experience (Guile & Griffiths, 2001). These aspects include (i) the combination of theory and practice, (ii) horizontal and vertical expansion of knowledge and competences, (iii) guidance, and (iv) boundary crossing. The findings of this dissertation show that the internship models of the UAS utilised these aspects for their realisation and enhancement, but also left room for improvement. The UAS may contrast their model with the combined model provided on the basis of the data. The combined model can be used to rec-

ognise those parts of their internship model that demand enhancement. The combined model was developed on the basis of the experiences of teachers from three educational fields – social services and health care, business administration, and engineering – in five UAS. Having other educational fields included in the data would have probably emphasised somewhat different aspects of the internship models.

During the time of the data collection that provided the basis for the combined internship model (see Figure 1, Article I, p. 292), the use of ICT-based devices, as well as social media (e.g., Facebook and Skype), was quite limited – although, some examples did exist. On the whole, the results showed that there is a tendency to emphasise pedagogic devices that support individuals' learning from work experience. Thus, the tradition of school learning appears to be rather dominant. However, in order to support learning from work experience, the exchange of experiences between learners (peers), in particular, would be fruitful. It would enhance learning to theorise and conceptualise based on experience and to communicate regarding the work processes at hand (Leinhardt et al., 1995).

The results showed that practices construct internships on several levels, and not dependent on the actions of the education provider, or student, or teacher alone (see Figure 4). Thus, enhancing the internship model of learning from experience would demand actions that engage not only individual UAS as education providers, but also employers and their cooperative agreements. In addition, enhanced attention from national networks and organisations as well as students themselves would be needed. The joint efforts of the collaborative parties are beneficial, but other research results (Bennett, 2009; Orr, 2011) have shown that individuals' work-based learning is vulnerable to the financial situation of those parties and to the education provider's budgetary constraints. The critical question for developers and education planners thus remains how much improvement can be expected and organised without any cost.

The graduates from the fields of technology and business administration (Article II) were critical about their internship experiences, especially in regard to internship learning assignments, instruction for self-assessment, and support for recognising challenges in professional development. They found the role of the guide nominated by the UAS less effective than the role of the guide at the workplace. Also, graduates' experiences varied according to their educational field. Graduates from the field of technology were more critical than the graduates of business administration. Other studies have shown students to value personal learning goals (Shepard et al., 2012). Still, reflection on action and the sharing of experiences is needed to support abstraction, merging theory with practice and the recognition of future learning goals (see also Cord & Clements, 2010). Thus, not only the added participation of UAS teachers in student interns' guidance, but also the use of peer groups for comparisons of experiences, reflection, self-assessment and abstraction would be beneficial.

Employers' views were studied from two perspectives in this dissertation. Firstly, they were studied to find out employers' perceptions on the target of connectivity. Secondly, they were studied to find out about their experiences in organising internships, that is, what kinds of benefits and barriers they saw in organising them. In particular, employers' views have been an under-researched area, despite the fact that the expectations of the role of learning from work experience in higher education have been increasing lately.

According to the present findings, four groups of employers were identifiable with respect to the target of connectivity (Article III). The groups identified were: (i) employers who emphasised the employment perspective; (ii) cooperative developers; (iii) employers with multiple goals; and (iv) employers who were concerned with the development of their own work. Again, the differences between the professional fields were remarkable. Most of the employers of the sub-study came from the fields of technology, business and administration, and social services and health care. In addition, there was a minor group of employers who came from other professional fields. The field of technology was the most represented field in the group of employers who emphasised the employment perspective. Even though there were employers from all fields in each group with respect to connectivity, it is notable that employers from the field of technology dominated this group. Employers from the group of social services and health care dominated the group of cooperative developers. According to Virtanen, Tynjälä, and Eteläpelto (2014), the differences between the educational field of social services and health care and that of technology have also been significant in workplace learning as part of the initial VET (vocational education and training) in Finland. Employers emphasising the employment perspective comprised the biggest group of employers alongside the group of employers with multiple goals. These two groups represented almost two-thirds (64%) of the whole target population.

In conclusion, the employer views on connectivity brought up that it is important to pay attention to the employer profiles when cooperation is planned. The differences in the competitive environments of the professional fields vary. Consequently, employers' interest and capacity to invest in short-term or long-term planning of cooperation with the UAS varies. The research findings show that in more competitive fields such as technology, the emphasis may be put on employment rather than on the wider collaborative and developmental scheme with the UAS. In addition, the findings lay a foundation for the issues in developing curricula for work-based and work-related learning. The findings subsume that work-related learning requires more collaborative long-term engagement by the educational institution and the employer as a result of the demand for more detailed curriculum work. Thus, organising work-based learning may become more attractive.

The benefits and barriers that employers in the field of social services and health care found in collaboration with the UAS were bound by the fact that the wider framework

of collaboration was often missing between the employing organisation and the UAS (see Article IV). Rather, the model of cooperation was student-focused and student-led. Students were the ones who contacted employers and in many cases brought the information on their qualifications with them to the workplaces. In almost equally many cases, the familiarity with the qualifications expected at the workplaces resulted from the personnel of the workplace having similar qualifications. The benefits that the employers saw in collaborative relations were related to connectivity, boundary crossing, and the merging of theory and practice, but also to employment. Participating in guidance was seen as supporting professional growth. Reflective conversations with students brought new knowledge, such as via Bachelor's thesis. Employers' views on the usefulness of the students' internship learning assignments were not as positive as the students' own views.

In their open comments on collaborative relations, the employers brought up issues related to relations with students, the curriculum, and the organisation of the cooperation. These issues underline the need to recognise the personalised nature of guidance and its resource-intensiveness. At the same time, most of the employers were interested in participating in training for providing student guidance and had tried to develop it on their own. The issues related to curricula also concerned student issues, that is, whether or not the required tasks were suitable for the students. Since the employers rather disliked learning assignments, the merging of theory and practice was found to be rather challenging. Issues concerning assessments were also found to be in need of attention. Furthermore, the level of coordination and cooperation between educational institutions seemed to deserve attention in cases where employers were providing internship places for students from several different educational sectors. As a conclusive remark, it is fair to state that the empirical findings showed a demand for more collaborative platforms and exchanges between employers and the UAS in order to enhance connective learning from work experience. The following two sections will elaborate the theoretical and practical conclusions.

7.2 Theoretical conclusions

The model of connectivity (Griffiths & Guile, 2003, 2004; Guile, 2002; Guile & Griffiths, 2001) that has been utilised in this dissertation to explore learning from work experience in internships is kind of a theoretical umbrella. The model brings up several important aspects of what is important in constructing learning from work experience: the combining of theory and practice, horizontal and vertical expansion of knowledge and competences, guidance, boundary crossing, and the related challenging of learners. In addition, the model brings up the organisational level and how the coordination between employers and the

training provider may predefine learning. On the basis of prior research, the model of connectivity sets an ideal for how learning through work experience would best be organised.

In this dissertation, Young's (2008) original concept of connectivity has been followed. In addition, Evans et al.'s (2010, 2011) later developments related to the concept have been utilised. Furthermore, Akkerman and Bakker's (2011) review of boundary crossing research has been utilised to investigate what is at stake in boundary work, that is, what happens when merging theory and practice among involved parties coming from different backgrounds.

During the course of writing this dissertation, I have tried to redefine the concept of connectivity and to describe it in relation to the local context of Finnish UAS and their internship programmes. My suggestions for redefining connectivity have been presented in Article I (see Figure 6 of this dissertation), Article III (see Table 7 of Article III), and in this dissertation's section 3.4.1 (see Table 2) and section 6.2 (see Figure 4). These attempts underline perspectives of connectivity that deserve more elaboration and attention in research.

In the first framework, introduced in Article I (see Figure 2 of Article I, and Figure 6 of this dissertation), I emphasise the role that informal communities play in learning, career counselling, and the strengthening of existing skills alongside the developing of new competencies. The importance of these aspects may be bound within the Finnish context. In Finland, the school-based tradition of vocational and professional education is relatively strong (see, e.g., Green et al., 1999; Lasonen & Stenström, 1995). As a result, curricula are explicit and externalised, and made public in many cases. Accordingly, the need to place emphasis on recognising informal learning is felt to be more important in Finland than in the UK, where the curriculum of the National Vocational Qualifications (NVQs) (see Raggatt & Williams, 1999) is competence-based and the advantages of a formalised curriculum seem more important. At the same time, the emergence of the knowledge society demands lifelong learning. Informal groups of learners, such as "trendsetter learners" (see du Bois-Reymond, 2000), give emphasis to acknowledging the knowledge work that learners themselves engage in.

The introduction of the model of connectivity shows that it is critical for students to learn a pattern of negotiating their learning during their work experience and to receive support relating to formal and informal learning (Guile & Griffiths, 2001). Thus, the framework presented in Article I (see Figure 6, section 6.5) is not particularly innovative in revealing informal learning. Rather, it gives more emphasis to informal communities of learning and learning history. It presumes that the strengthening of existing skills and repeated career negotiations will also take place in learners' future. It underlines the need for engagement in the continuous process of learning to negotiate one's learning career and to view everything "through the eyes of an apprentice" throughout one's whole life. The framework gives privilege to guidance counselling and thus gives connectivity a dif-

ferent emphasis. However, the model of connectivity presented by Guile and Griffiths (2001) does not exclude these aspects.

Particularly the emphasis on career counselling in the framework (see Figure 6) is bound to the context of the Finnish UAS internships, where career counselling has mostly been organised in a rather insular manner with respect to the internships. This appears somewhat strange when considering that the workplace where the learning from work experience in an internship takes place is obviously one of the central places where a student engages in identity work. They reflect on their agency by thinking, "How do I fit in these tasks?". In conclusion, it is of importance for students, especially also in their later life, to learn to negotiate and recognise their own learning also in informal settings and learning communities. Research into students' recognition of these resources and their usage are needed. Particularly in Finland, the significant number of students changing their educational direction both in vocational education and in higher education stresses the need for this (Stenström, Virolainen, Vuorinen-Lampila, & Valkonen, 2012).

In Table 2 (section 4.4), I have tried to elaborate a classification provided by Young (2008, p. 53) of the shifts taking place in knowledge work and knowledge construction. These shifts occur, for example, when learners move from an out-of-school context to school and utilise both everyday and scientific concepts and frameworks to understand their activities. Particularly the shifts from institutionalised to contingent settings, from systematic to spontaneous curricula, and from routine to reflexive use of concepts demand attention. In the present society, the production of knowledge has been democratised (Gibbons et al., 1994). The hierarchical appreciation of school knowledge has been questioned. Consequently the ways in which students, teachers and professionals pay attention, recognise, work, and play with these shifts, and their boundaries, would be an interesting topic for future research. The overview of the mechanisms that are at work in boundary crossing, by Akkerman and Bakker (2011), might prove useful in identifying the ways in which people with different backgrounds negotiate boundaries of knowledge categories. The explication of these categories (Table 2) is a novel output of this dissertation. It adds to the approach of connectivity the perspective of processing knowledge in both in-school and out-of-school contexts.

The recontextualisation of knowledge has been elaborated on by Evans et al. (2010, 2011) in their presentation of the four modes of recontextualisation (section 3.4.2.1). Their approach acknowledges (i) the choice of content for curricula and (ii) pedagogy, as well as (iii) the translation of knowledge that takes place in the workplace. Finally, the authors (Evans et al., 2010, 2011) note (iv) that learners readjust not only their former knowledge but also their identity alongside adopting new knowledge and skills at work. The four modes of recontextualisation relate to the problem of curricula in a straightforward way. They divide the construction of concepts between several levels of involved groups, but the division leaves aside the more innovative aspects and questions of collaboration in

knowledge construction. The model is important in making visible the work that schools and teachers do as pedagogic experts and communities of practice. It acknowledges how knowledge is interpreted differently from context to context. Still, it leaves the aspect of current knowledge being displaced by new knowledge rather untouched. In other words, the development of knowledge is not explored in depth. It is an issue that Young (2008) was critical of in the works of both Vygotsky and Engeström. Consequently, the four modes of recontextualisation leave the informal settings of knowledge production aside, unlike my framework presented in Table 2. The strength of the model of the four modes of recontextualisation by Evans et al. (2010, 2011) is that it presents the differences between the roles of various involved groups regarding knowledge work. Future research on the combination of theory and practice and various actors' roles in contextualising knowledge may help in understanding curriculum processes more deeply. Research into this theme might include, for example, comparisons of students' and graduates' experiences of learning in internships – particularly in regard to knowledge categories and types of boundary crossing – that they found important, and what kind of knowledge categories they draw upon. From a teacher perspective, future research might focus on teachers' experiences of recontextualisation and the recognition of shifts between knowledge categories.

My third suggestion for redefining connectivity concerns curriculum work and how it is institutionalised when work-based learning or work-related learning is emphasised in the planning of education (see Table 7, Article III). With respect to connectivity, it adds the aspect of quality management and the perspectives of national and local bodies that participate in reviewing curricula. In other words, not only the perspectives of education providers are considered, but also those of other bodies that provide a framework of governance for choosing knowledge to be taught. This suggestion for redefinition, again, is bound to the Finnish context. In Finland, education has been, to a substantial degree, accredited by national state authorities (e.g., the Ministry of Education and Culture) through the financing of education and related governance. Comparisons of applications and methods used for quality management in enhancing work-related learning and work-based learning would make an interesting research subject. In relation to this, it would be interesting to investigate how national and regional bodies in different countries participate in choosing knowledge for curricula, and how the construction of professional curricula are governed in different national contexts.

The last suggestion for redefining connectivity, as presented earlier in section 6.2 (see Figure 4), focuses on bringing up the relations and roles of different actors in constructing connectivity. Not only the workplaces and educational institutions are important, but also the students themselves and the knowledge-choosing networks and authorities play an active role. The strength of this suggestion lies in proposing an increase in the roles that national networks and organisations have in the process.

7.3 Practical conclusions

The findings of the sub-studies of this dissertation reveal aspects that could be developed to improve learning from work experience in the Finnish internships. In this section, these considerations are collected together. Some of these have been registered early on during the course of the research, and later on the need for such improvements was confirmed by other data sets. In other words, the need for these improvements has not only been the concern of teachers, but also of students and employers. At this point, I am not going to refer to the research results as a justification any more, because they have been presented in the section on findings.

First of all, the combined internship model developed and presented in Figure 1 can be used by the UAS to reflect on their own internship model. In addition, the framework presented in Figure 6 and the questions related to it (see sub-section 6.5, Article I) provide a tool for reflecting on students' participation in learning communities and the kind of affordances these allow. Thus, the combined model constructed on the basis of teacher interviews (Figure 1) could be used for the purpose of quality assurance as well as the recognition of particular features and their development. Furthermore, it could be used in discussing the aims and potential of learning from work experience among the involved parties, that is, the teachers, students and employers.

The results regarding graduates' experiences showed that they appreciated the internship learning assignments that they had been given. Curriculum-related learning tasks related to core duties of professions could be developed in the networks of each educational field, and these could be combined as a battery of learning assignments. This would give the advantage that tasks are then more theory-based. Their development would not be left on the shoulders of individual teachers. Workplace-related nuances could be modified by individual teachers according to the core tasks. Findings on graduates' experiences also showed that improvements in the development of learning groups that support exchange between peers would be particularly welcome. Some of the UAS had already organised such groups, but their utilisation could be more intensive and targeted to improving the abstraction of learning from work experience in many forms. These forms could include, for example, utilising reflection and information exchanges regarding career opportunities, central tasks of work processes, and considering personal relations at the workplace. Since there has been a tendency to adopt school-based models of learning for learning even in internships, a focus on the development of group-focused working methods would be particularly welcome. Such methods could make greater use of Internet-based applications and social media such as, for example, Facebook and Skype.

Graduates also found that the guidance did not sufficiently support their recognition of targets for future development and engagement in self-assessment. Learning sustain-

able assessment would involve making learning goals explicit and learning to undertake assessment activities (Boud, 2000). The need for more cooperation between employers and the UAS with respect to guidance and assessment was also referred to by employers. Coming to terms with students' needs would demand more exchanges between the UAS and the employers with respect to curricular aims and related developments of guidance. What is promising is that the employers studied were mostly positive about participating in guidance training. Student self-assessment guidance could be enhanced by peer group workshops utilising web-based resources. To sum up, building learning groups that improve peer-shared reflection on actions at the workplace, the theorising and conceptualising of practices, the support provided for self-assessment, and the recognising of future learning goals, appears to be the big pedagogic challenge of internship programmes.

Employers were altogether missing collaborative platforms by which to engage in discussing the curriculum, qualification aims, learning assignments, and assessments. The recognition of employer profiles would provide an effective basis for the construction of short-term and long-term collaborative aims. When internships provide students with the most frequent contact with the world of work through the UAS, the building and negotiating of mutually beneficial contracts of collaboration between the UAS and the employer partners would seem reasonable. These contracts could take into consideration the expected number of student interns, guidance training, mutually developed central learning assignments for interns, themes of developmental projects, information exchange, and quality management procedures. The development of internship assessment criteria might be experimented with to motivate students and employers to think about the internship curriculum.

One central task and challenge of the UAS is the development of quality assurance tools for employer relations, not only regarding individual employer relations but also with respect to the wider collaborative relationships (informal or formal agreements). Based on the dissertational research results, it is justified to argue that the central future challenge of the UAS is to develop their agenda for partners with differing profiles, instead of starting with the assumption that all employing organisations follow one "ideal" model of learning organisations. Cooperation between the professional world and the UAS has involved or been relevant to projects, students' Bachelor's thesis, developing guidance of workplace learning, teachers' sabbaticals, guest speakers, and the sharing of equipment. The future challenges of quality improvement include: (i) making profiled agreements, (ii) devising strategies that recognise the different employer profiles, (iii) setting individualised developmental goals for enterprise partnerships according to employer profiles, (iv) developing an internship curriculum that is adaptive to different employer profiles and the specificity of the various learning

environments encountered at the different workplaces. Some initial steps have already been taken in this direction, for example, in the form of employer questionnaires; but this could be developed further in many ways, such as by utilising Internet-based applications and building communities of employers who take on interns.

The roles of national organisations, such as the associations representing employers as well as those representing employees are central in determining the wage conditions for interns. An increase in the national organisations' engagement in and discussing of curricular aims for interns, the development of guidance, and wage issues would also be of interest. These organisations could, for example, collaborate with the UAS in collecting feedback on employer experiences on a continual basis.

7.4 Methodical reflection and ethical considerations

One of the main challenges of the dissertational research was to consider internships with regard to several educational fields of different UAS, paying particular attention to employers' views. In order to achieve this, the sub-studies of this dissertation utilised both quantitative and qualitative methods in analysing the data gathered, which comprised four data sets of information gathered through interviews and postal as well as Internet-based questionnaires that targeted teachers, graduates and employers. The educational fields that were investigated included social services and health care, business administration, and engineering. The professional fields that the employers represented were the same, with the addition of a minor group of employers from several "other" fields having been included in the third data set.

Most of the data were collected and analysed using quantitative techniques. The preference for quantitative methods was based on the aim to reach as many participants from as many educational fields of the internships as possible. Still, the research focused on a limited number of educational fields. The results on the internships of the Finnish UAS based on the four data collections are thus somewhat limited and not generalisable to all educational fields or all UAS in Finland. However, the data collected on teachers covers a considerable number of UAS. At present, there are 27 UAS and the number has not changed greatly during the 2000s (AMKit Suomessa, 2012; Lasonen & Stenström, 1995).

The research results would have benefitted from the gathering of both more quantitative and qualitative data on each group of actors. At the same time, this would have limited the research to focusing on either one or two groups of actors.

The research placed emphasis on employer views, and employers were surveyed twice. Two articles focused on their views. However, the questionnaire that targeted graduates achieved a greater number of responses than the employer surveys. The data on graduates

was most representative of the overall data in quantitative terms, because it was a random sample of graduates of two educational fields (Bachelors of Business Administration and Bachelors of Technology) in that particular year (2005).

Even though the four data sets as a whole were collected in a somewhat patch-work manner – that is, covering different years and groups of actors not involved with the same internships – the views of the various groups of actors supported each other. For example, it sounds logical that students would welcome more learning assignments, while employers rather disapprove of them; it is not in the mutual interest of both parties to develop them, and thus they were underdeveloped.

When we turn to look at employers' representativeness in the dissertation, it is notable that the employers' response rates were lowest. Thus, it is possible to argue that they did not find the questions clearly phrased or found the questionnaires too lengthy. Counter to these suspicions, it has to be kept in mind that the employers who did respond were mostly those in a senior position. They were experienced employees of their organisation and very well familiar with the internships. Furthermore, the respondents did not complain about the phrasing of the questions. Accordingly, it would appear that those who did not answer also had other reasons for not responding. In addition, the response rates in the quantitative surveys carried out among employers as part of the sub-studies of this dissertation were satisfactory compared to other studies with similar designs addressing employers. However, in future research it could be fruitful to investigate the views of employers who are less active when it comes to collaborating with higher education institutions, as well as to address employers from different geographical areas that represent both dense and sparse populations. Furthermore, it would be important to assess the views of several employees from one workplace concerning internship experiences, and to address the fields of production that have not been investigated by the previous studies. In conclusion, I would like to argue that the credibility of this dissertation's results is satisfactory, even though embedding more method triangulation, more educational fields, and data on more employers could have enhanced the credibility of the results even further, as would have the opportunity to invite participatory groups to comment on the results.

The focus of the research was on the internship programmes of Finnish UAS, factors affecting these, and the relevant experiences of the involved parties. Ethical issues were not particularly at stake in the research design and use of data, because it did not concern personal, private or intimate issues. However, ethical issues that have been given attention during the course of the dissertation include: confidential participation in the research, access to information about the research, respondents' anonymity in the research results, the storage of data, and the publishing of the results. Next, I give examples of these aspects. During the course of the research, respondents were informed about the research

project, its purpose, and the financier. Respondents' participation in the study was voluntary. The respondents were given the author-researcher's contact details in case they were to require any further information during the project. The results of the sub-studies have been published in four articles, in a way that keeps the identity of the participants anonymous. For example, in Article I, the internship models were reported as one combined model instead of comparing identifiable, separate models that might be recognised. Quotes from interviews and responses to open-ended questions on questionnaires were assigned labels, instead of being referred to by the respondents' names, in order to prevent the identification of any respondents. The recorded and transcribed data, as well as the filled-in questionnaires, are kept in safe storage. The results of the sub-studies have been published in several reports and articles both in English and Finnish (Virolainen, 2004, 2006; Virolainen & Valkonen, 2007; Virolainen et al., 2008). Thus, respondents have had the opportunity to familiarise themselves with the research results through these publications. The results have also been exposed to peer review and practitioners' comments when the author presented them at several conferences and workshops both in Finland and abroad.

7.5 Future research needs

Many ideas for future research have already been mentioned in relation to their context and the birthplace of their proponents throughout this dissertation. Thus, here, I conclude with only the most essential of these. They can be divided into two major groups. First, those ideas that are more or less directly related to the development of learning through work experience in vocational education and that concern the knowledge work that the UAS and the professional world are collaboratively engaged in. Accordingly, these areas proposed for future research may require the use of action research strategies. And second, those ideas concerning research needs that are more directly related to the concept of connectivity.

Two research themes appear to be particularly important with respect to developing internship pedagogy. First, there is a need to develop the use of various models of learner groups and peer groups to enhance the reflecting on experiences, the collaborative merging of theory and practice, self-assessments, and assessments. Methods of assessment that target not only the understanding of concepts but also the procedures for their shared application should be experimented with. And second, the usage and development of various kinds of models incorporating ICT-based tools (for example, social media such as Facebook and Skype) to support work-based learning in internships of the UAS provides a future research theme and target of developmental work on its own. A plan for the

realisation of such aims could be organised in collaboration with networks of the various educational fields. The use of ICT-based tools for both inter-UAS communication and as platforms between the world of work and the UAS deserves further exploration.

The concept of connectivity could be further developed by studying the recontextualisation work that teachers and communities of different practices organise with respect to curriculum development and chains of knowledge selection. It would be interesting to study how teachers develop their own trait of agency with respect to competitive knowledge sources. With respect to recontextualisation, it would be interesting to study the knowledge work that employers and teachers engage in collaboratively when planning an internship curriculum and its adoption to a wider curriculum, investigating what kind of knowledge categories and rhetoric regarding boundary crossing they adopt in the process. Furthermore, the role of national and regional bodies in determining the choice of knowledge for curricula deserves investigation. These issues concern the UAS' role as part of the national innovation system and how this system is developed, that is, whether it is determined through the application or creation of new knowledge. It would also be interesting to study how each UAS' quality assurance procedure addresses the practices that institutionalise internships, investigating whether it improves approaches emphasising work-related learning or work-based learning. Furthermore, it would be interesting to study how the different UAS' strategies for their collaboration with the professional world addresses employers' differing profiles and commitment to collaboration, examining what kind of tools are being used that differentiate the collaboration with various groups of employers. Comparing the applications and methods used for quality management would help in improving the quality of the quality assurance approach itself. Finally, it would be interesting to study what kinds of learning strategies employees have adopted to innovate their productivity and customer services communication, and how these learning strategies engage students and novices who are completing their internships to take their first steps as "learners from work experience" in the working world. These are the issues that concern the innovativeness of workplaces as learning environments.

Virolainen, M. 2014
KOHTI YHDISTÄVYYTTÄ:
SUOMALAISTEN AMMATTIKORKEAKOULUJEN TYÖHARJOITTELUT

Jyväskylän yliopisto
Koulutuksen tutkimuslaitos
Tutkimuksia 29

ISSN-L 1455-447X
ISSN 1455-447X (printed version)
ISSN 2243-1381 (pdf)
ISBN 978-951-39-5587-8 (printed version)
ISBN 978-951-39-5588-5 (pdf)

Yhteenveto (Summary)

Tutkimuksen tausta ja tutkimuskysymykset

Väitöskirjassa tutkitaan, miten teorian ja käytännön yhdistämistä rakenteistetaan ammattikorkeakoulujen työharjoitteluissa. Yhteiskunnallinen kiinnostus työkokemuksesta oppimisen hyödyntämiseksi korkeakoulutuksessa on viime aikoina vahvistunut. Aiheen ajankohtaistuminen on seurausta useista rinnakkaisista trendeistä. Tuotannon osittainen siirtyminen halpatuotannon maihin on muuttanut työelämän tulevaisuudennäkymiä. Uuden tiedon merkitys on korostunut innovaatioyhteiskunnan ja työelämän organisaatioiden tuotantotekijänä. Työelämän organisaatioiden odotetaan toimivan oppivina organisaatioina, jotta ne kykenevät vastaamaan muutoksiin. Vastaavasti yksilöiden oletetaan toimivan elinikäisinä oppijoina. Näiden trendien ohessa korkeakoulutus on massoittunut. Keskustelu työllistyvyydestä on levinnyt nuorten koulutuksesta myös korkeakoulutuksesta valmistuneita koskevaksi ilmiöksi. Korkeakoulutuksen tuottamia kompetensseja on alettu tarkastella kriittisemmin. Korkeakoulutuksen massoittuminen ja kansainvälistyminen ovat puolestaan lisänneet korkeakoulutuksen laadun ja tehokkuuden painotuksia julkisessa keskustelussa. Korkeakoulutuksen työelämäläheisyys onkin nähty yhtenä opetuksen ja työllistymisen vahvistamisen keinona. Esimerkiksi ammattiyhdistykset ovat julkisuudessa painottaneet työharjoittelujen laadun kehittämistä.

Työharjoitteluja on Suomessa aiemmin tutkittu lähinnä yksittäisten koulutusalojen, toimijaryhmien (opiskelijat/opettajat) tai ammattikorkeakoulujen näkökulmasta. Samalla työelämän näkökulma on jäänyt vähäiselle huomiolle myös työkokemuksesta oppimisen ja työharjoittelujen kansainvälisessä tutkimuksessa. Väitöskirjatutkimus pyrkiikin laajentamaan koulutuksen osaksi järjestetyn työkokemuksesta oppimisen tutkimusta erityisesti kahdella tapaa. Siinä tutkitaan usean ammattikorkeakoulun ja koulutusalan työharjoitteluja, sekä pohditaan työnantajien kokemuksia ja näkemyksiä työharjoitteluista.

Tutkimuksen teoreettiset lähtökohdat ovat yhdistämisen mallissa (the model of connectivity, Guile & Griffiths, 2001) ja yhdistävyyteen (connectivity) vaikuttavien tekijöiden teoreettisessa tarkastelussa. Yhdistämisen malli jäsennetään tutkimuksessa osaksi koulutuksen ulkopuolella tapahtuvan oppimisen tutkimuksen perinnettä. Tässä keskustelussa oppimisen paikka, aika ja eri toimijoiden roolit oppimisen (tavoitteiden, keinojen ja sisältöjen) määrittäjinä ovat tulleet arvioitaviksi uudelleen. Informaalin, tilanteisen ja organisaatioissa oppimisen rinnalle on noussut elämäntilanteissa oppiminen (lifeplace learning) haastamaan koulussa oppimista.

Yhdistämisen mallin muotoilun taustalla on pyrkimys koulutuksessa ja koulutuksen ulkopuolella opitun yhdistämisen tukemiseen. Mallin esittämisen lähtökohtana on ollut oletus, että opetussuunnitelmissa on huomioitava oppiminen myös muualla kuin muodollisessa, järjestetyssä koulutuksessa. Yhdistämisen malli korostaa opiskelijoiden tarvetta oppia neuvottelemaan omaa oppimistaan erilaisissa ympäristöissä. Lisäksi malli painottaa ohjauksen, teorian ja käytännön yhdistämisen, tietojen ja taitojen horisontaalisen laajentamisen ja vertikaalisen syventämisen, sekä rajanylitystaitojen keskeisyyttä työkokemuksesta oppimisen tavoitteenasettelussa.

Yhdistämisen mallin teoreettinen perusta nojaa kolmeen traditioon. Ensinnäkin keskeisenä taustalla ovat Vygotskin (1982) käsitteellistykset lähikehityksen vyöhykkeestä sekä oppimista välittävistä välineistä ja keinoista. Ne korostavat kokeneemman asiantuntijan ohjauksen merkitystä. Toisena perustana mallille ovat Laven ja Wengerin (1991), sekä Wengerin (1999) tutkimukset tilanteisesta oppimisesta ja käytäntöyhteisöistä. Nämä painottavat asiantuntijayhteisöjen merkitystä tieto- ja taitojärjestelmien luojina. Lisäksi Engeströmin (2001; Tuomi-Gröhn & Engeström, 2003) teoretisointi rajanylityksestä ja laajenevasta oppimisesta korostaa eri yhteisöihin osallistumisen sekä niiden rajojen ylityksen merkitystä oppimisen laajenemiselle ja syvenemiselle. Yhdistämisen mallin lähestymistapaa pyritään väitöskirjassa määrittelemään edelleen. Uudelleenmäärittelyssä on hyödynnetty osatutkimusten tuloksia sekä teoretisointia opetussuunitelmaprosessiin kuuluvasta neljästä taustayhteyteen asettamisen muodosta (Evans et al., 2010, 2011) ja rajanylityksistä (Akkerman & Bakker, 2011).

Väitöskirjatutkimus muodostuu kolmesta englanninkielisestä tieteellisessä aikakauslehdessä julkaistusta vertaisarvioidusta artikkelista (ks. liitteenä olevat artikkelit I, III,

IV), yhdestä vertaisarvioidusta kokoomateoksen artikkelista (liitteenä artikkeli II) sekä tästä yhteenvedosta. Osatutkimukset hahmottavat yhdistämisen mallin toteutumista harjoitteluissa ammattikorkeakoulujen, valmistuneiden opiskelijoiden sekä työelämäkumppaneiden näkökulmasta. Yhteenveto esittää osatutkimuksia yhdistävän teoreettisen lähestymistavan, kysymyksenasettelut, metodologiset ratkaisut ja tutkimuksen paikantumisen tutkimusalueen aiempaan tutkimukseen.

Tämän yhteenvedon osatutkimuksia yhdistävät seuraavat kysymykset:

1. Millaisena opettajat pitävät työharjoittelujen työkokemuksesta oppimisen mallia suhteessa yhdistämisen malliin?
2. Mitkä tekijät muokkaavat ja institutionalisoivat ammattikorkeakoulujen työharjoittelumallia?
3. Missä määrin harjoittelut mahdollistivat yhdistävän oppimisen valmistuneiden opiskelijoiden mukaan?
4. Kuinka työnantajakumppanit arvioivat konnektiivisen mallin soveltamista harjoitteluissa?
   4.1. Miten työnantajat arvioivat yhdistämisen mallia harjoittelujen tavoitteena?
   4.2. Millaisia hyötyjä ja haittoja työnantajat näkivät yhdistävyyteen pyrkimisessä?

Menetelmät

Tutkimuksessa pyrittiin saamaan mahdollisimman monen toimijan näkökulma harjoitteluihin. Sen vuoksi aineistoja kerättiin useasta ammattikorkeakoulusta, valmistuneilta opiskelijoilta ja työelämäkumppaneilta. Tutkimusmenetelminä hyödynnettiin sekä kvantitatiivisia että kvalitatiivisia menetelmiä.

Tutkimuksessa kerättiin neljä aineistoa. Ensimmäinen aineisto kerättiin vuosina 2002–03 viiden ammattikorkeakoulun kolmen suurimman koulutusalan koulutusohjelmista (ks. myös Virolainen, 2006). Koulutusohjelmat olivat tietotekniikka, liiketalous ja -hallinto sekä sosionomi-koulutus. Aineistonkeruun menetelmänä oli strukturoitu teemahaastattelu. Tutkimuksessa hyödynnettiin 28 teemahaastattelua.

Haastateltavat olivat ammattikorkeakoulujen työharjoittelujen järjestämiseen ja suunnitteluun osallistuvia henkilöitä, kuten koulutuspäälliköitä, yliopettajia, lehtoreita, opettajia, koulutusohjelmavastaavia, harjoittelukoordinaattoreita ja yksikön johtajia. Litteroitujen haastattelujen 900 sivun kokonaisuutta analysoitiin teorialähtöisen sisällönanalyysin keinoin keskittyen haastateltavien työharjoitteluja ja niiden järjestämistä koskeviin puheenvuoroihin.

Toinen aineisto kerättiin korkeakoulutuksesta valmistuneiden työllistymiskyselyn osana vuonna 2005 (n=1050) (ks. myös Virolainen, 2006; Vuorinen & Valkonen, 2007). Kyselyn kohderyhmänä olivat liiketalouden ja hallinnon sekä tekniikan alalta vuonna 2002 valmistuneet ammattikorkeakoulu- ja yliopisto-opiskelijat. Tutkimuksessa hyödynnettiin harjoitteluja koskevat kaksi kysymystä, joista analysoitiin tavanomaisin tilastollisin menetelmin ammattikorkeakouluopiskelijoiden vastaukset.

Kolmas ja neljäs aineisto kerättiin harjoittelujen työnantajilta. Kolmannen aineiston muodostivat tutkimuksen ensimmäiseen aineistonkeruuseen osallistuneiden kolmen ammattikorkeakoulun työelämäkumppanit (n=269, ks. myös Virolainen & Valkonen, 2007). Kohdealat olivat samat kuin tutkimuksen ensimmäisessä vaiheessa. Aineisto kerättiin vuonna 2005 ja analysoitiin kvantitatiivisesti muun muassa ristiintaulukointia, faktori- ja ryhmittelyanalyyseja hyödyntäen. Neljäs aineisto kerättiin tutkimuksen aiempiin haastatteluihin osallistumattomasta ammattikorkeakoulusta web-kyselynä vuonna 2007 (ks. myös Virolainen, Kantola, & Stenström, 2013). Kyselyn kohteena olivat sosionomi-koulutusohjelman työnantajat. Heidän (n=169) vastauksiaan analysoitiin tavanomaisin tilastollisin menetelmin. Lisäksi avovastauksia analysoitiin induktiivisesti teemoittain.

Tulokset ja johtopäätökset

Ammattikorkeakoulujen työharjoitteluprosessi voitiin tulosten perusteella esittää yhdistämisen mallin piirteitä sisältävänä kokonaismallina (ks. artikkeli I). Ammattikorkeakoulujen harjoittelukäytäntöjen erot tulevat esille mallin ulottuvuuksina. Ammattikorkeakoulut voivat soveltaa tulosten perusteella muodostettua mallia omassa kehittämistyössään ja laadunarvioinnissa. Tulosten mukaan harjoittelumallit vaihtelevat koulutusaloittain ja ammattikorkeakouluittain: osalla ammattikorkeakouluista on pitkälle vietyjä ja eriytyneitä harjoittelukäytäntöjä, missä harjoittelu on osa yrityksen kanssa toteutettavaa laajempaa tavoitteellista kehittämistyötä. Samanaikaisesti osa harjoitteluista ja niiden tavoitteiden hahmottamisesta jää pitkälti harjoittelijaopiskelijoiden vastuulle.

Tulokset osoittavat, että harjoitteluja rakenteistavat käytännöt ovat monitasoisia. Käytäntöjen kehittäminen edellyttää koulutuksentarjoajien, opiskelijoiden, opettajien ja työnantajien yhteistyötä. Lisäksi kansallisten asiantuntijaverkostojen ja -organisaatioiden on osallistuttava harjoittelukäytäntöjen uudistamiseen ammattikorkeakoulujen sisäisen kehitystyön ohella. Kansalliset työnantaja- ja palkansaajajärjestöt vaikuttavat esimerkiksi harjoittelijapalkkojen tasoon. Ne voisivat kuitenkin käydä myös syvempää keskustelua harjoittelujen merkityksestä ammatilliselle kehittymiselle. Luottamukselliset suhteet ovat edellytys koulutuksen tarjoajien ja työelämäkumppaneiden välisten

yhteistyösopimusten syventämiselle. Koulutusalojen väliset erot työnantajien toimintaympäristöjen kilpailullisuudessa heijastuvat osaltaan alakohtaisiin harjoittelukulttuureihin.

Valmistuneet opiskelijat arvioivat harjoittelukokemuksiaan pääasiassa myönteisesti ja kokivat harjoittelujen laajentaneen omaa osaamistaan (ks. artikkeli II). Samalla he kuitenkin suhtautuivat kriittisesti erityisesti oppimistehtäviin, itsearviointiin, sekä ohjaukseen, jota olivat saaneet asiantuntijaksi kasvamisen haasteiden tunnistamiseksi. Valmistuneiden kokemukset harjoitteluista erosivat siten, että tekniikan ja liikenteen alalta valmistuneet arvioivat harjoittelukokemuksiaan kriittisemmin kuin yhteiskuntatieteiden, liiketalouden- ja hallinnon alalta valmistuneet. Tulokset osoittivat myös, että yksilökeskeinen traditio on voimakas oppimisen järjestelyissä. Tulosten perusteella vertaisryhmätyöskentelyn vahvistaminen reflektoinnissa ja itsearvioinnissa voisi tukea opiskelijoiden oppimisen syventymistä. Kun opettajilta jää kiristyvien tulospaineiden alla yhä vähemmän aikaa henkilökohtaiseen ohjaukseen, tietotekniikkapohjaisten työskentelytapojen, kuten sosiaalisen median hyödyntämisessä harjoittelujen ohjauksessa ja työelämäyhteistyössä näyttäisi olevan edelleen kehitettävää.

Työnantajien näkemyksiä harjoitteluista tarkasteltiin tutkimuksessa kahdesta näkökulmasta: miten työnantajat arvioivat yhdistämisen mallin piirteitä harjoittelujen tavoitteena, ja millaisia kokemuksia heillä oli ollut harjoitteluyhteistyöstä. Yhdistämisen mallin tavoitteiden arvostuksen perusteella työelämäkumppanit voitiin jakaa neljään ryhmään: työvoimanäkökulman korostajat, yhteiskehittäjät, monitavoitteiset työnantajat ja oman työnsä kehittäjät (ks. artikkeli III). Kaikissa orientaatioryhmissä oli joitakin työantajia eri tuotannonaloilta. Kuitenkin koulutus- ja tuotannonalojen väliset erot ja erityisesti alojen toimintaympäristöjen kilpailullisuus tulivat esille työantajien ryhmittymisessä. Tekniikan ja liikenteen alan työnantajat painottuivat työvoimanäkökulman korostajien ryhmässä. Vastaavasti sosiaali- ja terveysalan työnantajat painottuivat yhteiskehittäjien ryhmässä. Työvoimanäkökulmaa korostaneiden työnantajien ryhmä oli suurin ryhmä monitavoitteisten työnantajien ohella. Nämä kaksi ryhmää edustivat liki kahta kolmasosaa kaikista työelämäkumppaneista.

Työnantajien eriytyminen suhteessa yhdistämisen mallin tavoitteisiin tuo esille ammattikorkeakoulujen tarpeen työantajaprofiilien tunnistamiseen työelämäyhteistyössä ja -strategian tavoitteenasettelussa. Työelämäkumppaneiden edellytykset sitoutua pitkäjänteiseen harjoittelujen kehittämiseen vaihtelevat paitsi työantajan koon myös tuotannonalan ja toimintakulttuurin mukaan. Työharjoittelujen järjestäminen yhdistämisen malliin tähtääväksi edellyttää työnantajilta opetussuunnitelmien tavoitteisiin perehtyvää yhteistyötä. Niinpä työkokemuksesta oppimisen järjestämistä uhkaakin ammattikorkeakoulujen kiristyvien tulospaineiden ympäristössä oppimisen tavoitteiden kaventuminen. Harjoittelujen tavoitteet voivat kaventua siten, että teorian ja käytännön reflektointiin

ohjaamisen sijalle tulee lyhyttä aikaperspektiiviä ja välittömistä työtehtävistä suoriutumista palvelevaa työpaikalta oppimista.

Viimeisessä osatutkimuksessa tarkasteltiin lähemmin yhden ammattikorkeakoulun sosiaali- ja terveysalan työelämäkumppaneiden harjoittelussa näkemiä hyötyjä ja haittoja (artikkeli IV). Tuloksissa tuli esille harjoittelujen järjestämisen opiskelijapainotteisuus. Opiskelijapainotteisuus harjoittelujen järjestämisessä ilmeni esimerkiksi siten, että opiskelijoiden vastuu harjoitteluista tiedottamisessa korostui. Ammattikorkeakoulujen ja työelämäkumppanien välisten laajempien yhteistyösopimusten laatiminen myös muusta kuin harjoitteluyhteistyöstä ei ollut kovin yleistä (9 %). Useimmiten harjoitteluja järjestettäessä tehtiin sopimus yksittäiseen harjoitteluun liittyen (61 %). Työnantajat arvostivat kuitenkin yhdistämisen mallin mukaisia tavoitteita, kuten ohjauksen tuomaa mahdollisuutta ammatilliseen kasvuun, opiskelijoiden kanssa käytyjen keskustelujen avaamia uusia näkökulmia, ja keskustelujen välittämää uutta tietoa.

Avovastauksissa työantajakumppanit kommentoivat yhteistyösuhteista kolmea teemaa: suhteita opiskelijoihin, opetussuunnitelmaa ja yhteistyön järjestämistä. Teemat ilmentävät harjoittelusuhteiden henkilökohtaisuutta ja työvoimaintensiivisyyttä. Työnantajat olivat useimmiten halukkaita osallistumaan ohjaajakoulutukseen tai olivat pyrkineet kehittämään ohjausta oma-aloitteisesti. Opetussuunnitelmien osalta esiin tuodut seikat olivat sidoksissa opiskelijoihin ja työtehtävien soveltuvuuteen eri opiskelijoille. Tukea ohjaukseen olisi kaivattu esimerkiksi ohjattaessa suomea toisena kielenä puhuvia tai mielenterveysongelmaisia opiskelijoita, sekä opiskelijoiden motivoinnissa työtehtäviin. Samoin kuin edellisessä väitöskirjatutkimuksen työnantajakyselyssä opiskelijoiden harjoitteluissa suorittamia oppimistehtäviä ei pidetty erityisen hyödyllisinä, ja käytännön ja teorian yhdistäminen opetussuunnitelmissa nähtiin usein problemaattisena. Myös opiskelija-arviointiin kaivattiin lisää tukea. Lisäksi toivottiin koordinaatiota eri oppilaitosten välillä, koska harjoittelijoita saatettiin ottaa myös muilta koulutussektoreilta kuin ammattikorkeakouluista. Erityisen tärkeänä pidettiin vuorovaikutusta opettajien kanssa ja heiltä saatavaa informaatiota. Toimiva yhteys opettajien ja työnantajien välillä mahdollistaa ajankohtaiseen tietoon perustuvan yhteistyön suunnittelun ja ongelmakohtien selvittelyn.

Tulosten pohjalta voidaan todeta, että työelämäkumppanit kaipasivat lisää yhteistyön toimintatapoja ja keinoja, joilla harjoitteluita voitaisiin kehittää edelleen. Esimerkiksi opetussuunnitelmien kehittäminen ja oppimistehtävien tavoitteiden tunnistaminen ovat asioita, joita voitaisiin vahvistaa. Vuorovaikutuksen tiivistäminen ammattikorkeakoulun harjoitteluista vastaavien henkilöiden kanssa esimerkiksi yhteisen työpajatyöskentelyn muodossa edistäisi tätä. Yhteistyön tiivistämisen edellytyksenä on kuitenkin molempien yhteistyökumppaneiden pitkäjänteinen sitoutuminen yhteistyön kehittämiseen.

Tutkimuksessa määriteltiin uudelleen teorian ja käytännön yhdistämistä opetussuun-

nitelmassa jäsentävää yhdistämisen mallia. Mallia tarkasteltiin hyödyntäen englantilaista koulutussosiologista keskustelua opetussuunnitelman muodostamisesta erityisesti Youngin (2008) tarkasteluihin pureutuen. Edelleen pohdittiin yhdistämisen mallin teemojen kehittelyä: nelivaiheista tiedon kontekstualisoinnin mallia (Evans et al., 2010, 2011) ja keskustelua käytännönyhteisöjen rajanylitysten merkityksestä oppimiselle (Akkerman & Bakker, 2011).

Sovitettaessa yhdistämisen mallia suomalaiseen korkeakoulukontekstiin korostui informaalin oppimisen merkitys. Suomessa ammatillisen (korkea)koulutuksen traditiossa on vahva koulukeskeisyys, mikä on osaltaan jättänyt informaalin oppimisen tarkastelua syrjään. Kuitenkin siirtyminen tietoyhteiskuntaan ja uusien itseohjautuvien, esimerkiksi sosiaalista mediaa hyödyntävien, oppijaryhmien nousu haastavat koulutusjärjestelmää tunnistamaan koulun ulkopuolella opitun merkityksen. Väitöskirjatutkimuksen ensimmäisessä artikkelissa esitetty yhdistämisen mallia soveltava malli painottaakin informaalia oppimista ja uraohjausta sen ohessa, että opiskelijoita on ohjattava eri tiedon muotojen yhdistelyssä.

Lisäksi tutkimuksessa määriteltiin edelleen Youngin (2008) Vygotskin pohjalta kehittämää oppimisen tyypittelyä. Luodussa mallissa painotettiin opetussuunnitelmatyössä tapahtuvaa käsitteiden valinta- ja määrittelytyötä sekä tiedon käyttötapoja. Mallinnus korostaa informaalin oppimisen roolia ja käytännönyhteisöjen välisiä siirtymiä tiedon järjestämisen tavoissa. Väitöskirjan muissa ehdotuksissa yhdistämisen mallin uudelleenmäärittelemiseksi painotetaan laatujärjestelmien ja kansallisten asiantuntijaverkostojen roolia opetussuunnitelman ja harjoittelujen kehittämisen määrittäjinä. Ne luovat osaltaan puitteita teorian ja käytännön yhdistämiselle harjoitteluissa, vaikka ne ovat koulutuksen ulkopuolisia instituutioita. Lisäksi korostuu eri toimijoiden – koulutuksen tarjoajien, työelämäkumppaneiden, opetussuunnitelmatyöhön osallistuvien verkostojen ja opiskelijoiden – yhteistyö harjoitteluopetussuunnitelman muokkaajina.

Käytännön näkökulmasta harjoittelujen kehittämisessä on tutkimustulosten mukaan keskeistä vahvistaa edelleen ohjausta, lisätä pitkäjänteistä yhteistyötä työnantajien kanssa harjoittelujen opetussuunnitelmatavoitteiden selventämiseksi ja harjoittelunohjauksen syventämiseksi, sekä laajentaa opettajien kontakteja työnantajiin. Opiskelijanäkökulmasta olennaista on vertaisryhmätyöskentelyn monipuolistaminen ja uusien esimerkiksi sosiaalista media hyödyntävien työskentelytapojen kehittäminen harjoittelukokemusten itsereflektion ja itsearvioinnin tueksi.

Tutkimuksen esille tuomat jatkotutkimuksen aiheet voidaan jakaa kahteen pääteemaan: työkokemuksesta oppiminen ammatillisen (korkea)koulutuksen osana ja yhdistävyyden käsitteen kehittäminen. Ensimmäiseen teemaan liittyvä aihe on esimerkiksi opiskelijoiden ja valmistuneiden harjoitteluiden rajanylityksissä tekemä identiteettityö ja oman toimijuuden reflektointi. Vastaavasti opiskelijoiden, opettajien ja työntekijöiden

rajanylityksissä valitsemien dialogisten keinojen ja oppimisen tapojen vaihtelu tarjoaisivat tutkimusta syventävän näkökulman. Ammattikorkeakoulutuksen kehittämisen näkökulmasta olisi kiintoisaa tutkia opiskelijavertaisryhmien hyödyntämistä työkokemuksen reflektoinnissa, teorian ja käytännön yhdistämisessä, itsearvioinnissa ja arvioinnissa. Arvioinnin osalta kiinnostavaa olisi erityisesti sellaisten arviointimenetelmien tarkastelu, jotka tunnistavat keinoja yhteistyössä tapahtuvaan teorian soveltamisen käytäntöön. Lisäksi tietoteknisten työkalujen hyödyntäminen vertaisryhmätyöskentelyssä ja ammattikorkeakoulujen työharjoittelujen ohjauksessa sekä niiden kehittely koulutusaloittaisena yhteistyönä ansaitsisivat toimintatutkimusta tuekseen. Oman tutkimusaiheensa tarjoaisivat ammattikorkeakoulujen työelämäyhteistyön strategiat, laadunvarmistusjärjestelmät sekä se, miten ne vahvistavat yhteistyötä työelämäkumppaneiden toimintaympäristöt huomioiden. Yhdistävyyden käsitteen kehittelyn näkökulmasta oman tutkimusteemansa tarjoaisi nelivaiheisen tiedon kontekstualisoinnin mallin toteutumisen vertailu eri maiden opetussuunnitelmatyössä. Erityisen mielenkiintoista olisi vertailla kansainvälisesti kansallisten ja alueellisten toimijoiden – kuten opetushallinto, ammattijärjestöt – roolia tiedon valitsemisessa opetussuunnitelmaan. Viime mainittu teema liittyy myös ammattikorkeakoulujen rooliin innovaatiojärjestelmän osana.

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Appendix 1: Interview questions for teachers guiding internships and supervising project work

I. COMMUNICATION BETWEEN WORKPLACES AND UNIVERSITIES OF APPLIED SCIENCES (UAS)

Teachers

1.) How has the previous work experience of teachers been taken into account when teachers have been recruited?
2.) In what ways do teachers familiarise themselves with the workplaces taking interns?
3.1.) How do teachers find out about developments in their own field of expertise and business and in relation to the qualifications they are responsible to plan for their students? How do senior teachers keep in touch with the professional working world?
3.2.) Has the UAS where you teach planned a programme to help its teachers keep in touch with the professional world, such that may include inservice education, benchmarking, assessment of internship workplaces, collection of feedback regarding the internships, reporting, and so forth?
4.) Do teachers participate in developmental projects and guidance that support students in producing their Bachelor's theses or has the guidance in internships and other developmental work been shared between teachers? How does the internal exchange of information on internships take place when the tasks were shared between teachers?
5.) By what means do mentor teachers of internships collect feedback on the success of the internships from students and workplaces?

The relation of workplace learning to the overall curriculum: The generalisation of experiences

1.1.) What kinds of aims related to the overall curriculum have you set for the work-related parts of the curriculum, such as those related to internships, theses and projects?
1.2.) How have the characteristics of these various parts been described in the curriculum?
2.) What kind of means or modules have you adopted to be a part of the curriculum, that help students to connect the internships, projects, and their thesis to enterprises?
3.) What kinds of connective parts, such as learning assignments, are there in the curriculum, that help the students to orientate themselves with regard to the work-related learning parts of the curriculum, for example, to familiarise themselves with the enterprise, its field, status in the market and the relations of the different groups involved in the work process, and process of production? How is the internship connected to analysing employability in the field and the availability of work tasks typical to the internship in question?
4.) How are students guided to investigate and analyse the problems that arise in internships on a more general level, that is, to help them to connect the problems to the more general role of the profession, and in similar situations?
5.) How is the students' familiarity with employment opportunities in their own field constructed as part of the curriculum?
6.) By what means are the aims of the internships connected to the profession in question more generally, and to the career choices of the students?
7.) How are the history, traditions, present practices and anticipated future of the professional fields taken into consideration by the curriculum in relation to the different types of qualifications?
8.) Has project work been organised in order to enhance learning in internships, and if so, how has the project work been integrated in the curriculum?

Contents of the curriculum

1.) How has the curriculum been divided and organised into different parts (competencies, subjects, themes)?
2.) How have the aims of learning been defined in the curriculum (holistically or in detail)?
3.) How does the curriculum enable getting acquainted with the various professional tasks in the field?
4.) What kinds of discussion have you had on pedagogy with regard to the curriculum, and how have the principles of pedagogy adhered to in the different parts of the curriculum been defined?

5.) What kinds of pedagogical devices do you utilise: lecturing, distance learning from projects, portfolios, something else?

Planning of the curriculum

1.1.) How often is the curriculum renewed?
1.2.) Does the renewal of the curriculum take place on a regular basis?
1.3.) Do you find the frequency of the curriculum renewals adequate with respect to the professional field, or too low or too high?
2.) Through what kind of a process is the renewal of the curriculum organised?
2.2.1.) What kinds of surveys or studies do you conduct in order to support the planning of the curriculum? Do you organise graduate surveys or questionnaires targeting professionals in the field, interviews with the staff of enterprises, or theoretical reviews in order to anticipate the future of the professional field?
2.2.2.) How have the tasks of the profession been analysed in regard to their relation to the targeted qualifications?
2.3.) Which bodies at your UAS and outside participate in the process of planning the curriculum and defining its contents?
2.3.1.) How do teachers participate in the process of planning the curriculum?
2.3.2.) In what ways do representatives of the professional world participate in the process of planning the curriculum? Do they review the curriculum and comment on it, and, if so, by what means are their comments collected? Are there modules that are chosen or devised by employers? If there are, then what kinds of modules are these? How do these modules enhance the curriculum?
2.3.3.) What is the role of alumni and adult students participating in further education with respect to your institute's collaboration with the professional world; do they have an active role in bringing information about employability and working life to your students?

The incorporation of various internships (various work-related learning periods) in the curriculum

1.) What is the scheduling of the internships in the curriculum? Do they take place as one unit at the end of students' studies or are they divided into several parts, and what is the timing of these parts with regard to the different fields of study? Are a minimum number of study weeks required before being able to begin an internship? How long are the internship periods of your students normally?

2.) How are the theses at the end of the studies planned?
3.) How have project studies and other work-related projects been integrated in the curriculum?

The cooperation between UAS and enterprises to improve networking

1.) How many cooperative partners does your UAS have in your field?
2.) Has their number increased or decreased in recent years (since 1999)?
3.1) How have you organised contacts with enterprises in order to set up internships and projects?
3.2.) Have you aimed at setting up developmental projects other than internships with the enterprises?
4.) How is information about students' competences presented (e.g., through brochures, at visits) to the enterprises when you seek internships or project work for the students?
5.1.) What are the criteria according to which you choose collaborative partners?
5.2.) How have the levels of competence demanded and opportunities for learning provided at the workplace been assessed (i.e., the variance in services, tools, and the staff's professional competence with regard to guidance skills)?
5.3.) What kinds of procedures have you developed on the basis of the assessments? Have you arranged a series of internship places in order to improve learning opportunities for students or have you complemented internships with simulations of central tasks, learning assignments, or project work? If and when there have been shortages in the guidance skills of workplace supervisors, have you aimed at developing these skills in collaboration with the workplace or guided students in choosing a workplace by pointing out the strengths and weaknesses of the supervisor in question?
6.) How do you define the learning targets in collaboration with the workplace supervisor, student and supervising teacher? How have you negotiated the tasks that would suit the students? Do you devise learning contracts or plans between the student and the workplace with regard to learning tasks and how they might be achieved, and if so, are they written or verbal?
7.1.) How have the workplace supervisors been trained in relation to the guidance tasks, the aims of the internships, and the learning assignments that students have in addition to the work related to their internships?
7.2.) What kind of training has been provided for the workplace supervisors in order to guide them regarding for example, the aims of the internships?
7.3.) How well has this training pertained to all of the specific fields of the qualifications and enterprises?

8.) What kinds of things demand the most time from you in organising an internship; is there freedom to shift the emphasis in a particular direction, and is there a need to use the time for supervising internships in a different way?

II. STUDENTS AND THE MODULES DEVISED IN COLLABORATION WITH THE CORPORATE PARTNERS

Internships

1.) What kinds of personal learning plans and revisions thereof are utilised for internships in order to check and improve students' learning?
2.1.) What is required of students for their internship to be completed?
2.2.) In what ways can students complete their internship: simulation, report, learning log, assessment of critical incidents, portfolio, and so on? (What are the different ways of reporting: giving a presentation, video-recorded material, creating web pages, and so on?)
3.) Is the successful completion of an internship dependent on some kind of performance?

Preparing for the internships with the students

1.) How do you go through the following matters with students before they start their internships?:
1.1.) the students' readiness to start their internship in terms of the sufficiency of their basic competences;
1.2.) the aims of the internship;
1.3.) the students' preconceptions of their own abilities and learning style
1.4.) the type of knowledge that is learnt during the internship;
1.5.) the relation of their internship learning to the aims of the general curriculum;
1.6.) the kind of interaction that will be taking place with the supervising teacher and workplace supervisor during the internship;
1.7.) the learning tasks related to the internship, the students' reflection on their own work, and students' learning diary and final report;
1.8.) the final assessment of the internship and its status regarding the degree;
1.9.) peer -group sharing of experiences between students.

2.) How are students observed and supervised at the workplace in order to reflect on possible improvements? For example:

- assessment of students' work methods;
- comparison between what has been learnt and students' previous competence;
- comparisons with other workplaces and students' previous work experiences;
- assessment of students' opportunities for development;
- other considerations.

3.1.) How do students look for information related to internships and dissertations?
3.2.) Do your teaching materials help with this and to what extent do teachers and students produce learning materials themselves?

III. GUIDANCE COUNSELLING

1.) How has guidance counselling been organised as part of your UAS' educational system? Have you recently completed a programme related to its development?
3.) How have the guidance responsibilities been shared between the different involved parties (guidance counsellors, students' personal mentor teacher, students' personal helper student)?
4.) How have the various stages of studies been taken into account in planning guidance (getting acquainted with the UAS, getting started with the studies, guidance of personal learning plans, checkpoints of personal learning plans, guidance regarding internships and thesis)?
5.) How has the guidance for various student groups been differentiated?
6.) How is career guidance and the checking of personal learning plans administered? Are there checkpoints of personal learning plans throughout the studies or are only the more problematic cases checked?
7.) How do students participate in the development of the guidance counselling? Do they have an opportunity to assess the guidance?
8.) What kinds of means do you use in guidance counselling for students?

- handbook of studies;
- Internet;
- something else.

9.) Is guidance regarding learning to learn and reflecting on learning styles set out in the general curriculum or do they belong to the separate area of guidance counselling? Have you organised specific modules regarding such learning or decided which teacher is to be responsible for those areas?
10.1.) How much do you guide students in devising their personal learning plans?

10.2.) How do you take students' previous studies into account in planning their curriculum?
11.) Are students recruited by employers as a result of their internship and thesis?
12.) How have you organised career counselling services?

IV. STUDENT ASSESSMENT

1.1.1.) How are student assessments administered?
1.1.2.) Are students able to set learning goals for themselves on the basis of self-assesments, and can they renegotiate their personal learning plan?
1.2.) How have you handled the transparency of the student assessment criteria?
1.3.) What is most important in the final assessment?
1.4.) How strongly are the internships, dissertations, and possible project work emphasised in the final assessment for the degree? How is the importance of linkages to the professional world, as a principle of UAS studies, visible in the assessment?

Appendix 2: Questions from the graduate survey pertaining to internships

The following questions relate to internships completed as part of your studies. If you did not complete an internship, then go to question number 36.

34. In what ways have you found the internship that you completed as part of your studies to be important for your professional development? Circle the most accurate response for each point.

	Importance				
	Not at all	A little	Mode-rately	Quite a lot	Very much so
1.) Enhanced my own professional development.	1	2	3	4	5
2.) Motivated me to study.	1	2	3	4	5
3.) Helped me in choosing the subject for my thesis.	1	2	3	4	5
4.) Helped me to recognise challenges in professional development.	1	2	3	4	5
5.) Supported my postgraduate employment.	1	2	3	4	5
6.) Improved my basic professional skills.	1	2	3	4	5
7.) Helped me improve specific professional skills.	1	2	3	4	5

35. In what ways was the guidance for learning in internships organised by the UAS and the corporate partner?

	I totally disagree	I some-what disagree	I do not know	I agree	I totally agree
1.) I was sufficiently prepared by the UAS for the internship.	1	2	3	4	5
2.) The UAS had nominated a guide for me.	1	2	3	4	5
3.) The workplace had nominated a guide for me.	1	2	3	4	5
4.) I completed internship learning assignments given to me by the UAS.	1	2	3	4	5
5.) I was sufficiently supported in my work tasks.	1	2	3	4	5
6.) Assesment criteria were made explicit.	1	2	3	4	5
7.) I received in-depth instruction in self-assesment.	1	2	3	4	5
8.) Guidance was minimal.	1	2	3	4	5
9.) The guidance helped me to understand the field better.	1	2	3	4	5
10.) The guidance developed my awareness of new challenges in my professional development.	1	2	3	4	5

Appendix 3: Questionnaire for employers (n = 269)

HOW TO ANSWER

Please answer all of the questions by circling the most accurate statement or by writing an answer in the reserved space.

BACKGROUND INFORMATION ON THE EMPLOYER AND THE WORKPLACE

1. Which of these does your workplace represent?

1.) Public sector
2.) Municipalities or federations of municipalities
3.) Private enterprise or association
4.) If other, then which? _____

2. Which professional field is most relevant in relation to the majority of the employees and tasks at your workplace?

1.) Technology
2.) Business and administration
3.) Social services and health care
4.) If other, then which? _____

3. What is the number of personnel at this workplace?

1.) 1–4 employees
2.) 5–9 employees
3.) 10–19 employees
4.) 20–49 employees
5.) 50–99 employees
6.) 100–199 employees
7.) 200–499 employees
8.) 500 employees or more.

BASIC INFORMATION ON THE INTERNS

4. How many interns have you taken on during the last three years and from which fields?

We have taken on _____ interns from the following fields of study:

	Yes, how many?	No
1 Bachelor of Business Administration		
2 Bachelor of Engineering		
3 Bachelor of Social Services and Health Care		
4 Other		
5 I do not know.		

5. Have you had students from educational institutions other than that of universities of applied sciences at your workplace during the last three years?

We have had interns at our workplace, as part of their…	No	Yes (how many?)
1.) Apprenticeship training		
2.) On-the-job learning in vocational upper secondary education		
3.) University education		
4.) If other, then what? _____		

6. Has your workplace collaborated with the UAS in the following ways? Circle '1' for *Yes* and '2' for *No* and write a more detailed answer where a space is provided.

	No	Yes
1.) The students from the UAS have written their dissertation at our workplace.	1	2
2.) Our personnel has participated in further education provided by the UAS. If so, what kind of further education? _____	1	2
3.) Some members of our personnel have completed a Bachelor's degree at a UAS; if so, which field/s? _____; and/or	1	2
Master's degree at a UAS; if so, which field/s? _____	1	2
4.) We have collaborated on developmental projects; if so, what project/s? _____	1	2
5.) We have bought services from the UAS; if so, which services? _____	1	2
6.) Our personnel has participated in informative events organised by the UAS; if so, which? _____	1	2

7. How pleased are you with the information that you have received about the practical arrangements of internships by the following means?

	Not at all	Not very	Mode-rately	Quite	Very
1.) Printed brochures, etc.	1	2	3	4	5
2.) Phone calls with the supervising teacher from the UAS.	1	2	3	4	5
3.) E-mail exchanges with the supervising teacher.	1	2	3	4	5
4.) Letters or messages sent by the supervising teacher and the student.	1	2	3	4	5
5.) Personal appointments with and visits by the supervising teacher from the UAS.	1	2	3	4	5
6.) Information that is available on the website of the UAS.	1	2	3	4	5
7.) Seminars organised for employers by the UAS, where internships would have been an issue.	1	2	3	4	5
8.) Collaborative negotiations between the UAS and our organisation, considering partnerships and common developmental plans.	1	2	3	4	5

BACKGROUND INFORMATION ON THE RESPONDENT AND GUIDANCE OF INTERNS AT THE WORKPLACE

8. Which of these best represents your job role?

1.) Management
2.) Middle management
3.) Expert position
4.) Employer
5.) Associate personnel
6.) If other, then what? _____

9. How many years of work experience do you have?

1.) 0–3 years
2.) 4–8 years
3.) 9–15 years
4.) More than 16 years.

10. Why have you been chosen as the workplace supervisor of interns?

1.) I am personally interested in all kinds of developmental work.
2.) It is not so long ago that I myself studied.
3.) I have experience in training and supervising.
4.) I am professionally qualified and experienced.
5.) There were no (other) volunteers.
6.) If other, then why? _____

11. At your workplace,

	Yes	No
1.) are tutors or mentors nominated to take care of the guidance of interns?	1	2
2.) are there responsible guides supervisors who have been trained in supervising interns?	1	2
3.) have materials, brochures, and/or descriptions or plans been produced in order to help newcomers beginning at work?	1	2
4.) do unofficial discussions about interns' experiences take place?	1	2
5.) are official plans made or meetings held in considering the supervising of interns and to nominate someone as the responsible person?	1	2

GOALS AND EXPERIENCES RELATED TO SUPERVISING INTERNS

12. How important do you consider it to be that the university of applied sciences (UAS) sending the interns

	Not at all	Not very	Some-what	Quite	Very
1.) gives learning assignments to the students that relate to their internship?	1	2	3	4	5
2.) supports students in solving problematic issues?	1	2	3	4	5
3.) develops their collaboration with you in the long run?	1	2	3	4	5
4.) gives students enough information on internship reporting and assessments?	1	2	3	4	5
5.) prepares students for the internship at your workplace and provides them with guidance?	1	2	3	4	5
6.) provides career counselling for the students to find a workplace?	1	2	3	4	5
7.) advises students to think about the internship as an opportunity for their future career?	1	2	3	4	5
8.) encourages students to see the workplace as a learning place?	1	2	3	4	5
9.) encourages students to think about the work tasks critically and to consider areas that might need development?	1	2	3	4	5
10.) encourages students to put their heart into their tasks?	1	2	3	4	5
11.) encourages students to be on time and to do their tasks properly?	1	2	3	4	5

13. How well has the UAS succeeded in organising the internships in collaboration with you in the following respects?

	Not well at all	Not well	I cannot say	Quite well	Very well
1.) The place of the internships in the curriculum.	1	2	3	4	5
2.) Making the goals of the internships clear to the students.	1	2	3	4	5
3.) Guidance of students' personal learning assignments and their planning.	1	2	3	4	5
4.) Informing workplace supervisors about the goals of the internships.	1	2	3	4	5
5.) Making agreements with workplace supervisors regarding the internships.	1	2	3	4	5
6.) Keeping in touch with you by e-mail, phone, or visits.	1	2	3	4	5
7.) Supervising students during the internships.	1	2	3	4	5
8.) Informing you about assessment criteria for students.	1	2	3	4	5
9.) Structuring students' future learning.	1	2	3	4	5
10.) Structuring the workplace's future learning and related input from the UAS.	1	2	3	4	5

14. How important do you find it to develop the collaboration with the UAS in the following areas?

	Not at all	Not very	Somewhat	Quite	Very
1.) Internships	1	2	3	4	5
2.) Bachelor´s theses	1	2	3	4	5
3.) Master's degrees	1	2	3	4	5
4.) Further education	1	2	3	4	5
5.) Projects	1	2	3	4	5
6.) UAS services for the workplace	1	2	3	4	5

15. How important are the following forms of action in developing your enterprise?

	Not at all	Not very	Somewhat	Quite	Very
1.) Recruiting new personnel.	1	2	3	4	5
2.) In-service training for personnel.	1	2	3	4	5
3.) Developing new services and products.	1	2	3	4	5
4.) Developing the efficacy of work processes.	1	2	3	4	5
5.) Research on customer satisfaction.	1	2	3	4	5

16. How true are the following statements in relation to how your workplace has benefitted from having interns?

	Not at all true	Not true	Some-what true	Quite true	Very true
1.) We have not had any benefit from having interns.	1	2	3	4	5
2.) The presence of interns forces you to observe the appropriateness of your own working methods.	1	2	3	4	5
3.) Interns contribute good ideas for developing work.	1	2	3	4	5
4.) Talking with students prompts you to examine work-related matters.	1	2	3	4	5
5.) Placements have increased employees' interest in learning and in participating in education.	1	2	3	4	5
6.) Co-operation with polytechnics has brought new knowledge to your workplace.	1	2	3	4	5
7.) Interns are often recruited as new employees.	1	2	3	4	5
8.) Interns are a great help during busy times.	1	2	3	4	5

17. How true are the following statements in relation to the guidance of interns provided at your workplace?

	Not at all true	Not very true	Some-what true	Quite true	Very true
1.) We have a lot of experience in guiding students.	1	2	3	4	5
2.) We always nominate an experienced person to be responsible for the guidance.	1	2	3	4	5
3.) The workplace supervisor is usually someone young who has completed their own studies fairly recently	1	2	3	4	5
4.) We have provided information about our enterprise in a portfolio and/or on our website for interns.	1	2	3	4	5
5.) We move interns around to different tasks so that they can get to know more about our enterprise.	1	2	3	4	5
6.) We have developed our guidance of interns.	1	2	3	4	5
7.) We provide students the opportunity to be absorbed in tasks within a limited framework.	1	2	3	4	5
8.) We invite students to participate in unofficial events of our workplace.	1	2	3	4	5
9.) We encourage interns to seek out additional information related to their tasks.	1	2	3	4	5

18. How important do you find the following objectives for students' placements? The student…

	Not at all	Not very	Some-what	Quite	Very
1.) adapt themselves to the workplace?	1	2	3	4	5
2.) learn to be self-directed and plan their own work?	1	2	3	4	5
3.) is guided to think about alternative, better working methods?	1	2	3	4	5
4.) succeed in the given tasks and follow instructions?	1	2	3	4	5
5.) understands work processes and customer connections?	1	2	3	4	5
6.) understands the importance of his/her input for the whole of the organisation?	1	2	3	4	5
7.) learns cooperation?	1	2	3	4	5
8.) aim to expand their skills and are entrepreneurial?	1	2	3	4	5
9.) is given assignments that are monitored and approved?	1	2	3	4	5
10.) is carefully familiarised with the tools, the environment, and the tasks?	1	2	3	4	5
11.) is guided in hands-on situations?	1	2	3	4	5
12.) is encouraged to present his/her own ideas?	1	2	3	4	5

19. How well do the following statements reflect your conceptions of interns' tasks and role?

	Not well at all	Not very well	Some-what well	Quite well	Very well
1.) An intern is allowed to shadow and observe, but the final responsibility belongs to the intern's supervisor.	1	2	3	4	5
2.) The intern should be self-directed.	1	2	3	4	5
3.) The intern is allowed to participate in all training arranged at our department.	1	2	3	4	5
4.) It is good for the intern to be able to handle anything that could come up, as that is what is demanded in the real working world.	1	2	3	4	5
5.) The intern is encouraged in proceeding from simple to more demanding tasks, little by little.	1	2	3	4	5
6.) It is most important that the intern gets gets the job done.	1	2	3	4	5
7.) The internship is seen to be part of the intern's working career, and we encourage the intern to see it as a part of his or her own professional development.	1	2	3	4	5
8.) We recruit interns for those tasks for which we have a shortage of workforce.	1	2	3	4	5

9.) We take on interns in line with our future recruitment needs.	1	2	3	4	5
10.) We try to be flexible with the working hours if interns have binding studies.	1	2	3	4	5
11.) The supervisor guides interns in improving their managing of work tasks.	1	2	3	4	5
12.) Developmental ideas by interns are very welcome.	1	2	3	4	5
13.) The guidance of interns takes too much time, in general.	1	2	3	4	5
14.) We point out in what areas students can improve their performance.	1	2	3	4	5

HUMAN RESOURCE DEVELOPMENT AT THE WORKPLACE

20. How active is the human resource development at your workplace?

	Yes	No	I do not know
1.) Have the competencies of your employees been surveyed and profiled?	1	2	3
2.) Have you made individual development plans for each employee?	1	2	3
3.) Does your workplace have a common human resource development strategy?	1	2	3
4.) Are the human resource development plan and related training intertwined with future development strategies at your workplace?	1	2	3

21. How does your organisation support employees' participation in further education?

	Not at all	Not much	A little bit	Quite a lot	Very much so
1.) Financially, by paying for travel and course fees etc.	1	2	3	4	5
2.) By organising in-house training.	1	2	3	4	5
3.) By allowing working time to be used for studies.	1	2	3	4	5
4.) By nominating a personal guide (tutor or mentor) for each employee.	1	2	3	4	5

22. The investments in human resource development at our workplace are mostly…
(circle only one option)

1.) dependent on employees' own initiative.
2.) occasional training.
3.) following a continuous action plan.
4.) If other, then what?

_____

_____

_____

THANK YOU FOR YOUR ANSWERS!

Appendix 4: Survey of the internship supervisors' views on the cooperation with with a university of applied sciences in the field of social services (administered in collaboration with Mauri Kantola, Turku University of Applied Sciences, DEQU project)

I BACKGROUND INFORMATION ABOUT THE RESPONDENT

1. What is your level of education?

1.) Basic education
2.) Secondary education (general upper secondary or vocational education)
3.) Bachelor's degree from a UAS
4.) Master's degree 'from a UAS
5.) Master's degree from a university
6.) Postgraduate licentiate or doctoral degree

2. What is your status at the workplace?

1.) Management
2.) Middle management
3.) Expert

4.) Employee
5.) Assistant personnel
6.) If other, then what? _____

3. How much work experience have you gained related to your present role?

1.) 0–3 years
2.) 4–8 years
3.) 9–15 years
4.) 16 years or more

4. How many employees does your enterprise have?

1.) 1–4
2.) 5–9
3.) 10–19
4.) 20–49
5.) 50 or more

II THE EXTENT OF COOPERATION WITH UNIVERSITIES OF APPLIED SCIENCES

5. Through what type of interaction was your last intern recruited?

1.) The student contacted the workplace autonomously.
2.) The UAS approached the workplace and enquired about internship places for its students.
3.) The workplace had offered internship places to the UAS.
4.) If other, then what? _____

6. How frequently does your workplace take on interns?

1.) One student less often than once a year
2.) Regularly, at least 1–2 student/s a year
3.) Regularly, 3–4 students a year

4.) More often than the previous choices suggest
5.) There have not been any interns at our workplace until recently

7. What is the scope of the cooperation with the UAS?

1.) We have agreed on the placement of individual students.
2.) We have agreed on a wider framework of cooperation for guiding the interns and developing their guidance.
3.) The placements are one part of our partnership contract and larger framework of cooperation.
4.) If other, then what? _____

III THE AVAILABILITY OF INFORMATION ON THE QUALIFICATIONS OFFERED BY UNIVERSITIES OF APPLIED SCIENCES

8. How do you find out about students' qualifications and suitability?

1.) Students themselves have provided information on their qualifications.
2.) The UAS have informed us on roles and tasks that would suit their students.
3.) We know about the qualifications offered by the UAS through some of our employees.
4.) We have found out about the qualifications by ourselves.
5.) If other, then what? _____

9. How would you rate the sufficiency of the information on students' qualifications and suitability?

1.) Very satisfactory
2.) Fairly sufficient
3.) Average
4.) Not sufficient enough
5.) Rather insufficient

IV STUDENTS' GUIDANCE AND ASSESMENT

10. How has the provision of guidance for interns been developed at your workplace?

	Yes	No
10.1.) Our nominated personnel has participated in training for internship supervisors organised by the UAS.	1	2
10.2.) There has been no need to train our internship supervisor/s.	1	2
10.3.) Organising training for internship supervisors would be sensible in the future.	1	2
10.4.) We have tried to develop internship guidance training independently at our workplace.	1	2
10.5.) If other, then what? _____		

11. In organising guidance for interns' at our workplace, we have:

	I do not know	Never	Some-times	Fairly often	Very often
11.1.) Nominated an internship supervisor.	1	2	3	4	5
11.2.) Taken time to plan and organise guidance.	1	2	3	4	5
11.3.) Produced material that describes working tasks and/or procedures in order to support interns' understanding of the tasks.	1	2	3	4	5
11.4.) Planned projects or developmental tasks that interns can participate in or manage.	1	2	3	4	5
11.5.) Spread the guidance responsibilities among several employees.	1	2	3	4	5
11.6.) Engaged in conversations with interns, reflecting on the relation between the tasks and the theoretical background.	1	2	3	4	5
11.7.) Asked the interns about their experiences, views, and possible questions.	1	2	3	4	5
11.8.) Asked the student to give critical feedback and to suggest better ways of doing things.	1	2	3	4	5

12. The supervisor's relations with the intern: How often does the following take place between the supervisor/tutor and the student. (Questions 12.1–12.12 were developed by Hanna Hopia, Jyväskylä University of Applied Sciences, but these were not used in the articles of the four sub-studies of this dissertation and are thus not listed here.)

13. How has the assessment of the intern and the internship been organised?

	Yes	No
13.1.) All official papers relating to the internship were given to the student intern to pass on to the UAS.	1	2
13.2.) The criteria for the student assesment were agreed on by our workplace community.	1	2
13.3.) We organised a meeting attended by the mentor teacher, the student intern and ourselves, and discussed and assessed the success of the internship.	1	2
13.4.) In addition to assessing the student intern's success in the internship, we planned our future cooperation with the UAS in discussions with the teacher.	1	2

14. How satisfied are you with the interaction between your workplace and the UAS in regard to the organisation of students' internship placements at your enterprise?

1.) Not at all 2.) Not very 3.) Somewhat 4.) Quite 5.) Very

15. The benefits of having interns at the workplace. What kind of advantages have you had from the interns and related cooperation with the UAS?

	Not true at all	Not very true	Somewhat true	Quite true	Very true
15.1.) It helps our recruitment, to learn to know our possible future workforce.	1	2	3	4	5
15.2.) It helps us to keep in touch with the latest knowledge.	1	2	3	4	5
15.3.) It reduces the workload.	1	2	3	4	5
15.4.) It brings new viewpoints.	1	2	3	4	5
15.5.) It helps in organizing work during holidays.	1	2	3	4	5
15.6.) It brings information on studies, new practices and methods.	1	2	3	4	5
15.7.) The thesis subjects are relevant to us.	1	2	3	4	5
15.8.) Experience in guidance supports the professional growth of our personnel.	1	2	3	4	5
15.9.) Students' assignments and studies help our planning and developmental work.	1	2	3	4	5
15.10.) Other.	1	2	3	4	5

16. Difficulties in organising and developing workplace learning for interns. What kinds of difficulties have you experienced in organising internships?

	Not true at all	Not very true	Some-what true	Quite true	Very true
16.1.) We have not had enough information on students' competences.	1	2	3	4	5
16.2.) We have not had enough resources for organising guidance: too little time, not enough employees.	1	2	3	4	5
16.3.) We have not had work tasks that would be suitable for interns.	1	2	3	4	5
16.4.) We have had negative experiences with student interns in the past.	1	2	3	4	5
16.5.) We lack experience and expertise with respect to internship guidance.	1	2	3	4	5
16.6.) We have not been given enough information about what we are expected to do.	1	2	3	4	5
16.7.) What else would you like to bring up in regard to the internship collaborations??					

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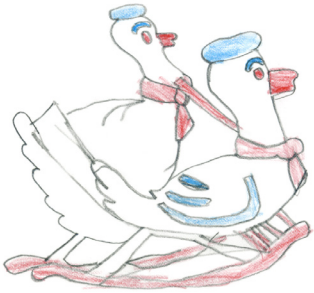

Toward Connectivity: Internships of Finnish Universities of Applied Sciences

INTEREST IN LEARNING through work experience as a part of higher education has increased during the last decades. In this dissertation the focus is on internships, because they are the most influential form of learning through work experience organized by Finnish universities of applied sciences. A connective model has been used to examine how learning at school and work has been combined. This study explores how teachers, graduates and employers have experienced the internships. However, the purpose of the study is not only to explore the connective model but also to redefine it in the light of the study results.

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ISBN 978-951-39-5588-5

Drawing: Valpuri Virolainen
Photo: Maarit Virolainen
Cover: Martti Minkkinen