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Graduates' evaluations of usefulness of university education, and early career success – A longitudinal study of the transition to working life

Abstract

A successful transition from university to working life requires that graduates are able to employ their education and academic competences in real working-life contexts. Our previous research showed that graduates varied in how they were able to reflect on their competences at the time of graduation. The present longitudinal mixed-method study follows the same graduates and explores their evaluations of the usefulness of university education and career success, three years after graduation. The follow-up data consisted of 57 graduates' survey answers analysed by quantitative and qualitative methods. The results showed that graduates who were able to describe and evaluate more competences at the time of graduation perceived their current jobs to correspond more to their education. Graduates with more limited evaluations of their competences, on the other hand, had experienced more challenges related to employment and were more uncertain of their goals. The results also showed that having diverse competences and an ability to recognise them at the time of graduation is important for later career success and may also be related to what kind of challenges graduates face in working life.

Introduction

Successful transitions from university to working life require that graduates are able to employ their education and academic competences, such as critical thinking as well as collaboration and communication skills, in real working-life contexts (Tomlinson 2008; Grosemans, Coertjens, and Kyndt 2017). Many studies have explored students' or graduates' experiences of the development of academic competences during university studies (Crebert et al. 2004; Vaatstra and De Vries 2007), which can be considered as reflecting the usefulness of university education. However, evidence shows that students and graduates are not able to develop enough competences for working life (Tynjälä et al. 2006; Tymon 2013). In addition, there is evidence of self-assessed development of competences during university studies being related to graduates' satisfaction with their degrees as well as their career success (Vermeulen and Schmidt 2008; Braun, Sheikh, and Hannover 2011; Grace et al. 2012). This was also illustrated by Semeijn and colleagues (2006) where graduates' evaluations of their competences were positively associated with having a job requiring an academic education. Thus, graduates' evaluations of competences developed during studies, degree satisfaction and early career success can be seen as indicators of how successful the graduates have been in transitioning to working life. Most research concerning academic competences, degree satisfaction and career success, as well as their relation to each other, have used surveys. However, surveys do not always give a clear picture of the individual differences in graduates' perceptions of the kind of academic competences they are able to develop during their university studies. Our earlier research has shown graduates differing from each other in the way they were able to describe academic competences in interviews, although their survey answers were very similar (Tuononen, Parpala, and Lindblom-Yläne 2018). Qualitative research is therefore needed, as it can deepen our understanding of the phenomenon. The present qualitative study will, therefore, focus on academic competences, degree satisfaction and career success. Next, these dimensions and how they relate to each other are described in more detail.

Experiences of the development of academic competences and degree satisfaction

In the present study we use the concept of academic competences to refer to broadly competences and skills which are expected to develop during university studies and needed in working life (Van Dierendonck and Van der Gaast 2013; Grosemans, Coertjens, and Kyndt 2017; Mah and Ifenthaler, 2017; Tuononen, Parpala, and Lindblom-Ylänne 2017). Academic competences consist of attitudes, behaviours and skills, including academic skills, study skills, interpersonal skills and self-conceptions (DiPerna and Elliot 1999). Mah and Ifenthaler (2017) have identified a conceptual model of academic competencies which includes time management, learning skills, self-monitoring, technology proficiency and research skills. Thus, it can be said that academic competences include also generic skills. Evidence shows a majority of graduates feeling that developing such competences at university is more important for their careers than acquiring content knowledge, because these competences improve opportunities to find employment after graduation (Crebert et al. 2004). Previous studies have focused mainly on a particular context, such as university or working life (Crebert et al. 2004; Vaatstra and De Vries 2007), in which evaluations of competences have been measured, leaving the developmental aspect unexplored. Thus there is a need for a longitudinal study which explores graduates' transition from university to working life, and possible changes in their evaluations of competences.

There is evidence of experiences of the development of competences at university being related to degree satisfaction. Graduates who evaluated that they were able to develop more academic competences during university studies have also been more satisfied with their degree at the time of graduation (Tuononen, Parpala, and Lindblom-Ylänne 2018), or had more positive evaluations concerning course satisfaction (Lizzio, Wilson, and Simons 2002; Grace et al. 2012). However, contradictory evidence exists of graduates' degree satisfaction: many graduates have felt that their degree had improved their employment situation but at the same time others have felt that the degree

did not enable them to find a job they wanted or a job that met their expectations (Gedye, Fender, and Chalkley 2004; Teichler 2007).

Career success

Graduates' career success after graduation has been explored in many studies (Vermeulen and Schmidt 2008; Braun, Sheikh, and Hannover 2011). Career success can be divided into objective and subjective types. Objective career success is usually measured by employment situation and salary, and subjective career success using individual evaluations of job satisfaction (Adele and Spurk 2009; Van Dierendonck and Van der Gaast 2013). In the present study, we examine both objective and subjective career success by focusing on graduates' work situation, work history and job satisfaction. Therefore, we also take into account the nature of graduates' work when exploring their career success.

Graduates' self-rated evaluations of the academic competences they were able to develop in higher education seem to be related to their career success (Semeijn et al. 2006; Vermeulen and Schmidt 2008; Braun, Sheikh, and Hannover 2011; Van Dierendonck and Van der Gaast 2013). More precisely, systematic competence, such as time-management skills and the ability to organise work effectively, has been associated with career success (Braun, Sheikh, and Hannover 2011). In addition, graduates who found that they had developed many competences during their studies have perceived their education as being more useful for their current job compared to graduates who felt they had developed less competences (Vaatstra and De Vries 2007).

Successfully transitioning from education to working life as well as career success can also be examined by exploring the challenges that graduates face in working life. Furthermore, unemployment, temporary contracts, part-time employment and difficulties finding work that relates to one's study field are challenges that higher education graduates also encounter more often (Teichler 2007). However, only a few studies have explored difficulties in working life from the graduates'

own perspective (Perrone and Vickers 2003; Tuominen, Rautopuro, and Puhakka 2011). In a study of Finnish graduates, regional employment situation, poor employment prospects in the field, inadequate networks and lack of work experience were the most reported reasons for difficulties in finding employment (Tuominen, Rautopuro, and Puhakka 2011). There is also evidence that graduates with non-professional fields perceived to have poorer quality jobs and have less labour market opportunities than graduates in professional fields (Okay-Somerville and Scholarios 2017). Similarly, research evidence shows that generalists encounter more difficulties in transitioning to working life than professionals (Puhakka, Rautopuro, and Tuominen 2010). Furthermore, graduates from humanities and social sciences were less satisfied with their jobs (García-Aracil and Van der Velden 2008). Evidence suggests that university students may also be completely unaware of the challenges awaiting them after graduation, and that might lead to disappointment when expectations and employment opportunities differ (Perrone and Vickers 2003). Thus, it is important to explore what kind of challenges graduates experience and how graduates differ in terms of the challenges they face in their early careers.

In the present longitudinal mixed-method study, we aim to explore graduates' evaluations of the usefulness of university education by examining their evaluations of competences, degree satisfaction, and career success. The data were obtained through a survey including also open-ended questions. In addition, the aim is to investigate changes in graduates' descriptions and evaluations of their academic competences at the time of their graduation and three years afterwards. In our previous interview study, we found that at the time of graduation, the graduates varied in how they were able to describe and evaluate their academic competences developed at university (Tuononen, Parpala, and Lindblom-Ylänne 2017). The variation was found based on the interviews which were read in an iterative manner while searching for descriptions of academic competences. Descriptions were compared and similar descriptions of competences were combined. Finally two main categories, Rich and Limited evaluations, were formed. More precisely, graduates with Rich evaluations were able to

describe and evaluate several academic competences developed at university including such demanding ones as critical thinking and applying knowledge as well as practical competences such as communication skills. Graduates with limited evaluations described competences narrowly, expressing only practical competences or operational competences (Delamare Le Deist and Winterton 2005) such as communication skills, language skills or IT skills, or they had difficulties describing any academic competences (Tuononen, Parpala, and Lindblom-Ylänne 2017). We thus continued with individual level analysis and the graduates were grouped according to the number and quality of the descriptions they mentioned. These groups were named as Rich evaluation group and Limited evaluation group. In the present study, we use the name of those groups to refer to graduates with different evaluations of their academic competences. We extend this our previous study by following up on how graduates representing the two above-mentioned groups evaluate the usefulness of their education as well as their career success three years after their graduation. We apply a mixed method approach with two phases: first we explore the evaluations using quantitative data and then go deeper using qualitative data.

The research questions are as follows,

- 1) How do the descriptions and evaluations of the academic competences in the Rich and Limited evaluation groups change from the time of graduation to three years after graduation?
- 2) How do graduates in the Rich and Limited evaluation groups evaluate their degree satisfaction?
- 3) How do graduates in the Rich and Limited evaluation groups differ in their work situation and job satisfaction?
- 4) What kind of challenges do graduates in the Rich and Limited evaluation groups encounter in working life?
- 5) How do graduates in the Rich and Limited evaluation groups evaluate the reasons for difficulties in finding employment?

Materials and methods

Participants

The present longitudinal study was conducted in one research-intensive university in Finland. The study was a follow-up on our previous studies in which 83 graduates were interviewed at the time of their graduation and were subsequently divided into Rich and Limited evaluation groups depending on their evaluations of academic competences (Tuononen, Parpala, and Lindblom-Ylänne 2017; Tuononen, Parpala, and Lindblom-Ylänne 2018). At the graduation phase, a total of 64% of the graduates were classified in the Rich evaluation group and 36% in the Limited evaluation group. In the present follow-up study, 57 of the graduates who participated in the study at the time of graduation completed a follow-up questionnaire three years after their graduation. Of these 57 graduates, 29 (51%) belonged to the Rich evaluation group and 28 (49%) to the Limited evaluation group. Almost all participants in the follow-up study were generalists, meaning that they had graduated in non-professional fields representing the Faculty of Arts, Faculty of Behavioural Sciences and Faculty of Social Sciences. Most were females ($n = 39$; 67 %). The mean age was 33 years, $SD = 6.2$.

Materials

The follow-up questionnaire included questions about the usefulness of university education, and career success (Appendix 1). Usefulness of education was examined using several items measuring how university studies had developed different academic competences. Degree satisfaction was measured by three questions focusing on how satisfied the participants were with their degrees in terms of careers, how well their current jobs corresponded to their academic education, and would they choose the same study field again. In addition, career success was examined by graduates' employment situation, work history after graduation, job satisfaction and evaluations of reasons for difficulties in finding employment. The nature of the work was measured in terms of three types of

work: one's own academic work, other academic work and non-academic work. One's own academic work meant academic work relating to the graduates' study field; other academic work meant academic work which differed from the graduates' study field; non-academic work had no connection to university studies. There were also open-ended questions on what have been the most important competences and skills that the graduates have learned at university and have used in working life, what the graduates would have needed more of at university and what kind of challenges they had faced in working life.

Analysis

The present mixed-method study applied both quantitative and qualitative analysis to gain a comprehensive picture of the phenomenon and to validate the results of another method (Teddlie and Tashakkori 2009). Moreover, the use of mixed methods is emphasised when analysing change (Lindblom-Ylänne, Parpala, and Postareff 2014). The changes were analysed between and within the Rich and Limited evaluation groups. First, we analysed the changes in evaluations of academic competences within each group by paired samples t-test. The differences between the Rich and Limited evaluation groups were then analysed using an independent samples t-test and chi-square tests. To analyse changes in evaluations, we applied the method of using the change variables (Lindblom-Ylänne, Parpala, and Postareff 2014). The change variables were created by subtracting the graduates' second measurement scores (three years after graduation) from the first measurement scores (at the time of graduation). The direction of change (increase, decrease, no change) was also examined. Effect sizes were calculated using Cohen's *d*, and the results were interpreted using the guidelines of 0.20 as a small, 0.50 as a moderate and 0.70 as a large effect (Cohen 1988). The quantitative analyses were carried out using SPSS 22.

Open-ended answers were analysed using content analysis, which includes the phases of coding, creating categories and abstraction (Elo and Kyngäs 2007). The first author listed all descriptions and formed preliminary categories. The categories were then discussed with the second author, and final categories were created and labelled together with all the authors. The agreement of categories between the authors was high. After this, the categories were coded as dummy variables into the data and chi-square tests were used to analyse differences in categories between the graduates in the Rich and Limited evaluation groups. To analyse the changes in qualitative descriptions of academic competences developed at university, we utilised the interviews that had been conducted at the time of graduation and analysed in our previous study (Tuononen, Parpala, and Lindblom-Ylänne 2017). The study design is presented in Figure 1.

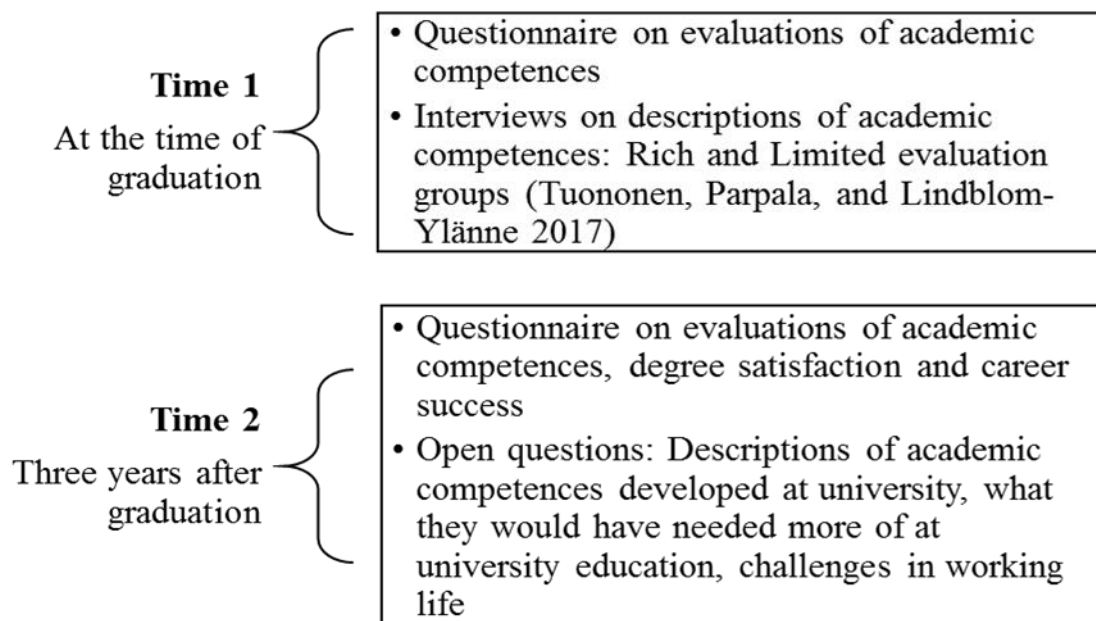


Figure 1. The follow-up and mixed-method study design

Results

Usefulness of university education: changes in evaluations of academic competences and degree satisfaction

Our first aim was to explore changes in graduates' descriptions and evaluations of their academic competences measured at the time of their graduation and three years after graduation. First, we explored changes within the Rich and Limited evaluation groups. The results of the paired samples t-tests showed that within the Rich evaluation group there were statistically significant changes in two of the skills: Collaboration and communication skills ($t = 3.20$, $p < .05$, Cohen's $d = 0.60$), and Developing new ideas ($t = 2.37$, $p < .05$, Cohen's $d = 0.44$). Graduates scored lower on these items three years after graduation compared to the evaluations at graduation. Among graduates in the Limited evaluation group a statistically significant difference was also noted in changes in Collaboration and communication skills ($t = 2.20$, $p < .05$, Cohen's $d = 0.42$), and these graduates also scored lower on this item three years after graduation. Changes in other items were non-significant although the direction of change was positive in many items.

Differences in changes between the groups were then explored. The results of the independent samples t-test showed that the groups did not statistically significantly differ in changes of their evaluations of academic competences. The results, however, showed that in five of seven academic competences the direction of change was different between the groups. Among the Limited evaluation group the change was positive in most items, indicating that the second measurement scores were higher than the first measurement scores compared to the Rich evaluation group, whose scores were in most of cases lower at the second measurement point than the first. Overall, the quantitative results showed that the highest scores in both groups and at both measurement points were Analysing and structuring of information, Critical thinking and Seeing different perspectives. The lowest scores were in Collaboration and communication skills and Developing new ideas at both

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measurement points. The means, standard deviations and change variable of the Rich and Limited evaluation groups are presented in Table 1.

Table 1. Evaluations of academic competences at the two measurement points and changes in these evaluations

Academic competences	Rich evaluation group		Change Rich	p-value	Limited evaluation group		Change Limited	p-value
	1 st meas. Mean SD	2 nd meas. Mean SD			1 st meas. Mean SD	2 nd meas. Mean SD		
1. Applying knowledge	3.76 1.19	3.38 .98	-.38	>.05	3.61 1.23	3.79 1.03	.18	>.05
2. Collaboration and communication skills	3.48 .99	2.97 .94	-.51*	.003	3.54 1.11	3.00 1.25	-.54*	.037
3. Analysing and structuring information	4.48 .51	4.34 .90	-.14	>.05	4.50 .58	4.64 .49	.14	>.05
4. Seeing different perspectives	4.45 .57	4.34 .94	-.11	>.05	4.43 .69	4.57 .57	.14	>.05
5. Critical thinking	4.34 .72	4.48 .87	.14	>.05	4.57 .69	4.57 .74	0	>.05
6. Making arguments and looking for solutions	4.31 .66	3.93 1.0	-.38	>.05	4.36 .87	4.39 .79	.03	>.05
7. Developing new ideas	3.66 1.01	3.21 .94	-.45*	.025	3.68 .98	3.64 1.10	-.04	>.05

Note: * Statistically significant changes within the group

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Following the quantitative analysis, we focused on the graduates' experiences three years after their graduation. First we analysed the graduates' qualitative descriptions of the most important skills and competences they had developed at university and needed in working life (Table 2). Four main categories were created: 1) Information processing skills, 2) Collaboration and communication skills, 3) Individual factors and 4) Professional skills. The chi-square tests showed that graduates in the Rich and Limited evaluation groups did not differ in their answers on developed and important skills. More specifically, competences related to information processing were most often mentioned in both groups. These competences included searching for information, critical thinking and seeing different perspectives. In addition, graduates in both groups considered analysing information and substance knowledge developed at university and to be important in working life. Furthermore, graduates mentioned that collaboration and communication skills had been important competences in working life; in particular, the presentation of knowledge was often mentioned. Moreover, graduates mentioned individual factors that comprise learning skills and time-management skills as well as self-beliefs. Self-beliefs included, for example, initiative, persistence and self-efficacy. In addition, both groups mentioned professional skills, such as research skills, as well as pedagogical skills as important.

Table 2. Main categories, sub-categories and frequencies of competences that graduates had developed at the university and needed in working life

Main and sub-categories (frequencies)	Rich evaluation group	Limited evaluation group	Codes
Academic competences			
<i>Information processing (111)</i>			
Searching for information (26)	13	13	Seeking information, skills in searching for information, seeking information from different sources
Critical thinking (24)	12	12	Ability to think critically, critical view of sources, argumentation, critical evaluation of knowledge
Seeing different perspectives (21)	10	11	Setting things within wider contexts, relating concepts to each other, understanding the whole picture, seeing things from different points of view, understanding huge amounts of knowledge
Analysing information (20)	11	9	Structuring information, analysing skills
Substance knowledge (20)	12	8	Theoretical background, substance knowledge, understanding of theoretical basis of subject matters
<i>Collaboration and communication skills (21)</i>			
Presenting knowledge (18)	6	12	Presentation skills, oral presentation, written skills, scientific writing
Collaboration skills (3)	1	2	Teamwork, working with different people, collaboration
<i>Individual factors (23)</i>			
Self-beliefs (11)	6	5	Self-efficacy, initiative, persistence, certainty of one's competences, self-knowledge
Learning skills (6)	5	1	Passion to learn, study skills, learning to learn, ability to learn quickly
Time-management and organising skills (6)	4	2	Planning and organising skills, time management
<i>Professional skills (10)</i>			
Pedagogical and research skills (10)	5	5	Research skills, quantitative analysis, pedagogical skills

Degree satisfaction in terms of career

Our second aim, in the phase three years after graduation, was to explore graduates' evaluations of degree satisfaction regarding their careers. The results revealed the Rich evaluation group assessing that university education corresponded more to their current job ($M = 4.70$, $SD = .66$) compared to the Limited evaluation group ($M = 3.46$, $SD = 1.53$), $t = 3.96$, $p < .001$, Cohen's $d = 1.04$). However, there was no statistically significant difference in degree satisfaction between the Rich ($M = 4.03$, $SD = 1.11$) and Limited evaluation ($M = 3.71$, $SD = 1.12$) groups although graduates in Rich group scored higher on the item. The results also showed that 28% of graduates ($n = 16$) would not choose the same field if they were to begin their studies again. However, no statistically significant difference was noted between the Rich ($n = 8$) and Limited ($n = 8$) evaluation groups.

The graduates' degree satisfaction was qualitatively analysed by asking them what they would have needed more of at university from the perspective of working life. Four main categories were found: 1) Work-related practices, 2) Generic skills, 3) Specific knowledge, and 4) Study counselling (Table 3). The results showed no statistically significant differences in answers between the Rich and Limited evaluation groups. Graduates most often mentioned the need for more work-related practices such as offering more knowledge about working life and possible jobs as well as counselling about working life. They also expressed an interest in greater networking opportunities, meaning more contacts with companies and business projects, and to have more practical examples in courses. In addition, support in recognising one's own competences was mentioned. Social and presentation skills as well as critical thinking were the generic skills that graduates said they would need more of during their studies. General study counselling, and specific knowledge related to business, were also mentioned. Although there were no statistical significant differences in descriptions between the groups, all descriptions relating a need for more support in recognising one's own competences and having more critical thinking skills were mentioned among graduates in the Limited evaluation group.

Table 3. Main categories, sub-categories and frequencies of graduates' descriptions of what they would have needed more of at university

Main and sub-categories	Rich evaluation group	Limited evaluation group	Codes
<i>Work-related practices (40)</i>			
Working-life orientation (15)	6	9	More knowledge about working life, concrete examples of possible jobs, working-life-oriented study counseling, mentoring
Practice (14)	8	6	Practical examples of how theories can be used in practice, practical courses, applying theory to practice
Networking (8)	6	2	Networking, contacts with working life, business projects, collaboration with organisations, real-life projects
Recognising one's own competences (3)	0	3	Support in recognising personal strengths and utilising them, marketing of competences
<i>Generic skills (22)</i>			
Social and presentation skills (20)	9	11	Presentation skills, more presentations, collaboration skills, discussions, negotiating skills, group work, project work, interaction with other students, leadership skills
Critical thinking (2)	0	2	Critical thinking, argumentation
<i>Study counselling (5)</i>			
Study counselling and support (5)	1	4	Study counselling, more support from teachers, more flexibility in taking courses
<i>Specific knowledge (4)</i>			
Business knowledge (4)	3	1	Understanding of trade, business and sales, marketing expertise

Career success

Graduates' career success was explored using different variables such as the graduates' current employment situation, work history and job satisfaction as well as difficulties experienced in working life. The results showed that the majority of graduates were employed three years after graduation and that most were engaged in their own academic work. No significant differences in employment situation between the Rich and Limited evaluation groups were found, although minor differences

were evident (Table 4). Most of the graduates in the Rich evaluation group were engaged in their own academic work and less non-academic work compared to the Limited evaluation group. In addition, the Rich evaluation group had, on average, shorter unemployment periods than the Limited evaluation group. In terms of job satisfaction, no statistically significant difference was found ($t = 1.93, p. 059$) although the Rich evaluation group's scores were higher ($M = 4.24, SD = 1.09$) than those of the Limited evaluation group ($M = 3.58, SD = 1.28$).

Table 4. Work situation and employment history of Rich and Limited evaluation groups

Work situation and employment history	Rich evaluation group (n= 29) f (%)	Limited evaluation group (n= 28) f (%)
<i>Current employment situation</i>		
Employed	23 (79)	22 (79)
Unemployed	2	2
Not working but studying or on maternity leave	4	4
<i>Nature of work</i>		
Own academic work	21 (72)	11 (39)
Non-academic work	2 (8)	5 (18)
<i>Unemployment history</i>		
Have been unemployed at some point after graduation	9 (33)	10 (40)
Average length of unemployment period (months)	Mean 7.8 SD = 6.4 max 17 months	Mean 8.9 SD = 11.4 max 32 months

Difficulties in working life

Finally, we aimed to explore the kinds of challenges graduates had experienced in working life, and three main categories emerged from the data (Table 5): the challenges were related to 1) Individual factors 2) Individual difficulties in employment, and 3) Factors related to the workplace. Graduates most often mentioned challenges related to individual factors. For example, the need for more generic skills, especially social and presentation skills was reported. Performance anxiety was also mentioned

among some graduates as well as time management and well-being. There was a statistically significant difference in terms of Individual difficulties in employment as a challenge in working life ($X^2 = 7.007$, $df = 1$, $p = .008$). Graduates in the Limited evaluation group mentioned employment as a challenge more often (11 times) than graduates in the Rich evaluation group (four times). These instances included difficulties finding employment, uncertainty about finding employment in one's own field and dealing with unemployment. Factors related to the workplace included the content and organisation of work, for example no challenges or poor leadership.

Table 5. Main categories, sub-categories and frequencies of challenges in working life

Main and sub-categories	Rich evaluation group	Limited evaluation group	Codes
<i>Individual factors (32)</i>			
Generic skills (20)	9	11	Working with different people, presentations, performance anxiety, argumentation
Time management (8)	6	2	Time management, being busy, prioritising, timetables, time management of projects
Well-being (4)	3	1	Taking care of one's own well-being, burnout, workload, fixed-term contracts affecting well-being
<i>Individual difficulties in employment (15)</i>			
Employment (15)	4	11	Finding a job, uncertainty about employment, lack of positions, uncertainty about finding work in one's own field, ending up doing the wrong kinds of tasks, dealing with unemployment, uncertainty caused by fixed-term contracts
<i>Factors related to workplace (17)</i>			
Content of work (7)	4	3	Large amounts of information, no challenges at work, language issues, challenging situations, team leading, bureaucracy, regulations
Organisation of work (10)	6	4	No superior, lack of introduction to the work, lack of resources, no support from superior, doing others' jobs

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The graduates were asked if they had experienced employment difficulties after graduation and about the reasons for them. A total of 52% (n = 30) of graduates had experienced difficulties. The results showed statistically significant differences between the Rich and Limited evaluation groups in Poor employment situation (t = -2.821, p < .05, Cohen's d = 1.01) and Uncertainty about one's goals (t = -2.75, p > .05, Cohen's d 1.05). Graduates in the Limited evaluation group scored higher on both items compared to the Rich evaluation group (Table 6). In general, the Limited evaluation group scores on all items were higher than the Rich evaluation group. Only Inadequate networks was given higher scores in the Rich evaluation group although the difference was not statistically significant.

Table 6. Graduates' differences in reasons for difficulties in finding employment

Items	Rich evaluation group (N = 12)		Limited evaluation group (N = 18)		t	p
Poor employment situation in the field	3.08	1.51	4.39	1.04	-2.82	p < .05*
Inadequate networks	3.17	1.47	3.06	1.39	.21	p > .05
Lack of work experience	2.92	.10	3.61	1.29	-1.58	p > .05
Subjects in the degree	2.92	1.31	3.39	1.09	-1.07	p > .05
Uncertainty about one's own competences	2.17	1.34	2.94	1.21	-1.65	p > .05
Uncertainty about own goals	1.83	1.11	3.11	1.32	-2.75	p < .05*

Discussion

The present longitudinal study followed graduates from their graduation to three years after graduation and explored their evaluations of the usefulness of their university education as well as their career success using both quantitative and qualitative methods and various variables. In more detail, the follow-up study compared graduates in the Rich and Limited evaluation groups which were found in our previous study showing that graduates in the Rich evaluation group were able to describe diverse academic competences varying from critical thinking to collaboration skills whereas those in the Limited evaluation group described only practical competences such as collaboration skills or language skills (Tuononen, Parpala, and Lindblom-Ylänne 2017). First, we explored the usefulness of university education by examining the evaluations of how university studies had developed different academic competences among the graduates. Furthermore, changes in these evaluations within and between the Rich and Limited evaluation groups were examined. The follow-up study showed that significant changes had occurred within the groups. Three years after graduation, graduates in the Rich and Limited evaluation groups perceived that in their studies they had not developed as many collaboration and communication skills as they had evaluated at the time of graduation. In addition, the results showed no differences in changes of evaluations between the groups.

We asked the graduates to describe the most important skills and competences that they had developed at university and were using in working life. They mentioned information processing skills, collaboration and communication skills as well as individual factors relating to these skills, and no significant differences between the groups were found. This was in line with the questionnaire data showing that the graduates mentioned competences that also seem to have been developed in the light of the inventory data when comparing the two measurement points. Furthermore, it was interesting that the graduates did not differ in their qualitative descriptions three years after graduation although their descriptions differed at the time of graduation, showing rich and limited evaluations of

academic competences. Three years after graduation, the Limited evaluation group also mentioned that university studies had developed demanding competences such as critical thinking and seeing different perspectives. This was the dimension that distinguished them from the Rich evaluation group at the time of graduation. The quantitative survey results also showed that three years after graduation the Limited evaluation group evaluated their development of competences at university more positively than at the time of graduation. Thus, it might be that some graduates are not able to identify and evaluate their competences before they can use them in real working-life situations. In addition, there is evidence that students appear to underestimate their competences at the time of graduation (Baartman and Ruijs 2011). Contrarily, the present follow-up study showed that three years after graduation the Rich evaluation group scored lower in all competences. It might be that good metacognitive skills at the time of graduation enabled them to more critically evaluate gained competences. Other explanation for the fact that Rich evaluation group had lower scores might be that they are working demanding work contexts which requires a lot of different competences, and thus they evaluate them developed less at university. Similarly, evidence shows that graduates perceived requirements of different generic competences in working life higher than they evaluated these skills developed at university (Teichler 2007) or graduates perceive skills more important at work than their own ability in those skills (Nabi and Bagley 1999).

Our second aim was to explore graduates' views of usefulness of education and their degree satisfaction in terms of their careers. The study confirmed previous findings that competences are positively related to degree satisfaction or course satisfaction (Lizzio, Wilson, and Simons 2002; Tuononen, Parpala, and Lindblom-Ylänne 2018). It was also found that the ability to evaluate diverse competences at the time of graduation was related to the perceptions of usefulness of education regarding graduates' current jobs. Our previous study showed that graduates with rich evaluations of their competences were able to perceive any kind of work experiences useful for their studies already at the time of graduation.

Both the Rich and Limited evaluation groups' answers about what they would have needed more of during their studies included work-related practices, generic skills, study counselling and specific knowledge. Work-related practices, such as more information on jobs, practice in studies, working-life-oriented counselling as well as networking, were most often mentioned in both groups. Similarly, previous studies have shown that there should be more practice and internships, collaboration with industry, project work and leadership training (Crebert et al. 2004). In both Rich and Limited evaluation groups, graduates mentioned a need for more social and presentation skills. However, there was an interesting difference between the groups even though statistically significant differences were not found. Only graduates in the Limited evaluation group mentioned the need for more critical thinking skills as well as support in recognising own competences. Thus it seems that three years after graduation some graduates in the Limited evaluation group continued to experience a need for those competences and skills that they had difficulties with at the time of graduation (Tuononen, Parpala, and Lindblom-Ylänne 2017).

The third aim was to explore graduates' career success by looking at their employment situation, work history, job satisfaction and challenges in working life. The results showed that the majority of graduates were employed three years after graduation and that most had a job which matched their academic education. Graduates in the Rich and Limited evaluation groups did not statistically significantly differ in their employment situation which is in line with a recent study showing that self-assessments of competences were not related to graduates' work situations in terms of being employed or unemployed (Piróg 2016). However, despite the fact that no significant differences in employment situation were noted between the two groups of graduates, minor differences can be seen. For example, graduates in the Rich evaluation group had more often academic work which was related to their study field and were more satisfied in their work. Evidence shows that working in own study field increase job satisfaction (García-Aracil and Van der Velden 2008). It is interesting that this nature of work difference between Rich and Limited groups was

already observed at the time of their graduation (Tuononen, Parpala, and Lindblom-Ylänne 2017). Furthermore, six of the graduates in Limited Evaluation group did not answer the question in terms of the nature of work but all the graduates in Rich Evaluation group did. Thus, it might be that graduates representing Limited evaluation group have had difficulties in evaluating the nature of work. In order to be able to understand the reasons behind this, more research is needed from these groups, for example, more precise background information. The results are also in line with studies showing that graduates who felt that they had developed more competences at university were more satisfied with their jobs and career success, in addition to more often having a job requiring an academic education (Semeijn et al. 2006; Braun, Sheikh, and Hannover 2011). There is also evidence that students who focused on learning, continuous improvement and developing new skills have been more satisfied with their careers after graduation (Van Dierendonck and Van der Gaast 2013). Similarly, the Rich evaluation group devoted more time and effort to learning different competences while studying (Tuononen, Parpala, and Lindblom-Ylänne 2018). Interestingly, Braun, Sheikh and Hannover (2011) showed a positive relation between career success and both time-management skills and being able to meet challenges, suggesting that the ability to organise and regulate one's learning are particularly important competences for future career success.

The present study revealed that most of the challenges that graduates reported to have had in working life were related to the need for more generic skills, especially presentation and social skills. This is in line with quantitative results which revealed that collaboration and communication skills were scored the lowest in both measurement points, and after the graduation scores were even lower. It can therefore be suggested that graduates need more collaboration and communication skills for working life; as other studies have also found (Elias and Purcell 2004; Teichler 2007; Andrews and Higson 2008; García-Aracil and Van der Velden 2008; Puhakka, Rautopuro, and Tuominen 2010). This may be because some students do not realise the importance of generic skills in the future and do not put enough effort into learning them (Gedye, Fender, and Chalkley 2004; Tuononen,

Parpala, and Lindblom-Ylänne 2018). Therefore the importance and relevance of these skills for working life should be emphasised to students, and it should be ensured that students have the possibilities to develop social skills in particular, for example, by providing active learning environments (Vaatstra and De Vries 2007).

The results also revealed that employment as a challenge was mentioned more often in the Limited than Rich evaluation group. It might be the case that graduates in the Limited evaluation group had fewer opportunities to work in a field related to their studies, and thus experienced more such difficulties. In addition, it was found that the Rich and Limited evaluation groups evaluated their reasons for difficulties in finding a job differently. Poor employment situation and Uncertainty about one's own goals were reported more among the Limited than Rich evaluation group. Uncertainty about own goals might also explain why the Limited evaluation group experienced more challenges related to employment. There is evidence that graduates who have lacked clear career plans have had temporary or low-quality jobs (Pollard, Pearson, and Willison 2004). This indicates that the Rich evaluation group in our study seemed to possess the skills to set clear goals, which are an important element of self-regulation skills (Pintrich 2004). Hence, this study suggests that the ability to make career plans is important for career success (Jackson and Wilton 2017), and that self-regulation skills have an important role in this process.

A few methodological issues should be taken into account when considering the results. First of all, it must be noted that the present follow-up study did not capture causal relation between evaluations of competences and employability. The number of participants was quite small and for that reason statistically significant differences might not occur although there were differences in means. In addition, qualitative differences between the Rich and Limited evaluation groups were determined based on the interviews, and in the study they were compared to the descriptions given in the open-ended answers. It is therefore possible that the open-ended answers did not reveal all the differences that could be found using in-depth interviews. Furthermore, it is important to bear in mind

that when exploring graduates' evaluations of their competences and job satisfaction, the value of skills and knowledge depends on their jobs and workplaces, and that work experiences and expectations change over time (Mora, García-Aracil, and Vila 2007; Clark and Zukas 2013). It should be also noted that most of the participants in the present study had graduated from generalist programs. However, research shows that there are disciplinary differences in how students have developed competences (Kember and Leung 2011) as well as career success (García-Aracil and Van der Velden 2008; Okay-Somerville and Scholarios 2017). Thus, disciplinary differences and other programmes would be important to explore in more detail in the future.

To summarise, the results showed that graduates who were able to evaluate and describe more competences at the time of their graduation, namely the Rich evaluation group, perceived their current job as corresponding more to their education. Further, they seemed to more often be working in their own academic field and had experienced fewer months of unemployment. On the other hand, graduates with limited evaluations of their competences at the time of their graduation mentioned having more challenges related to employment and were uncertain of their goals. It seems that the ability to recognise competences at the graduation phase is also crucial in terms of later career success. Moreover, not all students are able to see that academic competences developed at university are the competences that are needed in working life as well. Raising students' awareness of competences and developing reflection and organising skills should therefore be emphasised more in teaching.

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Appendix

Appendix 1. Variables and scales of the follow-up questionnaire

Themes	Variables	Scale
<p><i>Usefulness of university education</i></p> <p>Degree satisfaction</p> <p>Selection of field of study</p>	<p><i>Academic competences</i></p> <p>How have university studies developed different academic competences?</p> <ol style="list-style-type: none"> 1. Applying knowledge 2. Collaboration and communication skills 3. Structuring and analysing information 4. Seeing different perspectives 5. Critical thinking 6. Making arguments and looking for solutions 7. Developing new ideas <p>1. I can use my academic education in my work.</p> <p>2. The level of my current job corresponds to my academic education.</p> <p>How satisfied are you with your degree in terms of career?</p> <p>Would you choose the same field of study again?</p>	<p>1-5 totally disagree, in between, totally agree</p> <p>1-5 totally disagree, in between, totally agree</p> <p>1-5 totally dissatisfied - totally satisfied</p> <p>1 = Yes 2 = No</p>
<p><i>Career success</i></p> <p>Current career situation</p> <p>Nature of current work</p> <p>Unemployment</p>	<p>Are you currently working?</p> <p>What is the nature of your current work?</p> <p>Have you been unemployed at some point after your graduation?</p> <p>If you have been unemployed, how many months did it last?</p>	<ol style="list-style-type: none"> 1. Yes, I am employed. 2. Yes, but I am doing other things also e.g. studying. 3. No, I am on a family leave or study leave. 4. I am not working. <ol style="list-style-type: none"> 1. Academic work in my own study field 2. Other academic work 3. Non-academic work <p>1= Yes 2 = No</p>

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<p><i>Reasons for difficulties in finding a job</i></p>	<p>If you have experienced difficulties in finding a job, evaluate how the following factors have contributed to your employment situation.</p> <ol style="list-style-type: none"> 1. Poor employment situation in the field 2. Regional labour market situation 3. Lack of work experience 4. Inadequate networks 5. Subjects in the degree 6. Uncertainty about one's own competences 7. Uncertainty about one's goals 	<p>1-5 totally disagree - totally agree</p>
<p><i>Job satisfaction</i></p>	<p>I am satisfied with my current job.</p>	<p>1-5 totally disagree - totally agree</p>
<p><i>Open-ended questions</i></p>	<ol style="list-style-type: none"> 1. What have been the most important skills that you have learned at university and used in working life? 2. What would you have needed more of at university? 3. What kind of challenges have you had in working life? 	