Higher Education Graduates' Employment and the Uncertainty of Working Life

Päivi Vuorinen & Marja-Leena Stenström

The Finnish Institute for Educational Research, University of Jyväskylä

In P. Tynjälä, M.-L. Stenström, & M. Saarnivaara (Eds.) 2012. Transitions and Transformations in Learning and Education., 131-151. Springer: Dordrecht.

Abstract:

The aim of the chapter is to examine how the uncertainty and instability of working life is reflected in Finnish polytechnic graduates' employment. The study investigates the fields of business and engineering by comparing two graduate cohorts. The societal context, in which new graduates enter working life, is the increasing precariousness of the labour market that applies to higher education graduates as well as to general population. A higher education qualification is not necessarily a guaranteed way to high social status and high income as it used to be. Insecurity and uncertainty in society and working life can be considered as general features of late modern (post-modern) society. The data is collected by questionnaires among polytechnic graduates (business and administration: in 2003: n=625, in 2005: n=508; technology & transport: in 2003: n=638, in 2005: n=542). The findings show that polytechnic graduates have been successful in obtaining employment. Their transition to the world of work was quite fluent. The great majority of them were in paid work and had regular employment. However, from the first graduate cohort to the later one there is perceptible weakening in graduates' employment success: for example the proportion of those who did not have adequate employment increased.

Keywords: higher education graduate, employment, transition, insecurity of working life, late modern

Introduction

”Le précarité est aujourd’hui partout”[1] (Pierre Bourdieu).

In Finland as well as elsewhere in Western Europe we hear almost weekly news that indicates unexpected changes and instability in working life and in the labour market, mostly in the form of some company’s plan to give notice to a number of employees, or even worse, as a plan to close down production entirely. The consequences of these kinds of changes has not effected on worker level employees only. There are seen many visible signs of the growth of uncertainty on the labour market for highly educated graduates as well as for the general populace. According to several studies a growing number of higher education graduates cannot expect anymore to transfer smoothly from higher education towards permanent full-time employment for an indeterminate period of time (Teichler, 1999, 2007). Even the highest qualifications cannot completely ensure job security in an era of growing insecurity in working life (Kivinen & Ahola 1999).

Therefore the entry into working life and particularly the accessibility to employment is acquiring greater social prominence. The issue has become an increasingly important focus for higher education applicants, for HE students and their families as well as for higher education institutions (Alves, 2005; Vuorinen and Valkonen, 2005). Along with study and career guidance for higher education applicants and students, higher education institutions do also need data about graduate employment that can be used as assessment criteria by the government. In a world of growing emphasis on efficiency and quality, short study periods and full graduate employment are considered as indicators of effective high quality higher education (Kivinen, Nurmi, & Salminiitty, 2000). Because of that, higher education institutions have started to develop the employability of their students: The aim is to “produce” employable graduates. (Bridgstock, 2009; Moreau & Leathwood, 2006).

The debate on the relationships between higher education and the world of work has been an important issue in the 20th and the early 21st centuries (Teichler, 2002). These relationships can be described by two principles. First, that society can be characterized by the term “professional society” (Perkin, 1996) where the individuals are expected to acquire knowledge, skills and competences potentially relevant for employment and work. Second, that the links between education and employment can be described as a part of educational meritocracy, where the higher the educational level reached at the end of pre-career education, the more the person is likely to be successful in professional placement and subsequent career. Thus, employment and work are seen as important outcome measures of higher education. (Müller & Shavit, 1998; Teichler, 2002).

This article examines Finnish polytechnic (non-university higher education) graduates’ transition to the labour market. It is investigated at the moment when all polytechnics have been operating as permanent institutions at least five years. The issue is interesting for two main reasons. Despite the fact that polytechnic reform is often regarded in Finnish education policy as an “amazing success story” (Ahola, 2006), there has been insufficient information about how the graduates have been placed in the labour market and about their subsequent employment. In addition, the context of graduates employment has changed on account of growing employment problems for higher education degree holders. The aim of this study is to investigate how the growing uncertainty of working life is reflected in polytechnic graduates’ placement and success in working life, and if there are any significant differences in those respects between the two graduate cohorts in the early years of this century.

[1] Insecurity is everywhere at present (free translation by PV). The title of paper given by Pierre Bourdieu in December 1997 (Bauman, 2000, 160)

Higher education graduates and uncertainties over employment

Higher education graduates in changing labour market

The newest part of Finnish higher education, the polytechnics[2] (*non-university higher education)* was launched as an experiment at the beginning of 1990. The first students from newly established institutions graduated in 1994 (Böckerman, 2007). After an interim period of experimentation, all Finnish polytechnics have permanently had the status of polytechnics since the academic year 2000-2001. Because of the reform, the structure of the higher education system adopted in Finland is now a dual higher education, in which the two sectors – universities and polytechnics - are operating on the same educational level as "different but equal".

There have been many notable changes in the European labour market during the last decades. Along with other changes, the labour market of higher education degree holders has in particular been influenced by the enormous ***massification*** of higher education. The concept massification describes the present Finnish higher education system very well. The production of higher education is extensive. The aim of government policy is to offer a study place in higher education for 70% of the 19-21 age group, with the majority (40%) in the polytechnic sector and 30% in the university sector (Ahola, 2006). In practice, the number of students who have actually completed higher education has remained somewhat lower (Virolainen, 2007).

Across all industrial societies, the expansion of higher education was regarded as a way to contribute to economic growth. In Finland, the expansion was closely related to welfare-state agenda and to the provision of equal educational opportunities. Along with the rise of the level of education in Western societies, both the social demand and the institutional supply of higher education increased rapidly (Välimaa & Neuvonen-Rauhala 2008; Lindberg, 2005).

The growing public sector of welfare state provided jobs for numbers of white collar employees. It absorbed over half of new university graduates right down to the 1990s. (Kivinen & Ahola, 1999.) As a result of the deep recession, employment problems related for the first time also to higher education graduates of the 1990s. The major influence of the recession in Finland was instability of employment rather than actual unemployment (Haapakorpi, 1995).

Since then the uncertainty of the labour market for higher education graduates has remained. Several studies have illustrated that the transition from higher education to working life has become a less predictable, more insecure, laborious and long lasting process than it used to be. (e.g. Teichler, 2007b; Alves, 2005; Pohl & Walther, 2007). For the newly graduated this means harsh competition for employment (Vuorinen & Valkonen, 2007, 93-98). Problems have also been faced in employment later after the transition period (2-3 year after graduation). For example, about one tenth of higher education graduates from different European countries were employed as clerks, service and sales officers, i.e. occupations generally viewed as not appropriate for higher education graduates. (García-Montalvo, Mora, & García-Aracil, 2007).

The change has related especially to new higher education graduates who have been searching for their place in working life. There is evidence that the labour market success of the newly graduated has diminished compared with the labour market success of previous cohorts. It has raised

[2] In international contexts the Finnish acronym 'AMK' (ammattikorkeakoulu = vocational higher education institution [word for word –translation]) is also use to differentiate from British polytechnics (e.g. Ahola 2006). We use the name 'polytechnic' because it is generally used in international contexts by Finnish educational administration (Ministry of Education). In addition, its brevity makes it easy to use.

question of the devaluation of higher education degrees on the labour market. (Ryan, 2001; Lindberg, 2005).

Despite the signs of weakening in graduate employment prospects and graduate advantages, a higher education degree none the less still offers relatively good protection against unemployment (Kivinen & Ahola, 1999; Vuorinen & Valkonen, 2007). The unemployment rate of higher education degree holders is remarkably lower than in the labour force overall (e.g Schomburg & Teichler, 2006). Compared to the European context, the unemployment rate of higher education graduates is especially low in Finland and other Nordic countries[3]. Furthermore, higher degrees provide better employment success and wider opportunities in working life, as well as higher financial returns than lower degrees (Müller & Shavit, 1998; Asplund, 2000, 7-8). Therefore, it can be argued, that although a higher education degree no longer guarantees a good job, it has become even more important when new graduates are competing for good jobs among themselves and with older age groups (Lindberg, 2005).

The Features of Working Life and Society in Late Modern

The labour market of all Western European countries has faced remarkable changes during the last decades. The main features of this shift are, among others, the increase in service industries and employment in knowledge-based sectors and technology, and the rise of part-time and/or temporary contracts (precarious employment). The accelerated globalization of markets can be named as one generator of changes. The increasingly competitive nature of the global economy and occupational change has in turn a significant impact on the nature of work. The concept of work has become more fragmented and subject to processes of rapid and unpredictable changes. (Garrick & Jakupec, 2000; Fenton & Dermott, 2006).

The recent changes in working life have been analyzed through several theories. The change is described as transition from working society to information society (Castells, 2000), as the end of work (Rifkin, 1995), by categorizing the labour force in a new way with emphasis on the category of 'symbolic analysts' (Reich, 1992), as new capitalism (Sennett, 1998), and by concepts of the risk society, individualization and the growing insecurity of working life (e.g. Beck, 1992; Giddens, 1991; Bauman, 2000).

The latter theorists perceive the changes of society and working life as a passage from modern industrial society to 'post-/late modern', 'reflexive modern' or 'liquid modern'[4] society. Uncertainty and insecurity in society and working life are seen as characteristic of late modern society. The focal features of change are the increase of risks and the individualization of people's choices and lifespan (Beck, 1992, Giddens, 1991; Bauman, 2000).

The influence of globalization is present everywhere in the late modern society, and it is viewed also as a generator of risks (Giddens, 1994, 96). According to Beck (1994, 7) post-traditional society is the first global society in which people are 'released' from industrial society into the turbulence of global risk society. They are expected to face a broad variety of global and personal risks which probably are in contradiction with each other.

Individualization is emphasized in late modern society. People can no longer make choices by recourse to authorities, traditions, class, family, village community and other received guidelines. Every new decision needs to be negotiated and reflected. Life-planning becomes reflexively organized and "presumes consideration of risks as filtered through expert knowledge", like Giddens (1991, 5) phrases it. Therefore, the responsibility of one's choices is borne by individuals on their

[3] Norway 0.9 %, Sweden 1.4 %, Finland 1.6 % (Graduates of mid 1990's about four years after graduation, i.e. 1999-2000. In Finland only university graduates included because there were only few graduates from newly established polytechnics. (García-Montalvo, Mora and García-Aracil 2007)

[4] Used by different authors.

own; society does not any more take care of consequences. Individuals are expected to use their own intelligence and resources to make their life conditions more satisfactory. (Beck, 1994, 8, 27; Giddens, 1991, 147, 214-216; Bauman, 2000, 135; 2007, 3-4).

When it comes to working life and employment, the insecurity of late modern society is reflected according to Bauman (2000, 161-162, 148) in one's livelihood, which in general is based on work and employment. In new modernity the continuity and future stability of that livelihood is unsure. In that world no one can feel secure. Even the most privileged position may prove to be only temporary or 'until further notice'. The people whom changes affect are picked at random or with no visible logic. It is worth noticing that precarious work is not necessarily new to the current era, but the growth of precarious work since the 1970s has crystallized an important issue (e.g. Beck, 2000).

The concept of flexibility is generally used in different meanings in the current world of work. With flexibility Bauman refers to great changes in employment: what ever changes can take place in order to enhance competitiveness, productivity and effectiveness. Regular contracts and full-time working is replaced by working on short-term contracts, temporary contracts or no-contracts. It augurs a world of jobs without in-built security. For Bauman "working life is saturated with uncertainty". (Bauman 2000, 147, 161-162).

Indicators of graduates' employment success

The success of higher education graduates' placement in working life and their later employment can be considered from the basis of various different indicators, both quantitative and qualitative (Elias, McKnight, Pitcher, Purcell, & Simm, 1999). This article focuses on quantitative ones. Teichler (1999; 2007b) has presented major quantitative group criteria for employment success:

(1). ***Transition*** from higher education to the world of work: Smooth transition to employment, e.g. short periods and limited efforts for job search and short intervals between graduation and employment.

(2). ***Employment:*** low unemployment rate, job security, low percentage of non-regular or precarious employment (temporary, part-time and short-time employment), social respectability of job, career prospects

(3). ***Work***: Links between study and employment:

a) Vertical success of graduates' placement in working life, e.g. high return of educational investment: high rate of graduates adequately employed.

b) Horizontal success of graduates' placement in working life, e.g. close linkage between the field of study and occupation as well as job assignments.

These *criteria* are used in this *article as empirical measuring methods for the conceivable uncertainty of graduates' employment success.* Due to the growing complexity in the relationship between higher education and work, a broad range of measures is needed for studying graduates' professional success (Schomburg, 2007). We chose the above described three indicator groups in order to measure the success of graduates' employment and to show if there are signs of growing insecurity and instability in their placement in work. As specified in the context of this study the indicators are:

(1.) Transition: fluency of transition from polytechnic to the world of work:

a) The employment situation at the moment of graduation.

b) Unemployment experiences after graduation.

c) The length of job search.

(2.) Employment:

a) Employment status three years after graduation (the percentage of graduates in paid job, unemployment rate).

b) Regularity and permanence of employment.

(3.) Work: Links between study and employment: vertical and horizontal success of work placement:

a) Graduate placement in the employer's organization.
b) The proportion of graduates working in an expert position.
c) The correspondence between the graduate degree and employment (Have the graduates got an adequate job? The correspondence between degree and job by level and field.

Aim of the study, data collection and methods

In this study we examine Finnish polytechnic graduates' employment success in the context of increased insecurity in the labour market. More specifically, the aim of the study is to investigate the questions:
1) Is the growing uncertainty and instability of working life reflected in Finnish polytechnic graduates' employment success in the fields of business and engineering?
2) Are there differences between the graduate cohorts of years 2000 and 2002 in terms of employment success in the context of the uncertainty of working life?

The research questions are considered by using the employment success criteria as empirical methods for measuring the uncertainty of graduate employment. In this article the purpose is to make an overview of graduates' employment by comparing two study fields and two graduate cohorts. From the basis of our previous studies it is well known that there is a remarkable difference between female and male graduate employment success (Vuorinen & Valkonen, 2007; Stenström, Laine & Valkonen, 2005). However, the viewpoint of gender is excluded in this analysis because it will be the focus of the next article. In addition, including it in this study would have made the research frame too complicated.

This article looks at graduate entry into working life at a point in time when the polytechnics have acquired a stable status in the Finnish higher education system. The graduates of years 2000 and 2002 investigated in this study represent "the second polytechnic generation", in other words, those who have studied at the end of the experimental phase that contained the 'pilot' graduates and at the beginning of the era of permanent polytechnics.

The data consists of the results of two separate but in terms of content similar studies dealing with polytechnic graduate employment carried out in 2003 and 2005. The data is collected by questionnaire surveys administrated to graduates of two study fields: business and administration (= Bachelors of Business Administration) [in Finnish: *tradenomit]* and technology and transport (= Bachelors of Engineering) [in Finnish: *AMK-insinöörit]*. The study fields investigated are the largest ones in the polytechnic sector of higher education, representing more than half (55%) of the total annual volume of polytechnic graduates, i.e. the graduate volumes are the highest in these study fields. The questionnaires were constructed on the basis of previous studies made by the Finnish Institute for Educational Research (FIER) on graduate employment and enrollment in higher education.

The surveys were carried out *three years after the graduates had completed their studies*. On the basis of previous research we know that the transition to working life tends to be marked by high job mobility in first years following graduation (e.g. Woodley & Brennan, 2000; Alves, 2005). Three years was regarded as a long enough period to be able to examine the graduates' permanent placement in working life.

The sample of population, i.e. all the graduates on two study fields of the years in question, was made by systematic random sampling in order to pick up about 1000 graduates from each graduate group (= of both study fields for both years). The questionnaires were posted to respondents by ordinary mail. The response rates were as following: 2003: Bachelors of Business Administration: 64%, Bachelors of Engineering 65%; 2005: Bachelors of Business Administration 56%, Bachelors

of Engineering 53%. Consequently, the responding rates are good, and there is no statistically significant difference between the groups of degree holders.

The data was analyzed by statistical methods. The description of the respondents' employment is mostly looked at in terms of common descriptive statistics: frequencies, percentages and arithmetic mean. Statistically significant differences were examined by using the chi-square –test. In this study, the statistically significant difference refers to significance level of 1% of less ($p \leq 0.01$). This significance level was chosen because of the large sample size in which practically small differences reached the conventional 5% level ($p \leq 0.05$).

Findings

The findings are considered in the same order in which the indicators of the graduates' employment success are presented above. The findings of both of the research questions are described in the same tables (1-9). First we look at the graduates' employment success from the perspective of uncertainty and instability and then at the differences between the two graduate cohorts.

Transition to employment

Employment situation at the moment of graduation

The transition period has traditionally been defined as an intermediate status between full-time schooling and full time employment. In practice, the transition has become more complex, and the borderline between education and work has become less clear, with mixed statuses combining education and work (Allen & van der Velden, 2007). According to another outlook, the transition period covers 2-3 years after graduation when new graduates are seeking their place in the world of work. It is usually characterized by high job mobility before permanent placement in working life. The stable placement in the world of work rounds off the transition period. (Alves, 2005; Woodley & Brennan, 2000)

Table 1. Graduates who had an adequate job at the time of graduation

Business graduates		***Engineering graduates***	
2000 *(n=617)*	**2002** *(n=540)*	**2000** *(n=636)*	**2002** *(n=506)*
53%	54%	70%	65%
x^2=0.44; p=0.516		x^2=4.37; p=0.021	

Between study fields: year 2000: x^2=41.83, p=0.000; year 2002: x^2=10.83, p=0.001

The respondents were asked about their employment situation at the time of graduation and three years after it (Table 1). In the formulation of that question respondents were asked to report on adequate employment, i.e. employment at a level and field corresponding to their polytechnic degree. More than half of business graduates and two thirds of engineering graduates already had a job corresponding to their degree when they graduated. Thus, they have started to work there prior to graduation. For engineering graduates it is typical to find their first job in companies for which they have made their Bachelor's thesis. In study field of business it is not very common to make a paid Bachelor's thesis for some firm. That explains major difference between engineering and business graduates. However, it is worth noting that the proportion of those business graduates who had adequate employment at the time of graduation is also large. Between the graduate cohorts of years 2000 and 2002 there is no statistically significant difference on level ≤ 0.05.

Unemployment after graduation

An important characteristic of the fluency of the transition process is the frequency of unemployment experiences after graduation. According to our findings quite large proportions have experienced unemployment after graduation. There has been stiff competition of jobs. For many graduates the job search has been a time-consuming and complex process. About one-third of Bachelors of Business Administration and about one-fourth of Bachelors of Engineering have been unemployed after graduation (Table 1). Thus bachelors of Business Administration have faced unemployment more often than Bachelors of Engineering. Between the graduate cohorts of 2000 and 2002 there is no difference on the level of $p \leq 0.01$.

Table 2. Have you been unemployed or out of work for some other reason (child care, studying, army or non-military service)?

	Business graduates		***Engineering graduates***	
	2000 *(n=622)*	**2002** *(n=539)*	**2000** *(n=636)*	**2002** *(n=507)*
No	59%	54%	71%	66%
Yes	32%	35%	22%	28%
Out of work for some other reason	9%	11%	7%	6%
	x^2=2.587, p=0.274		X^2=7.168, p=0.028	

Between study fields: year 2000: x^2=23.016, p=0.000; year 2002: x^2 =15.491, p=0.000

The length of job search

As noticed above quite a number of graduates were unemployed after graduation. Hence, they needed to wait before finding employment. The length of their job search period varied between 5.8 and 9.1 months. The job search of business graduates took longer than that of engineering graduates (p=0.008). In 2000 the job search of business graduates lasted on average 7.8 months and in 2002 9.1 months. The job search of engineering graduates lasted for the year 2000 cohort on average 5.8 months and for 2002 cohort 7.3 months. On the basis of these numbers it is seen also that in the latter year the search periods were longer for both study fields. However there is no statistically significant difference between graduate cohorts (p=0.79).

Employment

Employment status

The great majority of graduates were in paid work three years after finishing their studies. 79% of business graduates in the first year cohort and 85% in the latter cohort were wage earners (Table 3). Correspondingly, 88% of engineering graduates of year 2000 and 89% of year 2002 were wage earners. In the previous graduate cohort the Bachelors of Engineering were in paid work more often than were the Bachelors of Business Administration. In the latter cohort there was no statistically significant difference, and there was no difference either within study fields between graduate cohorts.

Only very small percentages of graduates were entrepreneurs or otherwise self-employed. Although the competences for entrepreneurship have been emphasized in the polytechnic curriculum, the new graduates seem not to end up in enterprise business. It has been revealed in former literature that entrepreneurship is not a common choice among higher education graduates in Finland.

Table 3. Employment status three years after graduation

	Business graduates		***Engineering graduates***	
	2000 *(n=622)*	**2002** *(n=541)*	**2000** *(n=636)*	**2002** *(n=509)*
Paid work	79%	84%	87%	88%
Entrepreneur etc.	3%	3%	1%	3%
Student	6%	6%	5%	4%
Unemployed	4%	4%	3%	3%
Other	8%	3%	4%	2%
	x^2=10.709; p=0.030		x^2=7.580; p=0.108	

Between study fields: year 2000: x^2= 26.590, p=0.000; year 2002: x^2 =6.966, p=0.223

Three years after graduation 4-7% of different graduate groups[5] were full-time students. In addition, 11-15% of them studied besides their paid work. Most often they aimed for a university degree in the same study field they have studied at the polytechnic. The percentage of unemployed graduates was very low, 3% of engineering graduates and 4% of business graduates. Regardless of the uncertainty of the labour market for the highly educated as well, the higher education degree holders still was relatively sheltered from long-time unemployment on these study fields. When the first phase of the study was carried out, the overall Finnish unemployment rate was 9% (Stenström, 2006). In the second phase of the study the overall unemployment rate was 8.4% (Vuorinen & Valkonen 2007, 20).

Regularity and permanence of employment

The regularity of employment, with both permanence of employment and actually working full-time, are considered to be the most fundamental indicators of employment success. Graduates who had paid work or were entrepreneurs were asked about the regularity and permanence of their employment. On the whole, the graduates were in full-time jobs: 90%-99% of employed graduates had full-time employment. From 1% to 9% of them in different groups were working part-time. There was, however, a difference between study fields. The Bachelors of Engineering enjoyed full-time employment more frequently than did the Bachelors of Business Administration.

[5] 'Graduate group' means the four groups of graduates we have investigated, i.e. graduates of two study field in two year cohorts. It is used in this chapter to avoid repeating all the percentage numbers of four groups.

Table 4. Regularity and permanence of employment

Regularity of employment	*Business graduates*		*Engineering graduates*	
	2000 *(n=539)*	**2002** *(n=475)*	**2000** *(n=583)*	**2002** *(n=466)*
Full-time job	95%	90%	99%	97%
Part-time job	5%	9%	1%	3%
Occasional job	0%	1%	0%	0%
*	x^2=9.220, p=0.010		x^2=7.832, p=0.020	
Permanence of employment	*(n=540)*	*(n=476)*	*(n=583)*	*(n=466)*
Permanent contract	83%	79%	87%	90%
Temporary contract	10%	13%	5%	5%
Other ***	7%	8%	8%	5%
**	x^2=7.089, p=0.131		X^2=7.628, p=0.106	

* Between study fields: year 2000: =18.959, p=0.000; year 2002: =19.103, p=0.000
** Between study fields: year 2002: x^2=9.101, p=0.011; year 2002: x^2=22.808; p=0.000
*** E.g. with employment subsidy

In addition to differences between study fields, there was difference between year cohorts of the business graduates. From graduates of year 2000 to graduates of 2002 the proportion of full-time employment decreased, and the proportion of part-timely employed correspondingly increased. Almost one tenth (9%) of the business graduates of 2002 worked part-time.

The graduates of our surveys mainly had permanent contracts. 79-83% of business graduates in two cohorts and 87-90% engineering graduates had regular employment. About one tenth of business graduates and one twentieth of engineering graduates had temporary employment. There is a significant difference between study fields but no difference between yearly cohorts.

The proportion of graduates with regular employment was surprisingly high in the context of an unstable and insecure labour market in which precarious employment is becoming more common. However the regularity of employment is closely linked with the economic sector where graduates have found employment. The graduates of business and engineering are those who are most often employed in the private sector where the contracts are regular[6].

Work: Links between study and employment

Placement in organizational hierarchy

Graduate placement in the working life hierarchy can be measured in several ways (e.g.. Böckerman, 2007; García-Montalvo, Mora & García-Aracil, 2007). We used the status of the jobs that graduates have secured on the labour market as a valuable indicator of their standing there (Stenström, 2006). A majority (57-76%) of polytechnic graduates were engaged in clerical posts. The percentage of engineering graduates with managerial posts was greater (17%, 20%) than their percentage as worker-level employees (7%, 14%). On the other hand, the percentage of business graduates at worker-level positions was higher (15%, 28%) than their percentage at managerial level (18%, 13%). In general, it is rare to reach a management level post in the early stage of one's career (Stenström, 2006).

[6] The proportion of graduates (of all graduates surveyed) who had permanent employment by economic sector: public sector: 69 %, private sector: 89 %, third sector: 62 %.

The positions attained varied between study fields. The Bachelors of Engineering had higher positions than the Bachelors of Business Administration in both graduate cohorts, i.e. the engineering graduates were more often placed in managerial posts and clerical jobs while business graduates were more likely to be performing worker-level duties.

Table 5. Placement in organizational hierarchy

	Business graduates		***Engineering graduates***	
	2000 *(n=537)*	**2002** *(n=474)*	**2000** *(n=582)*	**2002** *(n=465)*
Managerial level	18 %	13%	17 %	20 %
Clerical employee	64 %	57 %	75 %	62 %
Worker level	15 %	28 %	7 %	14 %
Other	3 %	2 %	1 %	4 %
	x^2=26.591, p=0.000		X^2 =28.857, p=0.000	

Between study fields: year 2000: x^2 =29.001, p=0.000; year 2002: x^2=31.367, p=0.000

The positions in the organizational hierarchy varied between graduate cohorts as well. In both cohorts and in both study fields there was perceptible decrease in the proportion of clerical employees and a remarkable increase (15% vs. 28%, 7% vs. 14%) in the proportion of those who have been placed in worker level jobs. Moreover, there was a growth in engineering graduates in managerial posts. By contrast, the share of business graduates in managerial posts diminished from earlier graduate cohort to the later one.

There was a distinct difference between the graduate groups of 2000 and 2002 in the proportion of those who had *not* found adequate employment, and it applied both study fields. The proportions of graduates who had not found appropriate employment three years after obtaining their degree was almost double in the later graduate cohort (13% vs. 22% of business graduates and 7% vs. 13% of engineering graduates).

Working as an expert

Being able to find an expert job can be considered as one qualitative indicator of graduate success on labour market (Stenström, 2006). According to the Polytechnic Act (Asetus ammattikorkeakouluopinnoista 2561995) polytechnic studies should provide students with the practical competences needed to perform *expert* tasks in their field. Our respondents were asked about their perceptions of working as an expert.[7] Most graduates (64-84% in different graduate groups) considered that they were carrying out the duties of a professional. However, being employed as an expert seemed to be linked with the particular study field. The Bachelors of Engineering thought more often that they served as experts. Again, there was a variation between year cohorts of graduates. From the cohort of year 2000 to the cohort of year 2002 there was a diminution in the proportion of those who worked as experts, and there was corresponding growth in the proportion of those who did not work as experts. In addition, the percentage of 'do not know' responses is smaller in the later graduate cohort. This probably refers to the fact that the concept 'expert' has become more familiar among graduates.

[7] The concept 'expert' was not defined in the questionnaires, because it was assumed to be a common term for polytechnic graduates. According to Finnish polytechnic act (255/1995 and 315/2003) polytechnic studies should provide students to perform expert tasks in their field.

Table 6. Polytechnic graduates' perceptions of working as an expert

	Business graduates		***Engineering graduates***	
Working as an expert	**2000** *(n=536)*	**2002** *(n=475)*	**2000** *(n=580)*	**2002** *(n=464)*
Yes	72%	64%	84%	80%
No	16%	29%	6%	15%
Do not know	12%	7%	10%	5%
	x^2=28.648, p=0.000		x^2 =30.390, p=0.000	

Between study fields: year 2000: x^2 =30.349, p=0.000; year 2002: x^2 =30.905, p=0.000

Correspondence between graduates' degree and employment

As noticed at the beginning of findings section above, the biggest proportion of graduates already had appropriate employment when they graduated. However, from 7 to 22 percent of polytechnic degree holders in different graduate groups had not attained employment corresponding to their degree three years after graduation when they were surveyed. In general, three years is a long enough period to be able to find appropriate employment, and if a degree holder has not succeeded in doing it during that period, success is not likely at a later date. Between graduate cohorts there is a statistically significant difference in both study fields. The percentage of those who had not found adequate employment after three years was almost double among the later graduates.

Table 7. Graduates who had not found a job corresponding to their degree three years after their graduation (according to their own account)

Business graduates		***Engineering graduates***	
2000 *(n=617)*	**2002** *(n=540)*	**2000** *(n=636)*	**2002** *(n=506)*
13%	22%	7%	13%
x^2=14.19; p=0.000		x^2=12.88; p=0.000	

Between study fields: year 2000: x^2=14.87, p=0.000; year 2002: x^2=13.46, p=0.000

In addition to above reported indicators of employment quality the respondents were asked to describe more specifically the correspondence between their education and occupation by level and field by using the Likert-scale (1 = very well, 5 = very poorly). From the basis of those Liker-scale answers we formed 4 groups: both correspond well; the level corresponds well but the field poorly; the field corresponds well but the level poorly; and both correspond poorly. In forming these 4 groups Likert-scale value 3 (= moderately) was grouped together with positive values 4 (= quite well) and 5 (= very well). The findings introduced in the next table show the percentages of graduates whose employment and education corresponded well by both level and field, and whose employment and education corresponded by both dimensions poorly. In order to clarify the findings, other two groups are not included in the table.

Table 8. Correspondence between study and employment by level and field

Correspondence by level and field	*Business graduates*		*Engineering graduates*	
	2000 *(n=533)*	**2002** *(n=475)*	**2000** *(n=580)*	**2002** *(n=466)*
Both correspond well	82%	74%	86%	84%
Both correspond poorly	8%	13%	4%	8%
	x^2=12.830, p=0.005		x^2 =8.080, p=0.044	

Between study fields: year 2000: x^2=8.070; p=0.045; year 2002: x^2=14.735, p=0.002

First of all, the great majority of graduates were able to reach adequate employment. 74-82% of Bachelors of Business Administration and 84-86% of Bachelors of Engineering had a post in which both level and field corresponds to their education well. Between study fields there was variation in the later year. The Bachelors of Engineering were able to ensure employment of good quality more often than Bachelors of Business Administration. Moreover, variation was seen between yearly cohorts in the study field of business. The proportion of those whose degree and employment correspond well decreased, and the proportion of those whose degree and employment correspond poorly increased

The finding concerning those whose employment and degree correspond poorly is in contradiction with percentage of those who reported above that they had not found an adequate job. The percentages of those whose employment corresponded only poorly are much lower than that of those who had not found an adequate employment three years after their graduation. Those two points were asked about in different questions in our questionnaires. With typical human variation, the respondents did not follow the same logic in all of their answers. That accounts for the contradictory findings.

Conclusions

In this study we have examined the uncertainty of working life in polytechnic graduates' employment success, and the differences in the employment success in terms of uncertainty of working life, during the first decade of the 21st century.

The findings suggest that polytechnic graduates were successful in their placement in working life finding and in finding employment. Their transition to working life was rather fluent. More than half of business graduates and about 70% of engineering graduates already had adequate employment at the moment of graduation. Three years after completing their degree the great majority of graduates (79-88%) had paid work. The proportion of unemployed was very low compared with the general unemployment rate in the general labour force at the same time.

The graduates' position in the labour market was relatively secure. They had extensively full-time employment (90-99%) and in general they had permanent contracts (79-90%). However, the prevalence of permanent employment is mostly due to the fact that the study fields of business and technology principally prepare the workforce for the private sector where the contracts are permanent. In the employer's organizational hierarchy the graduates were mainly placed as clerical employees and at managerial level, i.e. their status in the organization corresponded with their higher education degree. The Bachelors of Engineering were somewhat more successful in their placement in the world of work and had better quality of employment than Bachelors of Business Administration, as is usual for these study fields (Böckerman, 2007; Stenström, 2006).

It is noteworthy, however, that the findings also indicate problems in the graduate employment. A considerable proportions of graduates had unemployed experiences after graduation. Despite successful placement in working life, the quality of the graduates' employment was not always satisfactory. There were higher education graduates who hold a worker level post, who evaluated the correspondence between their job and their education as poor, and who reported that they were not carrying out the duties of an expert. Taken together, these graduates were placed in jobs where they performed tasks that did not require their degree and skill level.

From first graduate cohort to the later one the findings indicate some weakening of employment success (table 9). Among Bachelors of Engineering the employment success weakened in three indicators out of ten. Among Bachelors of Business Administration the success weakened according to five indicators out of ten. Thus, the employment success of business graduates weakened somewhat more than the success of engineering graduates. The business graduates in later cohort were, for instance, placed in lower organizational positions, had more frequently an inadequate job, and were less frequently employed as experts, i.e. the quality of their employment was poorer than in the first cohort.

Table 9. Summary of indicators of graduates' employment success and the trend of change from first graduate cohort to the later one

Indicator	***Trend of change from graduate cohort of 2000 to 2002***	
	Business graduates	***Engineering graduates***
Employment at the time of graduation	No change	No change
Unemployment experiences	No change	No change
Length of job search	No change	No change
Employment status	No change	No change
Regularity of employment	**Negative**	No change
Permanence of employment	No change	No change
Placement in organizational hierarchy	**Negative**	**Negative**
Working as an expert	**Negative**	**Negative**
Not found adequate employment	**Negative**	**Negative**
Correspondence between degree and job	**Negative**	No change

Discussion

According to the findings, the graduates' position in the labour market in general was quite secure. In fact, it can be argued to be surprisingly stable and secure in an era of increasing employment problems for higher education graduates. Regardless of that, there were signs of uncertainty of working life in graduates' employment success. Too many graduates were placed in jobs performing tasks that did not require their degree and skill level. Employment problems, especially in the study field of business and administration, seemed to force degree holders to accept a job not comparable to their qualification. New graduates faced a harsh competition for a job, and for many of them the job search was laborious and time-consuming process. In addition, the employment success weakened from the first graduate cohort to later one in the early years of the 21st century. In other words, the employment of the later graduates was more fragile and less satisfactory than the employment of the first group.

In terms of late modern theory, there are some signals of increased insecurity in polytechnic graduates' employment in the early years of 21st century. Those signals indicate features that are characteristic of late modern working life and society, such as an accretion of risks and emphasized individualization that can be interpreted as the individual's own responsibility for his/her choices such as choice of education (Beck, 1994, 8; Bauman, 2007, 3-4). The choice of education is the individual's own risk. Even the choice of the highest level of education does not any more ensure appropriate and secure employment or easy access to the world of work. Risks have also increased as a whole concerning also the time after fortunate placement in working life. As one of our respondents stated:

> *"A stock exchange company is not the most ideal employer. As a result of sudden changes in stock prices at any moment hundreds may be out on the street."* (Bachelor of Engineering, Project Manager)

Generally speaking, late modern theory can be seen as useful tool for understanding the changes in new graduates' transition to the labour market and the reality that they face in the working life. However, the findings do not provide evidence to support any claim of increasing insecurity and precariousness in polytechnic graduates' employment. The signals of weakened employment success and growing insecurity do exist on a small-scale, and not to such an extent as late modern theories assume.

The two-year period of this study is not long enough however to enable confident statements about the trend of change. In order to make them the time-scale covered by the analysis should be much longer. And, owing to considerable differences in employment success between male and female higher education graduates, gender should also be included in the analysis. However in terms of reliability it is worth noticing that the data of this study consist of a representative sample of business and engineering graduates in Finnish polytechnics from those two years in question. Hence the results can indeed be generalized on the national level.

To what extent, then, and in what ways have the features of late modern insecurity affected to graduates' employment success? One of the factors influencing graduates' labour market success is the economic and employment situation at the time of graduation. The change of economic trend can partly explain the weaker employment situation of the later graduates. Despite an enhanced unemployment rate from the year 2000 to 2002, the problems of the international economy were reflected also in Finland in 2002 when the economic growth slowed. The number of employed in industry decreased, especially in IT-sector production and in building trade (Työllisyyskatsaus vuodelta 2002), in which many engineering and business graduates are placed. The employment situation was consequently more difficult when the later graduates completed their studies.

According to statistics collected by the Ministry of Education (2011a), there was a huge growth in the number of degrees in these study fields from year 2000 to 2002. The total of degrees doubled between those years: in the study field of business and administration 3040 degrees were completed in 2000 and 4606 in 2002. The growth percentage was 51.5%. In the study field of technology 2885 degrees were completed in 2000 and 4209 in 2002. The growth percentage was a little lower than in the study field of business, at 45.9%. In all, the increase in the total number of degrees is surprisingly high. It is explained by the fact that in the polytechnic reform process all degrees from older vocational institutions were replaced between 2000-2002 by polytechnic degrees.

Such an increase of degrees is a typical feature of massification in higher education. In Finland the establishment of polytechnics involved an enormous growth in the number of higher education degree holders. In 1990 before the polytechnic reform 8423 higher education degrees were completed. In 2002 the total of higher education degrees was 28242, of which 12075 were university degrees and 16167 polytechnic degrees[8]. The growth percentage in this twelve-year period was 235%. (Ministry of Education 2011a, 2011b). In addition to new polytechnics, the university sector of higher education also continued to expand. The growth percentage of the total of university degree holders in the same period was 55.9%. Under these circumstances, the graduates of this study have in fact been surprisingly well placed in the world of work.

Against these numbers the intensive expansion of higher education is to be interpreted as the main explanation for the weakened employment success of graduates in our study. According to Teichler (2007a) the graduates from the non-university higher education sector were, as a consequence of the expansion of higher education, more often at worker level position, which was not considered as corresponding to the level of education, than their university counterparts. The occupational titles of respondents of this study show that there were graduates employed as shop assistants and cashiers, jobs which are not appropriate for higher education degree holders.

In studies there has been some debate about what can be regarded as a graduate job. Changes in the respective labour market of graduates and in what is traditionally identified as a graduate job are being perceived. (e.g. Harvey, 2000; Purcell, Elias, Davies, & Wilton, 2005). Preparation for lower level positions has been seen as a regular function of certain sectors of higher education following the expansion of higher education (Teichler, 2007a). Graduates have been challenged to be flexible and ready to accept, especially in the early stages of career, organizational positions that used to be held by workers with lower educational qualifications.

The definition of graduate work is really complicated in the context of rapidly changing working life and the massification of higher education. From the point of view of recent graduates problematic it is, however, that they are not usually sufficiently well aware of these changes, and their expectations are often higher. Facing this kind of reality can be a big disappointment for young people making their first steps to working life.

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