

Employability and long-term work life outcomes from studying at a Swedish university college: problematizing the notion of mismatch

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Abstract

Purpose – This study aims to explore a specific case of the alleged mismatch between higher education and employability by investigating long-term work life outcomes for graduates from a small university college in Sweden, and the associations between these outcomes and the graduates' social background, academic achievements and study approach in terms of labour market orientation and agency in studying.

Design/methodology/approach – The study is based on longitudinal data from initially 2,072 students from bachelor's degree programmes in 2007–2012. They were surveyed continuously throughout the programmes and then in 2020. Classification and regression tree (CRT) analyses were conducted to identify which subgroups within the population based on the independent variables (e.g. students' background and study orientation) that were associated with the dependent variables (work life outcomes).

Findings – Neither graduates' social background nor their academic achievement and study approach was associated with employment rate or income. Some dimensions of high labour market orientation and agency in studying were positively associated with holding a senior position at work. Several aspects of high levels of agency and labour market orientation were positively associated with subjective work life outcomes, such as for example perceived mastery of work.

Originality/value – This study contributes to further understanding of alleged mismatches between higher education and employability by using longitudinal data from a university college in a country with low graduate unemployment rates and low earnings dispersions.

Keywords Employability, Mismatch, Social background, Achievement, Agency

Paper type Research paper

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The project plan for the present follow-up study was sent to the Swedish Ethical Review Authority which decided not to review it as “In the project, there will be no intervention on a research person or other intervention in the manner specified in [Section 4](#) of the Ethics Review Act (Dnr: 2019–04283)”.

Informed consent from all participants were collected.



Introduction

Employability has been described as a global norm (Singh and Ehlers, 2021), and in Europe, graduate employability has been dominant in policy discussions since the start of the Bologna Process in 1999. In recent decades, employability has had a notably strong position in policymaking about Swedish higher education (e.g. Fejes, 2016; Unemar Öst, 2009; Vesterberg, 2015). Research has shown that graduate employability and favourable work life outcomes are associated with social capital (e.g. De Schepper *et al.*, 2023) and capabilities in terms of knowledge and skills from higher education (e.g. Jackson *et al.*, 2022). However, the relations between higher education and work are “multiple, context-bound, fragmented, uneven and must be continually worked on” (Marginson, 2019, p. 295). The present study explores relations between higher education and work life outcomes in Sweden, a country where unemployment and earnings advantages from higher education are comparatively small. We explore if graduates’ individual attributes and behaviours are as, or even more, important for work life outcomes than graduates’ social background and their knowledge and skills obtained in higher education.

Research studies have identified a perceived mismatch between contemporary mass higher education and employer’ requirements. Employer organisations claim that their businesses are struggling to find knowledgeable workers, and that the most significant obstacles are to be found on the supply side (e.g. Singh and Ehlers, 2021). In Sweden, some express concerns about the expanding publicly funded higher education sector’s inability to provide students with the knowledge, skills and attributes that the labour market demands (Berlin, 2014; Eklund and Pettersson, 2017). Others, such as Alvesson (2013), argue that Sweden has significant problems with over-education, with the result being unemployed academics. Similar concerns have been expressed in for example in the UK and Australia (Clarke, 2018), and in the Netherlands (Cabus and Somers, 2018). However, Cabus and Somers (2018), in their study in the Netherlands, found that the increased supply of tertiary educated people in recent decades coincided with significantly fewer companies experiencing mismatches between skill supply and job requirements.

As the higher education landscape in Sweden, like in many other countries, is stratified (Börjesson and Dalberg, 2021; Olofsson, 2013), the relationship between higher education and work life outcomes also needs to be understood in relation to the specific conditions that apply to different types of institutions (Marginson, 2019). There is not much such research about the Swedish situation. *Therefore, this study aims to explore the alleged mismatch between higher education and employability by investigating the long-term work life outcomes for graduates from a small university college in Sweden, and the associations between these outcomes and the graduates’ social background, academic achievements and individual attributes and behaviours.*

As the conceptualising of employability often includes graduates’ abilities to access and maintain employment (Figueiredo *et al.*, 2017; McQuaid and Lindsay, 2005; Suleman, 2018) and graduates’ financial returns (e.g. De Schepper *et al.*, 2023), those factors were chosen as work life outcome variables in the present study. Another aspect of work life outcomes is the extent to which graduates hold senior positions in working life (Roksa, 2005). This study addresses the following research question:

RQ1. What are the long-term employment rates, financial returns and rates of holding senior positions at work for graduates from this Swedish university college?

The focus in inquiries about employability has predominantly been the views of employers, university staff/management and political actors (e.g. Jackson *et al.*, 2022; Sin *et al.*, 2017; Unemar Öst, 2009). The Swedish National Union of Students (SFS, 2013) argued that researchers rarely consider the ways in which higher education is useful for graduates themselves. Some studies have investigated students’ perceptions of activities that are supposed to be valuable for their sense of being skilled or employable (e.g. Bradley *et al.*, 2022; Jackson and Bridgstock, 2021; Lock and Kelly, 2022). However, there is a lack of

research, at least in Sweden, which examines whether graduates themselves experience that the knowledge they gained from their degree studies is valuable in their work life, taking a long-term perspective. A deeper understanding of potential mismatches between education and work requires this to be considered.

RQ2. To what extent do graduates from this Swedish university college experience that the knowledge from their education is utilized at their workplace, that they can introduce new knowledge to their workplace, and how do they experience their “mastery of work”?

Context of the study

Two structural factors that influence employability and therefore potentially the work life outcomes of graduates are the situation on the labour market and the education system itself (e.g. Behle, 2020; Berglund and Wallinder, 2015; Caballero *et al.*, 2022; Sin and Neave, 2016). Sweden (see Table 1) has one of the highest percentages of 30–34-year-olds with a higher education in Europe (Kuznetsova, 2019) and one of the highest employment rates in the OECD (OECD, 2020). According to data from Eurostat (Ekonomifakta, 2023), Sweden is the country in European Union of 27 member states (EU27) with the second lowest percentage of employees in professions with no or low educational requirements (see Table 1). Additionally, Sweden has a rather low earnings advantage from attaining a bachelor’s degree. This is related to the fact that Sweden in general has a low decile ratio of gross earnings (OECD stat, 2023). In Table 1, data about employment rates and earning advantages for graduates from Sweden are compared with OECD averages (OECD, 2020); net incomes for tertiary educated people in Sweden and the average in EU27 are presented (Eurostat, n.d.).

Additionally, the relation between work and higher education varies between different types of institutions (Marginson, 2019), and graduates’ perceived employability depends on the status of the institution in the view of employers (Caballero *et al.*, 2022). The Swedish university system, although administratively unified since 1977, is hierarchically stratified. There are three major types of institutions: older research universities, new universities and university colleges. The differences between these types are less prominent in Sweden than in many other Western countries but to some extent they recruit students from different social groups and to different occupations (Börjesson and Dalberg, 2021; Olofsson, 2013).

Table 1. Percentage of populations with higher education, proportion of jobs with no or low educational requirements, employment rates, earning advantages, earnings dispersions and net incomes in Sweden compared to EU28/OECD/EU27

	Sweden	EU28
Higher education in populations, %	52	41
	Sweden	OECD
Employment rate 25–34-year-old: upper secondary or post-secondary non-tertiary, %	83	78
Employment rate 25–34-year-old: higher education, %	87	85
Earnings dispersion: decile ratios (90/10) of gross earnings in 2020	2,14	3,36
Earning advantage from higher education (compared to upper-secondary), %	13	43
	Sweden	EU27
Employees in professions with no or low educational requirements, %	4,4	8,5
Median equivalized net income 2020 in Euro (EUR) for tertiary educated (18–64 year-old)	30,241	25,261

Source(s): Table by authors

The present study was carried out at a relatively young and small university college in Sweden. It was established in the early 1980s as one of several regional alternatives for ‘new’ groups of students, as part of a significant expansion of the higher education sector due to shortages of knowledgeable workers, and political ambitions about equity in life chances through widening participation in higher education (Eriksson, 2010). All degree programmes at this institution leading to a bachelor’s degree in an academic subject are more or less vocationally oriented. In a national comparison, the university in this study has a smaller proportion of students whose parents have a three-year university degree. In Sweden in 2007/2008 (which was when the longitudinal project from which the present study draws its data started), 56% of the students entering a bachelor’s programme had at least one parent with a university education; in this university it was 47% (Statistics Sweden, 2008).

Position and possession

Two factors often referred to as having a significant importance for employability are social *position* and *possession* of knowledge and skills (e.g. Holmes, 2013).

Position refers to the individual’s position within the social structure and the various forms of capital gained from this position. Scholars working from the theoretical point of view that originated in the work of Bourdieu and Passeron (1977), argue that differences in for example employment and earnings are due to social injustices which are associated with the education system reproducing mechanisms that sort students from different social groups to different careers (e.g. Marginson, 2019). In a recent literature review, De Schepper *et al.* (2023) concluded that graduates from higher SES backgrounds, not least regarding parents’ education, have higher chances for employment and high earnings than graduates from lower socioeconomic status (SES) backgrounds. Similar results have been described in the Swedish context, regarding earnings (Statistics Sweden, 2017). However, we will pay attention to the fact that the Swedish institution in our study has a relatively high proportion of students with non-tertiary educated parents. In a study on graduates from a Scottish university, Cameron *et al.* (2018) identified that the rate of graduates from “first in family” homes obtaining a graduate level job was the same as for those graduates who had at least one parent with higher education. Based on the characteristics of the situation in the Swedish labour market, we hypothesize:

- H1. Higher SES backgrounds will not be associated with favourable long-term work life outcomes for the graduates from this Swedish university college.

The notion of *possession* of individual capital, such as various skills and attributes gained through higher education, was introduced in the 1960s in close relation to Human Capital Theory (Becker, 1976). Several reports have shown that level of education is positively related to being employed, not least in Sweden (e.g. OECD, 2017). Additionally, Sweden is the country within the OECD with the lowest lifelong earning advantages from having a higher education degree (OECD, 2022). Comparing groups of individuals based on having or not having a university degree doesn’t consider that a significant proportion of students, at least in Sweden, complete most of the programme courses without ending up with a certified degree diploma. Based on the logics of human capital theory, they still have required knowledge and skills from completed courses. In this study, we consider this and hypothesize:

- H2. A higher number of credits obtained within the degree programmes that graduates from this Swedish university college were enrolled in will be positively associated with their favourable long-term work life outcomes.

Labour-market orientation and agency

Individual attributes and behaviours have been suggested as relevant factors in holistic models for a deeper understanding of employability (e.g. Behle, 2020; Caballero *et al.*, 2022;

McQuaid and Lindsay, 2005; Tomlinson *et al.*, 2022). Many previous studies that include individual attributes and behaviours in conceptualizing employability refer to career-oriented attributes and behaviours, such as for example a positive attitude to work (McQuaid and Lindsay, 2005), self-management (Bridgstock, 2009) and career agency (Monteiro *et al.*, 2021; Rovio-Johansson and Tengblad, 2007). Most of the research about career-oriented attributes and behaviours has been done in the late phases of the education process, often conceptualized as university-to-work-transition, or a few years after graduation. The present study complements the research by investigating associations between students' labour market related attributes and behaviours in studying, at enrolment and during the degree programmes, and their long-term work life outcomes. We hypothesize:

- H3. Higher levels of labour market related attributes and behaviours while being enrolled in degree programmes will be positively associated with favourable long-term work life outcomes for the graduates from this Swedish university college.

Agency can be understood as notions of being “someone who acts and brings about change” (Sen, 1999, p. 19). Rovio-Johansson and Tengblad (2007) in the Swedish context, and Kahn and Lundgren-Resenterra (2021), argue that the conceptualisation of employability should include graduates' capacities to act as agents in a workplace and to make contributions to its collective development. Tomlinson *et al.* (2022, p. 1203) concluded that theories about employability “have shown this [employability] to be a dynamic and processual dimension entailing some levels of proactivity and agency in navigating the challenges of post-HE transitions”. Succeeding academically as well as professionally depends on the development of social agency in terms of being participants in a learning community (Luckett and Luckett, 2009). There is a substantial body of research on students' agency and engagement in studying, many of which relates agency/engagement to specific learning situations (e.g. Alonso-Tapia *et al.*, 2023; Kahu *et al.*, 2022). Few studies address the potential influence that agency/engagement in studying, more generally, might have on employability. However, Ma and Bennett (2021) found that for example high participation in class discussions and peer interactions, was related to students' perceived employability. We hypothesize:

- H4. Higher levels of engagement/agency in studying will be positively associated with favourable long-term work life outcomes for the graduates from this Swedish university college.

Method and materials

The present study is based on data about students and graduates from a population at a regional Swedish university college. The project plan was sent to the Swedish Ethical Review Authority which concluded that there is no intervention on a research person or other intervention in the manner specified in the Swedish Ethics Review Act. Informed consent from all participants was collected.

Due to the fragmented and context-bound relationship between higher education and work (Marginson, 2019), results from studies like this one are not statistically generalizable to other institutions or countries. Rather, following the reasoning by Yin (2010), the ambition is to provide analytic generalizations by exploring how results from this contextualized case support or challenge previously outlined propositions, that there is a mismatch between higher education and work with an emphasis on shortcomings on the supply side, and that employability and favourable work life outcomes mainly depend on social position and possession of knowledge and skills from higher education.

Sample and previous data collections

This study is based on longitudinal data from initially 2,072 students in 16 different bachelor's degree programmes. The graduates in the sample belong to three cohorts of students who

began their studies in the autumns of 2007, 2008 and 2009, respectively. Surveys were conducted on the students' background (e.g. parents' education), their approach to studying at their enrolment date (e.g. agency in studying), and their actual study approaches at the end of the first year and at the end of the third year. Additionally, data about their academic achievements in terms of credits according to The European Credit Transfer and Accumulation System (ECTS) obtained after the first and third year of study was collected.

For the follow-up study on work life outcomes, the previously collected data were supplemented with data from a questionnaire distributed to the graduates in 2020. The questionnaire included questions about *objective* work life outcomes (e.g. employment status) and *subjective* experiences of their employment (e.g. their perceived mastery of work). The follow-up questionnaire was distributed to the graduates for whom contact information could be identified. A total number of 996 graduates were contacted and asked to participate. This represented 48% of the original cohorts. Of those, 744 agreed to answer the questionnaire, representing 36% of the original cohorts. Because our main interest in the follow-up questions was related to the work context, only those who were employed were included in the analyses ($n = 650$). The average age at enrolment in higher education for graduates in this sample was 23.1 years (22.9 in the original cohorts), and the sample comprised 67.9% females and 32.1% males (62.3 and 37.7% in the original cohorts). The proportion of graduates in the sample with at least one parent with higher education was 65% (57% in the original cohorts).

Measures

The independent and dependent variables in the study are presented in [Table 2](#).

Analysis

Classification and Regression Tree (CRT) analyses were conducted in IBM SPSS Statistics (version 28). The CRT analysis is a non-parametric statistical procedure designed to identify homogenous subgroups within a population that are most related to a specific dependent variable, based on certain independent variables. Because we were interested in investigating how a combination of suggested independent variables was related to a dependent variable, we decided to apply this analysis (for more information, see [Ivarsson and Stenling, 2019](#)). The analysis generates a decision tree of subgroups that are hierarchically ordered based on their association with the target variable. In CRT, "... splitting stops when the relative reduction in error resulting from the best split falls below a pre-specified threshold known as the *complexity parameter*. Typical values of this parameter are in the range of 0.001–0.05" ([Venkatasubramaniam et al., 2017](#), p. 5). The tree continues to grow (i.e. generate subgroups) until the predetermined stopping criteria are met. We used, based on previous recommendations ([Machuca et al., 2017](#)), the following criteria to produce the partitions and, consequently, model growth: a minimum of 50 participants (~10% of the sample) in each node to make a division and a minimum of 25 participants (~5% of the sample) to generate a node. To validate the decision tree, we employed the tenfold cross-validation application. Missing data were handled automatically via surrogate split algorithms ([Zhang and Singer, 1999](#)). CRT analysis is preferable to parametric, variable-centred approaches due to its ability to capture non-linear interactions among predictors and its resistance to the effects of multicollinearity, outliers and missing data ([Ivarsson and Stenling, 2019](#); [Zhang and Singer, 1999](#)).

Results

Employment rates, income and senior position (RQ1)

The employment rate of the graduates in this study was 95% (84% had a full-time job and 11% had a part-time job). This is higher than the Swedish average for 25–34-year-old graduates which, according to [OECD \(2020\)](#), was 87% (see [Table 1](#)). The median gross annual income for the employed graduates, finishing their degree programmes in 2010/2012, was 36,900

Table 2. Independent variables in surveys 2007–2012 and dependent variables 2020

Independent variables in surveys 2007–2012

Gender	M/F
Mothers' level of education	Elementary, Upper-secondary, University
Fathers' level of education	Elementary, Upper-secondary, University
Academic performance	Number of credits (ECTS) after studying three years (0–180)
Labour market orientation	If I get a job, I will interrupt my studies in the programme immediately (Five-point Likert scale: 1 = Totally disagree, 5 = Totally agree); For me, the most important thing about the studies is that they increase my chances of getting a good job (Five-point Likert scale: 1 = Totally disagree, 5 = Totally agree); How important is it (%), as a student, to gain access to knowledge that is useful in professional life?
Agency	To what extent (%) do you think that academic success depends on the student's own efforts?; I will actively try to influence the content and teaching methods of the degree programme (Five-point Likert scale: 1 = Totally agree, 5 = Totally disagree); How many hours per week do you expect to dedicate to your studies?; I have actively tried to influence the content and teaching methods of the degree programme (Five-point Likert scale: 1 = Totally agree, 5 = Totally disagree); How many hours per week have you dedicated to your studies?

Dependent variables from survey 2020

Being employed	No, Yes part time, Yes full time
Gross monthly salary	In EUR
Holding a senior position	Yes/No
Usability of knowledge from university (Five-point Likert scale: 1 = Totally agree, 5 = Totally disagree)	My knowledge from the university is utilised in my workplace; I can contribute new knowledge in my workplace from my degree studies
Mastery of work (items from QPSNordic)* (Five-point Likert scale: 1 = Always, 5 = Never)	Are you content with the quality of the work you do?; Are you content with the amount of work that you get done?; Are you content with your ability to solve problems at work?

Note(s): *Three items from the sub-section "Mastery of work" in the questionnaire QPSNordic, which is designed to measure psychological and social factors in working life (Lindström *et al.*, 2000)

Source(s): Table by authors

EUR in 2020 when they were, on average, 31 years old. Similar national data for those who graduated in 2010/2012 are not available. The median income in 2020 for all students in Sweden who graduated in 2016/2017 was 35,000 EUR (Statistics Sweden, 2022a). We assume that those graduates were on average five years younger (i.e. 26). Other data from Statistics Sweden (2022b) indicate that the difference in income levels 2020 based on age (31/26) was approximately 4,500 EUR. From this, we estimate that the median gross annual income for all students in Sweden who graduated from a bachelor programme in 2010–2012 was 39,500 EUR in 2020. Consequently, the income for the graduates in our sample was on average 2,600 EUR less than the country average. One-third of the graduates in the present study (34%) stated that they hold a senior position at their workplace.

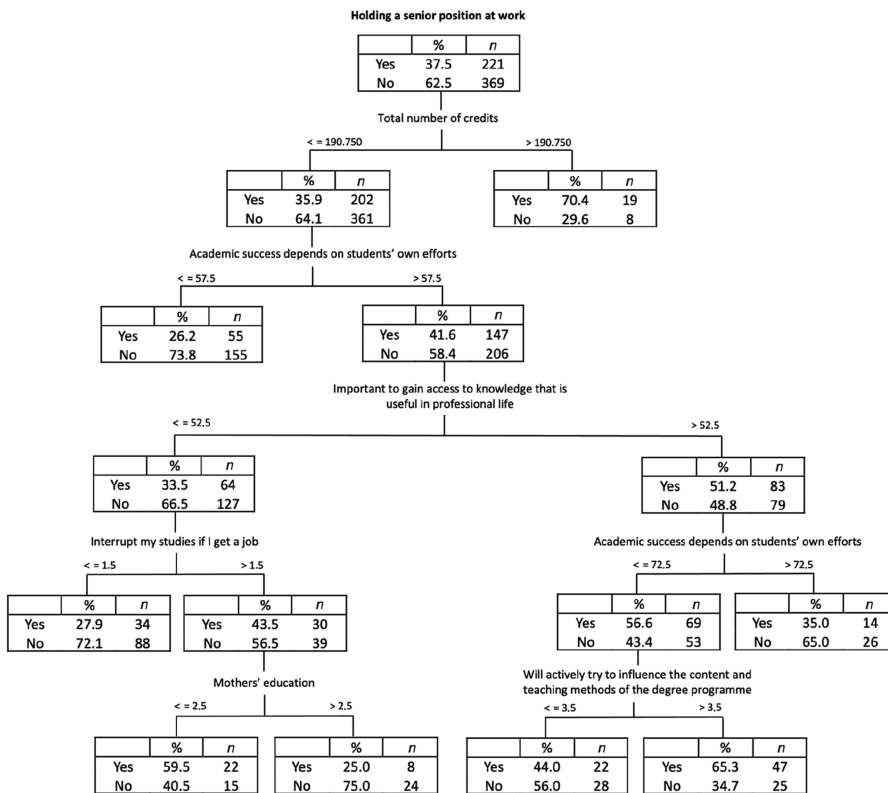
Perceptions of usability of knowledge gained from university and mastery of work (RQ2)

Results showed that 68% of the graduates agreed totally or partly that their knowledge from the university is utilised at their workplace, and 60% agreed totally or partly that they can contribute new knowledge from their degree studies at their workplace. 85% stated that they often or always are satisfied with the amount of work that they do, 93% stated that they are

often or always satisfied with the quality of the work that they do, and 93% stated that they are often or always satisfied with their ability to solve problems at work. Higher Education, Skills and Work-Based Learning

Associations with objective work life outcomes (H1–H4)

Firstly, we examined the possible associations between the graduates’ social position, their possession of credits, their labour market orientation and agency during studying, and the three objective employment factors: being employed, yearly gross income and whether they held a senior position at work (H1, H2). Overall, there was such a small proportion of the graduates who did not have any employment (5%) that the analysis did not show any associations with position, possession, labour market orientation or agency in studying, neither on employment rate nor income. However, several factors were associated with the likelihood of the graduates holding a senior position (Figure 1). The strongest association was with possession of credits from studying. Among those who had obtained more than 190 ECTS during their three years at the university, 70% stated that they held a senior position, while 30% did not. Among those who obtained 190 ECTS or less, the conditions were the opposite: 36% held and 64% did not hold a senior position. Within this latter group, the most favourable combination of factors associated with holding a senior position was that during their studies, the graduates to a great extent held the belief that academic success depended on students’ own efforts; attributed high importance to gaining access to knowledge that would be useful in professional life; and had the intention to actively try to influence the content and teaching methods of their degree



Source(s): Figure by authors

Figure 1. Factors associated with holding a senior position in work life

programmes. However, the results also indicated that, for these graduates, it was favourable for work-life outcomes to not have extremely high beliefs that academic success depends on students' efforts.

Associations with perceived usability of knowledge gained from university

Secondly, we examined the associations between social position, possession of credits, labour market orientation and agency in studying, and (1) to what extent the graduates perceived that knowledge gained from their studies was utilised at their workplace, and (2) to what extent they experienced being able to contribute new knowledge from their degree programmes to their workplace. Those graduates who possessed more than 143.25 credits experienced to a greater extent ($M = 2.135$) that their knowledge gained from university was utilised at their workplace, compared with those who had obtained less than 143.25 credits ($M = 2.851$) (Figure 2). The most favourable combination of factors for graduates experiencing that their knowledge gained from university was utilised at the workplace, was as follows: more hours per week intended to be dedicated to studying and more hours per week actually dedicated to studying; possession of more credits; and attributed high importance to gaining access to knowledge that would be useful in professional life.

Graduates who had obtained more than 64.75 credits described that they experienced to a higher degree ($M = 2.44$) that they could contribute new knowledge from their degree studies to their workplace than those graduates who obtained 64.75 or less credits ($M = 3.21$) (Figure 3). Within the first mentioned group, the most favourable combination of factors for graduates experiencing that they could contribute new knowledge to their workplace, was as follows: having the intention to influence the content and teaching methods of their degree programme and having dedicated more hours per week for studying.

Associations with perceived mastery of work

Those graduates who had rated the importance of developing knowledge for professional life at less than 67.5% were the least content with the quality of their work ($M = 4.28$) (Figure 4). Conversely, those who were most content with the quality of their work ($M = 4.49$) were those who had attributed developing such knowledge at more than 67.5% of importance. Within this latter group, graduates who had stated at the beginning of their university studies that they would actively try to influence the programme content and teaching methods were even more satisfied with the quality of their work ($M = 4.7$).

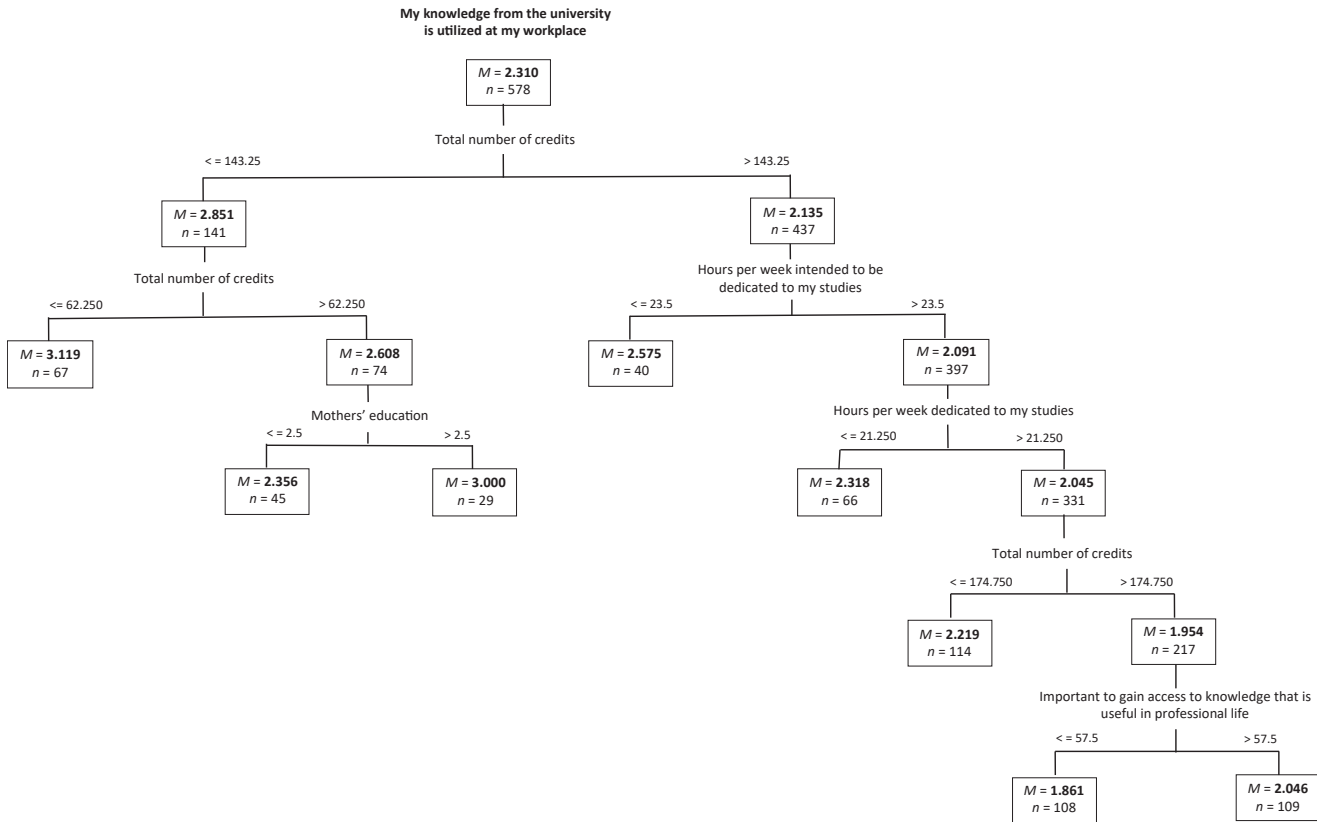
Graduates who had stated an intention to actively try to influence the content and teaching methods in their education ($M > 3.5$) were somewhat more satisfied with the amount of work they were now able to do ($M = 4.24$) than those whose attitude towards influencing the education was less than or equal to 3.5 ($M = 4.07$) (Figure 5).

Graduates who had used more than 27.5 h per week for studying were slightly less satisfied with their ability to solve problems at work ($M = 4.35$) than those who had studied 27.5 h or less per week ($M = 4.45$) (Figure 6). Within the group that had studied 27.5 h or less, having attributed importance to developing knowledge that would be useful in professional life was favourable for being more satisfied with their problem-solving abilities at work.

The analyses presented, with few exceptions, lend support to all hypotheses (H1–H4). Overall, this means that it is reasonable to accept all hypotheses, i.e. that favourable long-term work life outcomes are positively associated with a higher number of obtained credits (H2), higher levels of labour market related attributes and behaviours (H3) and higher levels of engagement/agency in studying (H4) but not with higher SES backgrounds (H1).

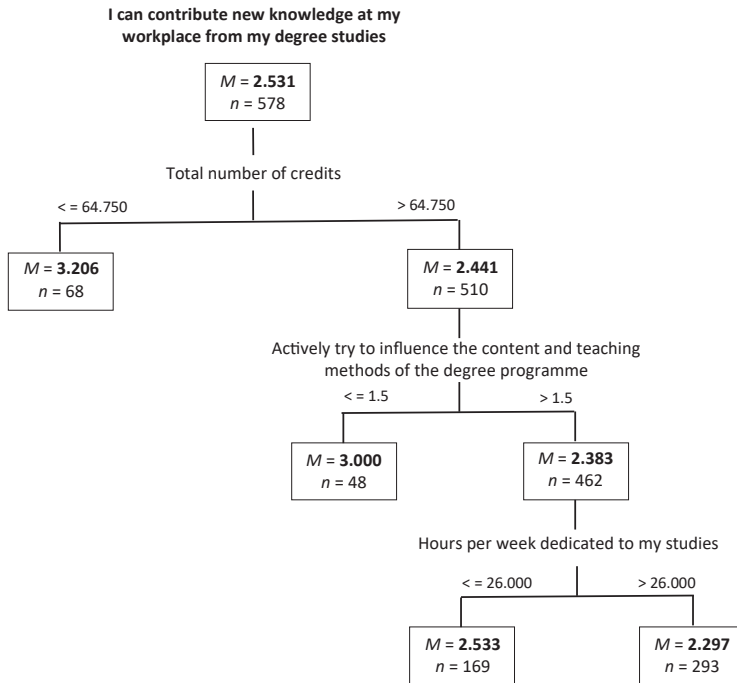
Discussion

Higher education in Sweden, as in many parts of the world, is expected to provide the labour market with a knowledgeable and skilled workforce (e.g. Fejes, 2016; Unemar Öst, 2009;



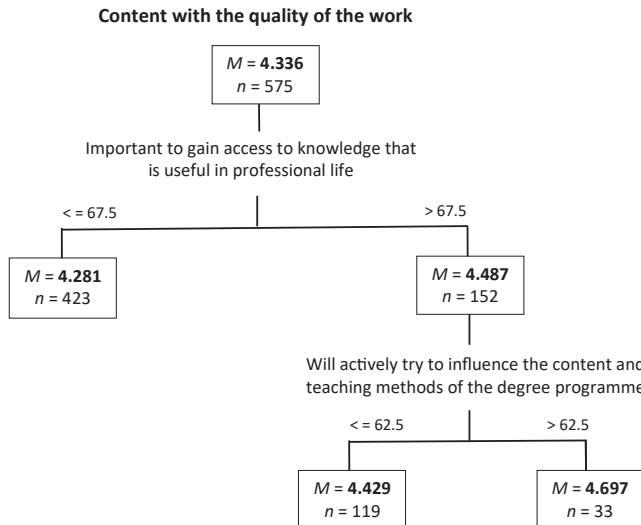
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Figure 2. Factors associated with knowledge from the university being utilised in the workplace



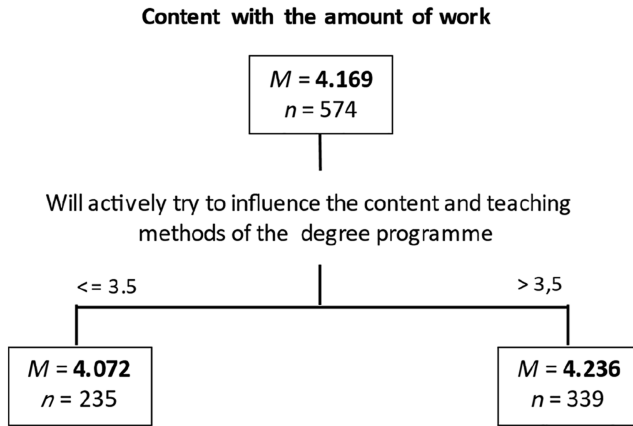
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Figure 3. Factors associated with contributing new knowledge in the workplace



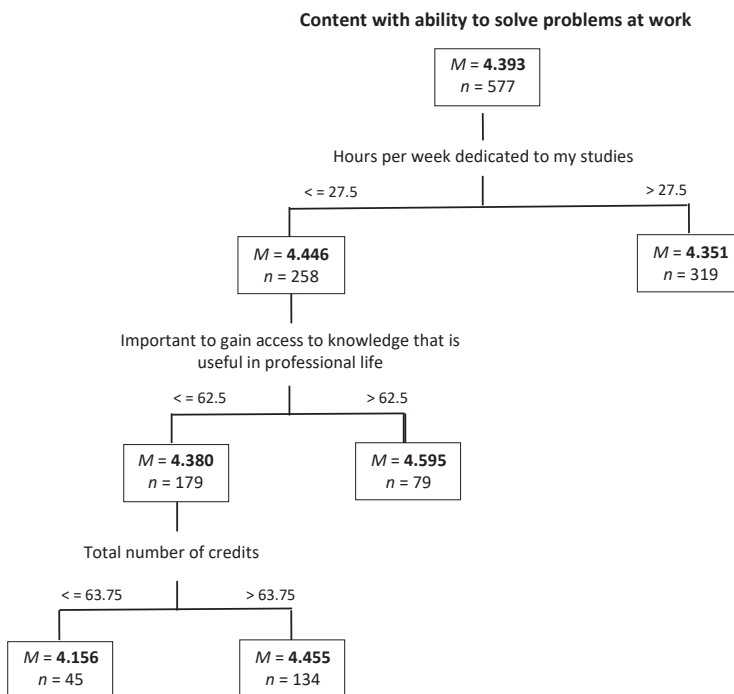
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Figure 4. Factors associated with being content with the quality of the work



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Figure 5. Factors associated with being content with the amount of work



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Figure 6. Factors associated with being content with the ability to solve problems at work

Vesterberg, 2015), but concerns have been raised about alleged mismatches between higher education and work (Alvesson, 2013; Berlin, 2014; Eklund and Pettersson, 2017), some focusing on lack of demanded skills and others on over-education. Results from the present

study can, to some degree, be understood as a counter-image to excessively negative interpretations of the situation, at least in the local context of this study. According to the logic of analytic generalizations (Yin, 2010), these findings might also be relevant in other similar contexts/settings. The graduates had a high employment rate (95%) and one-third held senior positions in work life.

Important to note, higher education is not only or mainly a resource for employers but also for the students themselves (SFS, 2013). From the point of view of the graduates' experiences, it is somewhat questionable that there should be any major problems with mismatches. They experienced to a fairly high extent that they could contribute knowledge from their education to the workplace. They also felt rather satisfied with the amount and quality of the work they do and with their abilities to solve problems at work.

In the present study, in a country with a rather low unemployment rate among graduates (OECD, 2020) and with quite low earnings dispersion (OECDstat, 2023), we found that social background in terms of parents' level of education, which in many previous studies is identified as important for employability (e.g. De Schepper *et al.*, 2023), was not, with one minor exception, associated with the work life outcomes. This is in line with what Cameron *et al.* (2018) found in a study of graduates within programmes at a Scottish university in which students from a variety of backgrounds are supported.

Students cannot influence their social background, but they can influence their academic achievements in terms of obtaining credits that reflect their possession of knowledge and skills (Holmes, 2013) from higher education, which, in this study, were positively associated with their work life outcomes. Graduates who had obtained a high number of credits were more likely to hold a senior position at work. The number of credits was also the factor most positively associated with the experience that their knowledge from higher education was utilised and that they could contribute new knowledge at work.

Based on the critique that has been raised against an overly one-sided focus on position and/or possession as explanations for employability (e.g. Holmes, 2013; Marginson, 2019; McQuaid and Lindsay, 2005), we also investigated the associations between graduate's attributes and behaviours when studying and their work life outcomes. A high level of labour market orientation in studying was positively associated with some work life outcomes. However, the factor that had the greatest importance with respect to most of the work life outcome measures, was agency. Agency has recently been highlighted as important for employability in post HE transitions (e.g. Tomlinson *et al.*, 2022) and in subsequent working life (e.g. Kahn and Lundgren-Resentera, 2021). We imagine that agency, in terms of being someone who acts and brings about change (Sen, 1999), is something that higher education should not only or mainly promote as just an employability effort.

Conclusion

If students are able to see themselves as actors in the practice of "higher education" more broadly, for example by being ready and willing to engage in studying (Bryson, 2014) and being participants in a learning community (Luckett and Luckett, 2009), then it is probably more likely that they also will act and bring about change in the social practice of work and in other social spheres. This assumption, in line with the results from the study by Ma and Bennett (2021), is supported by results from this study. Our results showed that students who, during their education, attributed more importance to students' own efforts for success in studying, were more likely to hold senior positions. Results also showed that the greater number of hours dedicated to studying and the greater the intention to actively try to influence the content and teaching methods of their degree programme, the more they experienced being able to contribute new knowledge to their workplace. In today's stratified higher education systems (Börjesson and Dalberg, 2021; Olofsson, 2013), is there possibly more "space" for student agency in settings like the one in the present study compared to settings with other characteristics?

Results such as the abovementioned can also be used for critical reflections on expressions of mismatches between higher education and work that are one-sidedly based on employers' current beliefs about what sort of knowledge from higher education is useful in their operations in the long-term. It is relevant to address the demand side of matches in terms of employers' ability to create space for graduate employees to use the skills they actually acquired at university, as well as their agency, in the continuous development of their businesses. In this regard, over-education must not only be seen as a problem; in line with the indicative conclusions made by Cabus and Somers (2018), it might even be that the supply of tertiary education graduates could relate positively to an increasing demand for skilled labour and be a factor for the further development of operations in working life. Such a conclusion also has implications for higher education institutions. Perhaps we don't need to be so anxious about being compliant with the rhetoric of mismatch from political actors and employer organisations.

Limitations and further research

There are some limitations in this study. First, the follow-up measures in work life were only completed by 36% of the students who participated in the original data collection. We performed *t*-tests to investigate potential differences in the independent variables between the students who participated in the follow-up and those who did not. The results showed no statistically significant differences in any of the variables, except for in the obtained number of credits. Those who participated in the follow-up had obtained significantly more credits than those who did not participate. Second, all measures used are self-report measures and might therefore contain measurement errors.

We can make some recommendations for further research. Increasingly rapid societal change points to the need for more research on agency in higher education and work life. The complexity of the relationship between higher education and work involves, among other things, that employability must be understood contextually (e.g. Behle, 2020; Berglund and Wallinder, 2015; Caballero *et al.*, 2022; Marginson, 2019; Sin and Neave, 2016). We call for more studies of different cases within different socio-political contexts and in different types of higher education institutions and groups of students within these.

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