

Research Article - Peer reviewed

Graduate employment at a WIL-like university: Does student employment matter?

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Abstract

This paper examines the relationship between student employment and graduate employment in a Nordic educational context. The study finds that extracurricular work experience provides an additional employability advantage even in educational environments that already resemble Work Integrated Learning, highlighting the importance of learning beyond the formal curriculum. Due to lack of data from Nordic WIL-institutions the PBL-institution Aalborg University is used as a proxy – drawing on register data covering the cohort of 2,080 master’s graduates from 2018, tracing employment trajectories from 24 months before to 24 months after graduation. While all graduates are exposed to problem based learning (PBL) and, for most, practice-based learning through placements, the analysis reveals that student employment confers further employability advantages. There is a strong linear association between the duration of student employment and graduates’ immediate transition into the labour market. This pattern persists, though weaker, two years after graduation. The largest differences are observed among social science graduates, whose fields are characterised by comparatively higher unemployment rates. Timing also matters: Students who remained employed during the final month prior to graduation transitioned most rapidly into postgraduate employment. Grade performance is positively associated with graduate employment outcomes but appears less influential than student employment. Key limitations include the absence of individual-level background variables and detailed information on the nature of student employment. Future research should address these limitations, ideally through comparative analyses of WIL graduates and graduates from more conventional study programmes.

Keywords: Graduate employability, Labour-market transitions, Problem-based learning, Student employment, Work-integrated learning

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Introduction

Tertiary education, once accessible to only a few, has expanded significantly over recent decades. Across OECD countries, the proportion of adults holding tertiary qualifications averaged 42% in 2024, compared to 19% in 1991 (OECD, 1993; 2025). This sharp increase in educational attainment has improved employment opportunities for millions of young people, contributing to significantly higher employment rates (OECD, 2024). However, the expansion of higher education has also raised concerns regarding graduate employability:

“To sustain positive employment trends during weaker labour markets, it is essential to ensure that improved educational attainment is grounded in better learning outcomes. This includes strong foundational skills that can facilitate lifelong learning and relevant employability skills that support individuals in their careers” (OECD, 2024, p.19).

Higher education institutions (HEI) adapt to the challenges regarding employability skills in different ways. Many are introducing practice periods and placements, forming partnerships with industry and public sector organisations (Scandurra et al., 2024), while some institutions have adopted more comprehensive approaches such as Work-Integrated Learning (WIL), Co-Op Learning, and Problem-Based Learning (PBL), influencing both on-campus teaching methods and off-campus student practise.

At the individual level, today’s graduates encounter a more differentiated labour market compared with the elite university era, where the smaller academic labour market was well defined and relied on a closer match between academic credentials and job tasks. Thus, student employment might be an individual strategic choice to enhance employability skills required in a more diverse labour market.

In a comprehensive study of the tertiary education sector, without restricting the scope to WIL institutions or programmes, Scandurra et al. (2024) reveal a generally positive stakeholder view on employability-initiatives. The perhaps most convincing evidence was, however, the lack of larger scale studies of graduate employment:

“Most of the studies in the corpus do not assess graduate labour market outcomes empirically, but focus on characteristics of WIL training, looking at possible benefits for the students in terms of future opportunities on the labour market” (Scandurra et al., 2024, p. 1393).

Of the 87 papers included over a 20 year period from 2002 to 2022, the majority (76%) were qualitative in nature. Among the remaining 24%, most focused on students’ perceptions of employability, while only a smaller subset engaged directly with employment related indicators (Scandurra et al., 2024).

When focusing specifically on WIL, only a relatively limited number of studies have examined its impact on employability or employment outcomes. Most existing research originates from Australia, Canada, and the USA, with studies variously concentrating on students’ perceptions of employability and on employment-related indicators (ACEN, 2023; Jackson, 2024; Jackson & Bridgstock, 2021; Kepple et al., 2025; Wyonch, 2020; Wyonch & Seward, 2023). Thus, most employability studies of WIL-graduates are conducted in countries where tertiary education programmes carry substantial tuition fees for both domestic and international students. The aim of the present paper is to address graduate employment within the Nordic educational context, characterised by no or low tuition fees for domestic students and generous student grant and loan schemes (OECD, 2025).

Considering both the institutional and individual challenges related to students’ employability skills, an ideal research design would have examined both the employment effects of different institutional approaches (e.g. WIL versus more conventional study programmes) and the impact of student employment on graduate employability among WIL students as well as students from other programmes and institutions. An underlying assumption of such a study is that student employment may have a weaker effect on graduate employability at WIL institutions, as work-integrated elements within study programmes could partly compensate for a lack of other work experience when graduates enter the labour market. However, pursuing this line of inquiry has not been feasible, as there are very few WIL institutions in the Nordic countries, for whom relevant graduate employment data has not been accessible.

As the data limitations prevent us from simultaneously studying institutional differences and the potentially differential impact of student employment on graduate employability, an alternative research design focusing on the

impact of student employment among students from a single Nordic WIL-like institution has been adopted. The analysis is restricted to a cohort of graduates from Aalborg University, where all students are exposed to PBL, and in many respects resemble WIL students. The similarities between the two are particularly evident when considering their extensive engagement with industry and public sector organisations. At the on-campus level Ferns et al. (2014) include PBL within the broader WIL framework, identifying it as an approach that WIL institutions may adopt. When examining on-campus activities within both WIL and PBL, numerous similarities emerge within what Ferns et al. (2024) describe as the pre-WIL phase. This alignment was also evident at the third International Work Integrated Learning Conference in 2025, where several papers explored on-campus preparatory activities closely resembling those commonly present in PBL, including case based learning, project work, mentoring, peer learning, simulations, and the creation of active learning environments that foster collaboration among students and between students and staff (Bjerke & Mongstad, 2025; Eklund et al., 2025; Malmköld & Jakobsson, 2025; Mwesiumoab et al., 2025; Nydahl & Hauglid, 2025; Slabbert & du Plessis, 2025; Stjern et al., 2025).

WIL places stronger emphasis on practical work experience undertaken in authentic workplace settings, whereas PBL tend to put greater emphasis on integrating real world problems into structured project-based learning activities. However, as most PBL students today undertake one or more placements as part of their study programmes, the implementation of WIL and PBL may be more similar in practice than the conceptual distinction between the two approaches might initially suggest.

The structure of this paper is as follows. The first section provides an overview of previous research on WIL, student employment and graduate employability. The second section discusses theoretical perspectives on student employment and graduate employability, followed by a section outlining the research aims of this study. The fourth section presents the research design, data, and methods. The subsequent section reports the results of the analyses conducted on the 2018 MA graduate cohort, while the final section discusses the main empirical findings, draws conclusions considering the limitations of the available data, and proposes avenues for future research on WIL, student employment and graduate employability within the Nordic higher education context.

Earlier research on WIL, student employment and graduate employability

Drawing on a dataset covering 41 Australian universities and more than 150,000 students from the 2020 and 2021 cohorts, Jackson (2024) examined undergraduate employment rates as a function of participation in work-based WIL and student employment. When comparing non-WIL and WIL students, the impact of student employment appears very modest across genders and socioeconomic groups, regardless of whether students worked full time or part-time, or whether their jobs were considered relevant. The only notable exception is part-time, non-relevant student employment, where WIL undergraduates exhibited substantially higher employment frequencies than their non-WIL counterparts - 72% versus 57% (Jackson, 2024). Using a smaller dataset from a single institution, the same researchers also examined graduates' perceptions of employability. They found that for credit incubator activities were evaluated most positively, followed by not for credit internships. Paid work (of any kind) ranked third among 14 different items influencing perceived employability (Jackson & Bridgstock, 2021).

In a publication from the Australian Collaborative Education Network (ACEN), the main finding was that work-based WIL is associated with the highest rates of undergraduate employment, whereas non workplace WIL was linked to lower rates. At the graduate level, the correlations were more modest (ACEN, 2023). Although this study does not directly study the impact of student employment, it is nonetheless relevant due to its distinction between non workplace WIL and work-based WIL. The latter bears some resemblance to the practical experience typically gained through student employment.

Employment research from other WIL strongholds, such as Canada and the United States, has found positive effects of WIL programmes on graduate employment outcomes, although these studies do not distinguish between students' participation in extracurricular employment activities. At dimensions such as job offers, employment status, income, and occupational matching, WIL has a positive impact (Kepple et al., 2025; Wyonch, 2020; Wyonch & Seward, 2023). In particular, coop education programmes have a positive effect on graduate employment compared with placement-based WIL and non-WIL pathways.

Research on higher education employability programmes often treats part-time work as a distinct arena for experiential learning, through which students develop skills such as time management, interpersonal communication, problem solving, self-efficacy, and work ethic (Blake & Worsdale, 2009; Forsyth & Cowap, 2017; Gbadamosi et al., 2019; Wylie & Cummins, 2013). Thus, these studies, based on students' perceptions of employability relevant skills, may help explain the positive employment outcomes identified in the studies referred to above.

According to Scandurra et al. (2024), no studies from Norway, Denmark, Iceland or Finland have examined employment outcomes in relation to higher education employability programmes such as WIL, nor in interaction with student employment. The only two Nordic studies reviewed are from Sweden. One is a paper assessing students' satisfaction with a WIL based start-up course at University West (Jobe & Östlund, 2019), the other is a qualitative analysis of students' perceptions of placements at Uppsala University (Kettis et al., 2013). While graduates' own perceptions constitute an important dimension in the evaluation of employability, perceptions should be complemented by employment indicators.

A recent study based on Norwegian educational and labour market registry data, comprising 60,000 tertiary graduates at both BA and MA levels, found positive correlations between student employment and securing employment within 18 months after graduation (Elman & von Simson, 2024). Student employment deemed relevant to the study programme was more strongly associated with permanent employment than non-relevant student work. Although the study does not include institutional identifiers and therefore does not allow WIL programmes to be distinguished from other tertiary education programmes, it incorporates a broad set of individual level control variables (sociodemographic, educational, and labour market characteristics), making it a relevant reference point for newer studies of student employment in a Nordic context.

Theoretical arguments for the impact of student employment

Employability involves more than simply securing a first job; it concerns the development of skills that support ongoing career progression and adaptability (Reddan, 2017). Part-time employment becomes meaningful learning when students actively engage in comparing and reflecting upon their diverse work experiences (Billett, 2025). The diversity of students' part-time jobs thus becomes a pedagogical resource: by examining how ostensibly similar work tasks vary across workplaces, owing to different organisational practices, expectations, and requirements, students develop contextual understanding and adaptive capacities that are essential for translating knowledge into post-graduation employment contexts.

The most straightforward argument for why student employment may impact graduate employment is that student employment constitutes a source of human capital (Becker, 1993). Field-specific human capital is the primary output of educational programmes, whereas work experience can enhance both general human capital and - depending on job content - field-specific human capital as well. Van Belle et al. (2019) suggest that longer periods of student employment signal a stronger work orientation and more developed professional networks, while also potentially indicating field relevant skill acquisition when the employment is related to the students' study programme. Employability requires both core (hard) skills and transferable (soft) skills. In a Nordic and global context, working life is increasingly characterised by rapid and continuous change, especially due to technological developments, making such broad skillsets essential (Ferns et al., 2024).

An alternative perspective on why student employment may enhance graduate employability concerns the role of networks or social capital (Granovetter, 1973; Bourdieu, 2002). Student employment provides access to valuable employer contacts. Some employers may choose to hire individuals who already possess knowledge of their specific organisational context, while others may draw on colleagues within their professional networks who are willing to consider hiring students recommended by someone they trust. This aligns with Granovetter's notion of weak ties, which he argues are particularly influential in facilitating job acquisition, as they connect individuals to opportunities beyond their immediate social circle (Granovetter, 1973).

With an optimal combination of theoretical and experiential learning - including that derived from student employment - future employers may regard such graduates as particularly attractive. Practical work knowledge can reduce training costs during the school-to-work transition, and students with work experience may be viewed as the most "trainable" graduates (Van Belle et al., 2019).

Many of the attributes that make graduates attractive to employers cannot, however, be directly observed. Consequently, signalling and screening become theoretically important mechanisms for understanding why student employment may influence graduate employment outcomes. Signalling refers to the ways in which job candidates communicate information about otherwise unobservable characteristics through observable credentials on their CVs (Van Belle et al., 2019). When confronted with limited opportunities to demonstrate their abilities, candidates strategically include signals - such as part-time student employment - to convey productivity, motivation, and competence to prospective employers. Screening represents the employer's perspective. Faced with information asymmetry, recruiters rely on observable indicators as screening devices to infer candidates' unobservable productivity and suitability for work roles. Student employment thus functions as a screening mechanism, enabling employers to assess work readiness and professional attributes not directly evident from academic credentials alone (Van Belle et al., 2019).

Van Belle and colleagues (2019) identify four distinct categories of signals transmitted through student employment. Attitude signals include work orientation, responsibility, maturity, motivation, and ambition, reflecting candidates' professional socialisation and readiness for workplace norms. Social capital signals indicate expanded professional networks and enhanced interpersonal competencies that facilitate both job search processes and workplace performance. Human capital signals reflect perceived development of skills and knowledge. Finally, trainability signals communicate candidates' capacity for rapid skill acquisition through on-the-job training. While attitude and social capital signals generally emerge from any type of student employment, human capital and trainability signals are more likely to arise when the work experience is directly related to the student's field of study.

Whether student employment contributes to field-specific or general human capital, strengthens network or social capital, or enhances trainability is ultimately an empirical question. Signals of relevant competencies may be misleading, and screening processes may be insufficient to accurately assess candidates' potential. An indication of the latter is an initially positive labour market outcome that cannot be sustained over time (Weiss et al., 2014).

Research aims and research questions

Because WIL positions itself as an approach for producing work ready graduates, one might expect extracurricular job experience to have a smaller impact on graduate employment outcomes for WIL students than for tertiary students in general. As this has not been possible to study with any available data from Nordic countries, this paper instead examines whether there are employment differences dependent on extracurricular experiential learning among students whose study programmes resemble those of WIL students.

Second, this paper responds to concerns raised by Scandurra et al. (2024), namely that most studies of employability programmes rely on small samples, tend to be qualitative in nature, and focus primarily on perceptions of employability. In contrast, the current study covers the entire population of a cohort of MA graduates from a medium sized university, resulting in a dataset of more than 2,000 graduates across multiple fields of study.

Third, this relatively large data set allows us to examine actual employment outcomes after graduation, rather than relying on students' self-reported perceptions. It is important to notice that the labour market data allows for tracking employment for 24 months with relatively short gaps between the point of employment measurement.

Fourth, having access to grades (GPA) in addition to employment data enables estimating - albeit in a crude manner - the correlation between GPA and graduate employment, as well as whether time spent on student employment might influence academic performance

Research questions

Does work experience undertaken alongside studies increase graduates' employment rates?

Does part-time student employment have a greater impact on graduate employment in fields of study characterised by higher graduate unemployment rates?

Does the timing of ending part-time student employment influence graduates' transition into employment?

Do grades affect graduate employment outcomes, and do time spent working alongside studies affect GPA?

Research design and data

This study draws on data from a cohort of MA graduates from Aalborg University ($N = 2,080$). All graduates included completed their degrees during the summer examination period of 2018, across all study programmes. This summer cohort constitutes 82% of all MA graduates in 2018.

The cohort was followed for 48 months, 24 months prior to graduation and 24 months post-graduation. The data, extracted from administrative registers, includes information on graduates' educational trajectories (e.g. study programme, grades). The student data from Aalborg University were combined with employment data on weekly basis from the Danish DREAM database, including both employment records before graduation and during the first 24 months at the graduate labour market. Individual background data was not a part of this study, which constrains the scope for complex multivariate analyses; neither was information about the content of student employment, which has proven to be influential in studies of graduate employability (Elman & von Simson, 2024).

With the available data, the impact of the average type of student employment can be examined, but it is not possible to distinguish between different forms of student employment because the dataset does not include industry codes. Unfortunately, due to restrictions on data retention following the conclusion of the original project, it has not been possible to conduct more advanced analyses beyond those presented in the results section.

The prevalence of any part-time employment alongside studies is used as an indicator of practical work experience. This type of experience varies substantially among students, ranging from 0 to 24 months within the period preceding graduation. Students are classified as employed alongside their studies if they received salary payments within a given month. Regarding graduate employment, the definition of being employed is receiving salary at a minimum of four days within the week of employment measurement (5., 13., 26., 52., and 104. week after graduation).

Although having an overarching interest in employability in its broader sense, the data constraints necessitate a more narrowly defined operationalisation in this study, excluding graduates' perceptions, which constitutes an important subjective dimension of employability.

When measuring employment rates, the frequencies at each point in time after graduation rather than accumulated employment histories are reported. Some graduates might be employed at one point within the measurement frame but not the next. It is also important to note that graduates who are not employed at a given time point not necessarily should be classified as unemployed. Some may not be receiving any form of benefit, and a small group receive 'other benefits', meaning they receive support for reasons unrelated to unemployment (Friis Nielsen et al., 2022). Consequently, the number of graduates classified as not employed in this study is higher than the official unemployment rates.

GPA is divided into four categories. Graduates in the 10.0–12.0 band constitute the highest-achieving group, identical to the ECTS grading-scale grades A and B combined. Grades in the 8.0–9.9 band approximate, but do not fully align with, the ECTS grade C. The 6.0–7.9 interval largely corresponds to ECTS level D, although it also includes some students from the lower end of level C. The lowest interval, 2.0–5.9, comprises GPAs that would translate to either D or E on the ECTS-scale.

Since the analysis is based on a single institution, the institutional level is held constant. This implies that the WIL relevant elements described in the introduction, many of which apply to Aalborg University as a PBL institution, are assumed to apply to all students in the sample. Although study programmes may vary in the number of ECTS credits allocated to PBL-specific activities, field-specific analyses help mitigate the limitations arising from the absence of placement and practice data. This is because the variation in exposure to practice-based learning tends to be lower within fields of study than across them. A study based on data from one institution limits the generalisability, but eradicates the uncertainty caused by unmeasured institutional differences.

The 2018 graduation cohort was affected by the COVID 19 pandemic during the observation period. Approximately 15% of the period overlaps with the initial lockdown in Denmark (from 11 March 2020 and onwards). However, most of the observation window remains unaffected by pandemic related disruptions. It is nevertheless plausible that graduates who experienced employment interruptions up to the onset of the lockdown faced additional challenges when the Danish labour market stalled, potentially amplifying the consequences of disrupted early employment trajectories. This implies that the employment rates measured 24 months after graduation are likely influenced by COVID 19, although this does not necessarily alter the estimated impact of student employment on post-graduation outcomes. The descriptive statistics are presented in appendix table A1.

Results

Student employment and graduate employment

The main findings indicate a strong linear relationship between student employment and graduate employment immediately after graduation. Additionally, there is a weaker, but still significant, correlation between the duration of student employment and securing permanent employment within two years after graduation.

Figure 1 shows that only 5% of graduates without employment experience alongside their studies were employed one month after graduation, compared to 70% of their peers who had accumulated 24 months of employment experience during their studies. In terms of longer-term employment, the correlation between student employment and permanent employment is weaker. Twenty-four months after graduation, most graduates are employed regardless of their job experience alongside their studies. However, there are still differences, as 57% of graduates without any experience from student employment were employed, compared to approximately 90% of those with more than 10 months of student employment. The major threshold two years after graduation lies between graduates who held a student job of any duration and those who have had no experience from paid work alongside their studies.

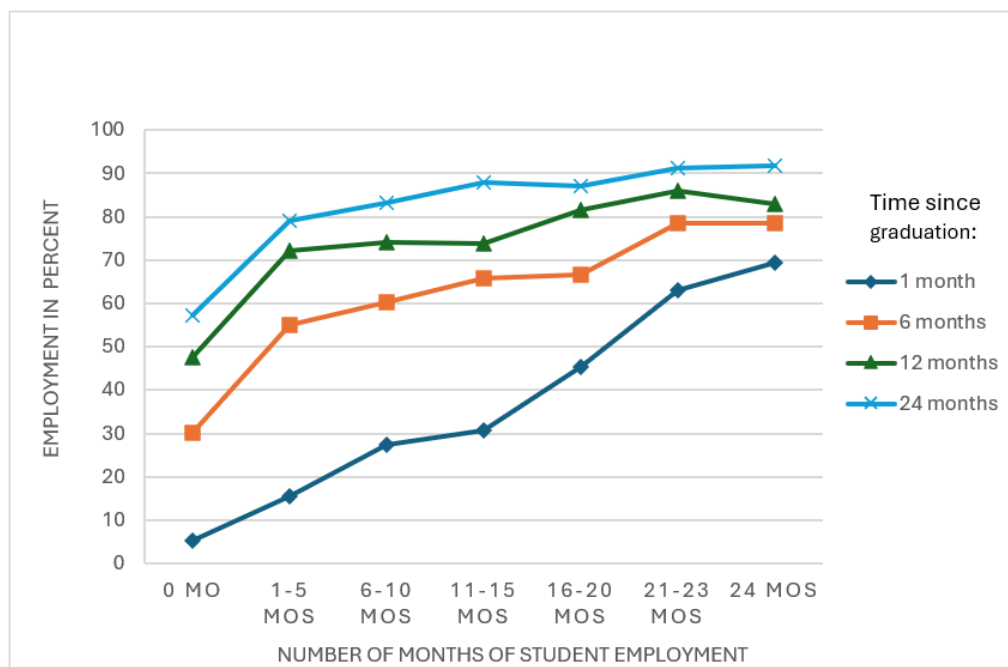


Figure 1: Graduate employment as a function of months of student employment and time since graduation.

Difference between fields of study

Twelve months after graduation, graduates from the humanities and social sciences exhibit the lowest employment rates (66.5% and 70.5%, respectively), whereas engineering graduates have the highest rate (81.5%). Graduates from technology and health fields fall between these extremes (Friis Nielsen et al., 2022). Figure 2 compares employment rates one year after graduation across the five broad fields of study. This analysis corresponds to the mean employment rate, represented by the line with triangle markers in Figure 1, disaggregated by field.

When comparing the correlations between student employment and graduate employment rates, the social sciences - and to a lesser extent the humanities - display larger differences than those in the other three fields. Among social science graduates, the employment rate for those with no student employment experience was only 36%, whereas the corresponding rate for graduates with the maximum level of student employment (24 months) was 85%. This means that graduates with the highest level of student employment were 2.35 times more likely to be employed one year after graduation than their peers with no such experience. Within the humanities, the equivalent figures are 45% and 78%, producing a ratio of 1.72.

When turning to technology, engineering, and health, all three fields show differences in graduate employment between students with varying levels of student employment experience. Within engineering and health, the ratios between the two extremes - 0 months versus 24 months of student employment - are 1.47 and 1.42, respectively. These differences are substantially smaller than those observed in the social sciences and somewhat smaller than the corresponding difference within the humanities. For technology graduates, the ratio is 1.70, which is equal to that observed in the humanities.

As Figure 2 also shows, employment rates one year after graduation are slightly higher among graduates with 21–23 months of student employment than among those who worked during 24 months of their MA studies. When calculating employment ratios relative to graduates with no student employment experience, technology graduates in the 21–23 month category exhibit a higher ratio than humanities graduates in the same category (1.90 vs. 1.79). However, these results do not alter the main conclusion: the social sciences appear to benefit the most from student employment in terms of subsequent employment. The findings suggest that student employment may be most advantageous in fields of study characterised by higher graduate unemployment rates.

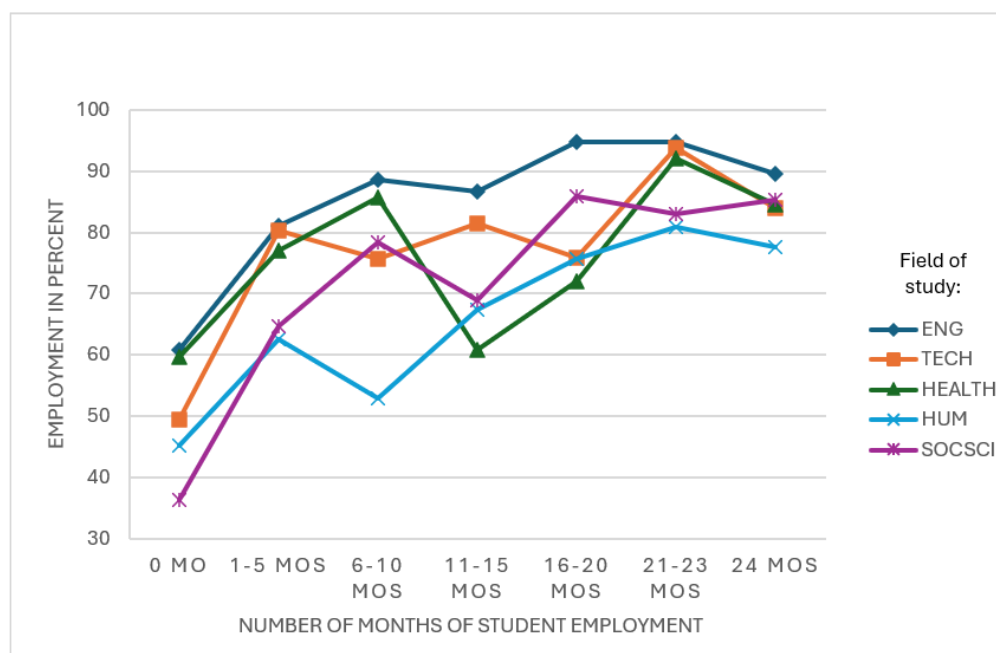


Figure 2: Graduate employment one year after graduation as a function of months of student employment and field of study.

Timing of ending the student employment contract

The data allow for an analysis regarding whether the gap between the end of the student employment contract and the final examination influences the speed of transition to graduate employment. This correlation is illustrated in Figure 3. In contrast to Figures 1 and 2, individuals in Figure 3 are represented only once within the 12-month period following graduation, specifically, in the week in which they obtain their first graduate employment contract. Consequently, each line representing the different gap length groups sums to 100%.

The most striking difference is between students who ended their student employment within the final month before graduation and all other groups. While two thirds with the shortest gap obtained employment in the first week after graduation, the equivalent figure for all other gap groups lies between 8% and 18%, including those with no recorded student employment. For the remaining gap length categories, the timing of first graduate employment is broadly similar: approximately 50% in each group secure their first graduate position within 2–13 weeks after graduation, and a further 25% within weeks 14–27. Differences become more apparent in the second half of the first year, as those who ended their student employment more than 30 weeks before graduation - as well as those who did not work alongside their MA studies - show a higher proportion obtaining their first graduate job during this later period.

The mechanisms underlying this pattern cannot be determined from this descriptive analysis. A plausible

hypothesis could be that a considerable share of first week graduate employment represents continued employment with the same employer for whom the student previously worked. The substantial difference between the shortest gap group and all other groups - combined with the relatively minor differences between the remaining categories - lends further support to this hypothesis. However, this cannot be tested without access to specific information on both student employers and graduate employers.

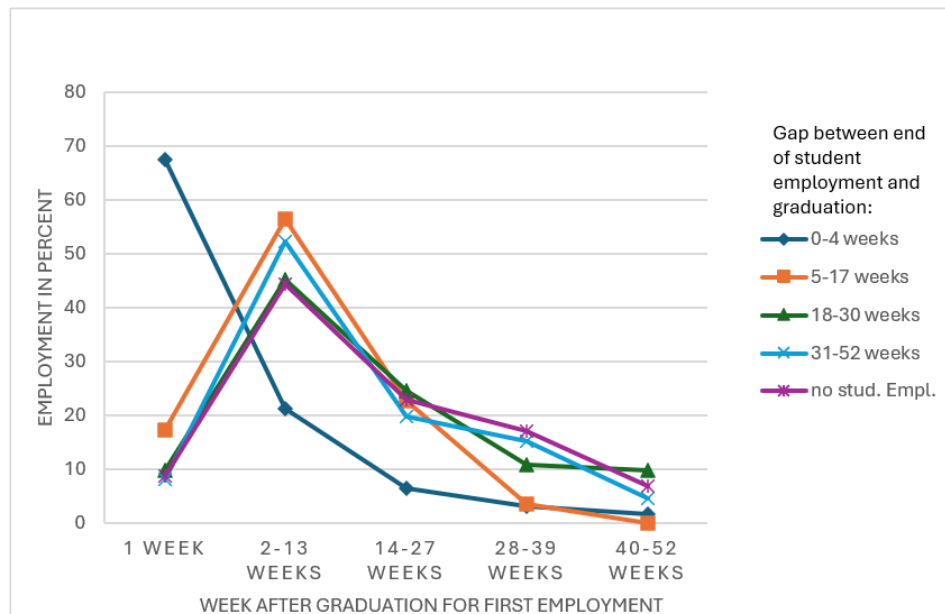


Figure 3: Timing of first graduate employment as a function of the gap between end of student employment and time of graduation.

Given the examined time-period there is inevitably a correlation between the frequency of student employment and the length of the gap between the end of the employment contract and the final exam: the longer the gap, the lower the expected frequency of student employment. However, this relationship is far from perfect, as many more fall into the group with the shortest gap (59%) than into the group with the longest duration of student employment (17%), cf. appendix table A1. Several factors may explain this. Some students may have held multiple student jobs during their studies, creating intermittent gaps between employment periods. Others may have chosen to devote themselves fully to their studies at the beginning of their MA programme and only taken up student employment later, remaining in those positions for as long as possible, perhaps to secure a transition into their first graduate job with the same employer, while still spending relatively little time on student employment overall.

The immediate transition to work is likely to result in higher employment frequencies within the local labour market. By contrast, those who experience a longer transition may have done so intentionally, perhaps because they planned to relocate to another labour market, such as the Copenhagen metropolitan area, which offers the largest concentration of graduate level employment opportunities in Denmark. Longer term employment rates and wage trajectories may further nuance the picture presented by the first two years examined in this study (cf. Weiss et al., 2014). A longer transition period may represent a strategic choice by some graduates, reflecting a willingness to accept short-term costs in exchange for potentially higher long-term benefits. To explore this possibility, analyses based on a longer time series of graduate labour market participation would be required.

GPA and graduate employment

Figure 4 shows the correlation between grade point average (GPA) and graduate employment frequencies at four different time points after graduation (1, 6, 12, and 24 months). The average employment frequencies indicate that GPA is positively correlated with graduate employment. The two lowest GPA categories consistently exhibit the lowest employment frequencies at each measurement point, and the distance between these two groups remains stable throughout the 24 month period. The 2.0–5.9 interval has the lowest employment rates overall.

When comparing the results from the GPA analysis with those from the analysis of student employment in Figure 1, the findings suggest that student employment may be more important for graduate employment than GPA. From Figure 4, the employment ratio between the highest and lowest GPA categories one year after graduation can be calculated to 1.56. After two years, graduates with the highest GPAs are 1.32 times more likely to be employed than those in the lowest GPA group. By contrast, based on the numbers from Figure 1, the ratios between graduates with 24 months of student employment and those with none are 1.75 one year after graduation and 1.60 two years after graduation.

Ideally, if access to the data had been retained, it would have been possible to design multivariate models to examine more closely the relative impact of different variables on graduate employment. The available information does, however, allow us to explore whether the amount of time spent on student employment might affect GPA. The underlying assumption is that extensive student employment could reduce the time available for academic work, potentially resulting in lower grades. As noted earlier, longitudinal data that would enable an analysis of changes in GPA before and after different levels of student employment intensity were inaccessible.

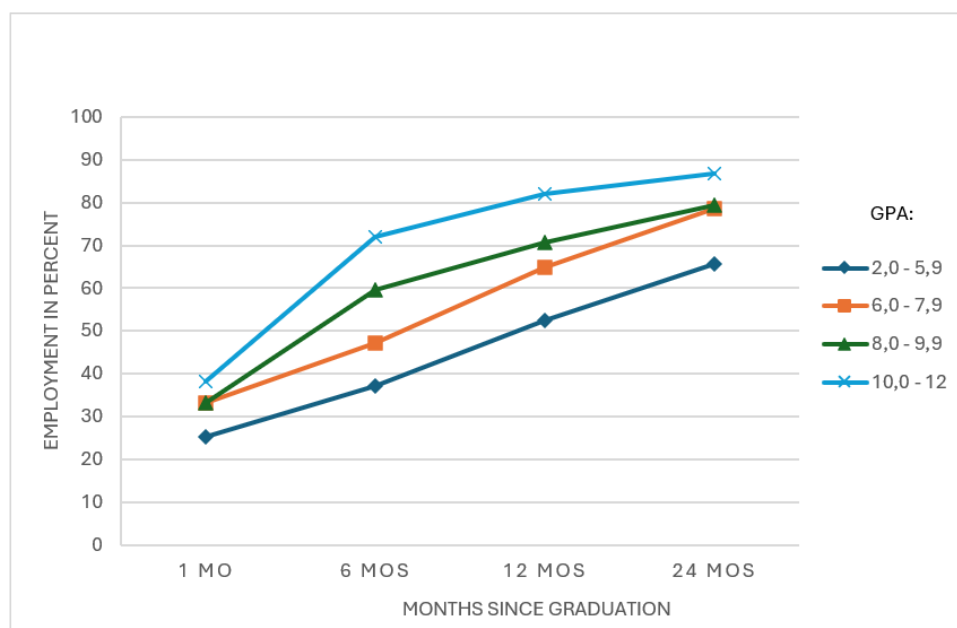


Figure 4: Graduate employment as a function of GPA and time since graduation.

Bearing these limitations in mind, there is no indication that student employment has a negative impact on academic performance. The distribution of GPA is relatively similar across the different employment-categories in Figure 5. Regardless of the number of months spent in student employment, substantially more graduates fall into the higher GPA bands than the lower ones. The most pronounced differences across the employment duration groups are that graduates with the least student employment experience have a slightly higher frequency of the lowest GPA and a slightly lower frequency of the highest GPA. All other groups display nearly identical GPA distributions. This contrasts with findings from Australia, where the highest performers were found among students who did not work at all, and students with more than 20 hours student employment per week (Wylie & Cummins, 2013).

One possible explanation for the pattern observed in Figure 5 is that unsupervised extracurricular experiential learning gained through student employment may have a slightly positive spill-over effect on academic performance. Rather than imposing detrimental time constraints, such employment may contribute to learning in ways that enhance students' academic work. In this regard, it is important to note that student employment in the Danish public sector is regulated in terms of working hours. For example, universities are not permitted to hire students as assistants for more than eight hours per week, a measure intended to prevent students from allocating excessive time to work at the expense of their studies. Although regulations are less strict in other parts of the student labour market, some limits still apply. This means that, although many students are employed, they do not necessarily work many hours per week. Another explanation for the observed pattern in Figure 5 could be that lower academic performance and lower participation in the student labour

market may both stem from underlying factors not captured in the present dataset.

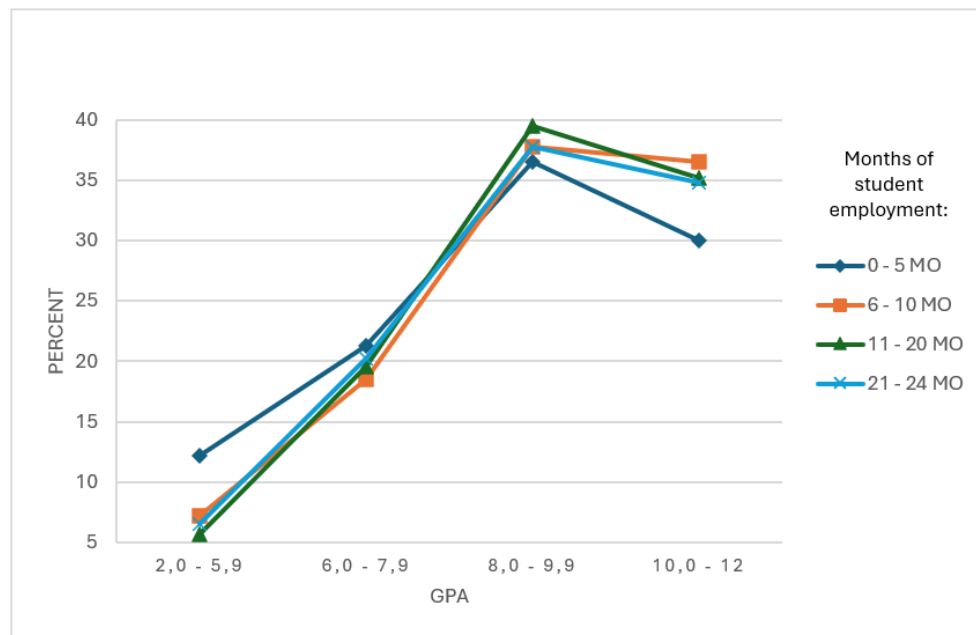


Figure 5: Correlation between number of months of student employment and grade point average (GPA).

To study the association between student employment, academic performance and graduate employment more fully, access would be required to additional variables, including detailed information about the content and relevance of student employment, secondary education GPA, hours worked, and a broader range of individual level characteristics, such as physical constraints, mental health, and family background.

Conclusion, discussion and limitations

This paper examined the correlation between student employment and graduate employment for approximately 2,000 university graduates from five broad study fields at Aalborg University (AAU) in 2018. The main finding is that there is a substantial correlation between student employment and graduate employment immediately after graduation, but the differences are visible also 24 months later, where especially graduates with no experience from student employment lag the other groups.

Comparing the different study fields indicate that student employment is particularly an asset for social science students, a field of study with one of the highest unemployment rates in the investigated period. Regarding the timing of student employment - measured by the gap between termination of student employment contract and graduation date - graduates ending their student job in the last month before graduation exhibit much higher first week graduate employment rates than their fellow students who terminated their student employment contracts earlier.

In the final analysis of grades, a monotonous correlation between GPA and graduate employment rates at every point of measurement within the first 24 months after graduation were observed; graduates with better grades have higher employment frequencies. However, GPA seems to have a lesser influence on graduate employment than student employment has. The analysis also showed that there are only small differences in GPA between students with different frequencies of student employment.

The additional benefits of student employment appear substantial, even for students who already engage in WIL-like activities on campus and often participate in one or more practice periods as part of their curriculum. The findings are consistent with evidence from Germany (Weiss et al., 2014), who analysed a much richer dataset and found no significant employment effects of mandatory internships, whereas employment alongside studies improved the short-term transition into graduate employment.

Human capital is undoubtedly an important factor in studies of graduate employment, deriving both from formal educational programmes and from experiential learning acquired alongside studies. However, human capital alone cannot account for the patterns observed in this study. The substantial differences in employment frequencies immediately after graduation between graduates who have been exposed to the same on-campus activities, but who differed in their experience of student employment, point to additional explanatory mechanisms.

Regarding the large differences in first week employment of new graduates, social capital is perhaps the most plausible explanation for the rapid transition among those who ended their student employment during the final month before graduation. Networks established through student employment could work as a channel for job matching. The strong association between student employment and graduate employment among social science graduates makes this explanation even more plausible, as social science graduates were having the highest unemployment rates in the period of the study.

To disentangle the partial effects of different mechanisms, a longer time series would be required. Social capital is likely to exert the strongest influence at the point of labour market entry, whereas human capital may have a more enduring - and possibly increasing - impact on employment outcomes over time.

The studies reviewed in this paper are not directly comparable with the findings in the current study. However, the large-scale comparative study from Australia (Jackson, 2024) suggests that part-time student employment may enhance graduate employment outcomes among WIL students to a greater extent than among non-WIL students. In this light, the seemingly positive effect of student employment on graduate employment among PBL students is perhaps unsurprising. Both studies indicate that student employment may function as an additional employment-enhancing factor, rather than substituting for WIL.

When considering how students' experiential learning should interact with campus-based teaching, it may be tempting to argue that the optimal approach is to integrate practice through curricular placements, thereby enabling educational institutions to exert greater control over the overall learning process. However, student employment is not driven solely by learning considerations; for many students, it is also a financial necessity. Given that a substantial proportion of students are likely to engage in paid work regardless of how practice-oriented their study programmes are, the interplay between on- and off-campus learning activities within WIL programmes and students' self-initiated employment warrants closer examination.

Billett (2025) proposes that students' existing work experience—including paid part-time employment and voluntary work—can be mobilised as valuable learning sites. These work experiences can provide a foundation for developing both a general understanding of the world of work and more specific occupational capacities. The results from the current study support such an approach as a fruitful avenue for WIL-institutions.

Limitations

The data limitations described in the methods- and results-sections imply that the findings from this study are solely descriptive. Casual explanations would require a much broader data set and, preferably, a longer time series, as unmeasured individual differences could prevent students from both getting student employment and a permanent position after graduation. The lack of individual-level information of importance for graduate employability is an important weakness of this study, both because it does not allow for more precise estimations of the net contribution of student employment on graduate employment and because it prevents a deeper understanding about the mechanisms behind the observed correlations. However, it is worth noticing that in the study by Elman and von Simson (2024, p.12) based on Norwegian registries, their results from the fully specified model, including all controls, did not differ significantly from those produced by a more parsimonious model including only graduation year and field of study.

While being able to track the MA cohort beyond the immediate transition into graduate employment, it still represents a short-term perspective on employment. Longer term data series may reveal different patterns, particularly for graduates whose slower transition into employment reflects relocation to labour markets geographically distant from Aalborg.

In a Nordic context, the accessibility of administrative register data, such as educational, tax, and employment records, combined with extensive information on family members (parents, siblings, etc.), creates great opportunities for conducting comparative analyses both within and across the Nordic countries. From a WIL perspective, however, a key challenge for such comparisons is the limited number of full-scale WIL institutions in the region. This study has utilised data from Aalborg University, which arguably shares many characteristics with WIL institutions in terms of on-campus

educational activities. Nonetheless, WIL institutions might still be better to integrate practice in a way that increases employability more than PBL institutions do, consequently implying a lower employability-enhancement from student employment among WIL-graduates.

Future studies of WIL, student employment and graduate employability

In future studies it remains possible to still include Aalborg University in comparative analyses. Such a research design would enable comparisons between full-scale WIL institutions, more conventional higher education institutions, and PBL institutions. An additional benefit of this approach is that it would allow for empirical testing of the extent to which assumptions about the similarities between WIL and PBL hold true regarding the impact of student employment.

Regarding causal explanations, the implementation phase of new educational initiatives for example at Kristiania University of Applied Sciences in Norway provides an opportunity to collect information about participating students, with the intention of following them throughout their studies and into the labour market. Although differential self-selection into study programmes (WIL or non-WIL) might occur, this can be adjusted for by gathering information about students when they enter their respective programmes. It may even be possible to take advantage of situations in which programmes share identical academic content but differ in pedagogical approach, at least during a transitional period as institutions phase in WIL elements. This would create a strong quasi experimental setting for studying the effects of WIL and student employment on graduate employability.

Future studies of WIL, student employment and graduate employability could also benefit from taking local labour market conditions and individual mobility trajectories into account. Although social science graduates' transitions are most quickly measured in weeks, they, together with humanities, have the lowest employment frequencies one year after graduation. The impact of geographical relocation, resulting in a slower initial transition among students from other fields, but higher employment frequencies in the longer term, should be further examined.

In this regard, research focusing on employers' perspectives would also be valuable. Employers who participate in recruitment panels and advisory boards may serve as an important source of insight into the role of extracurricular experiential learning within the broader landscape of learning relevant to graduate employment. Their involvement can help make students (WIL and non-WIL) more aware of the interplay between on-campus learning, practice-based experiences, and extracurricular work in shaping professional identities and enhancing opportunities in an increasingly competitive graduate labour market.

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Declaration of interests and statement

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Appendix

Tabel 1: Descriptive statistics. MA graduates from Aalborg University summer 2018.

Field of study	
Engineering	16.7%
Technology	17.2%
Health	10.5%
Humanities	24.3%
Social Sciences	31.3%
GPA	
10,0 -12	33.5%
8,0-9,9	37.7%
6,0-7,9	20.2%
2,0-5,9	8.6%
Months of student employment	
0	21.2%
1-5	14.8%
6-10	11.4%
11-15	11.5%
16-20	12.8%
21-23	11.6%
24	16.7%
Gap weeks between end of student employment and graduation	
0-4	59.4%
5-17	7.1%
18-30	6.0%
31-52	7.1%
53-103	7.2%
No student employment	13.2%
Average weeks until first graduate employment	
Engineering	10.1
Technology	10.0
Health	11.3
Humanities	11.1
Social Sciences	7.6
Number of graduates	2,080

Note: GPA is reported according to the Danish 7 point grading scale. In comparison with the ECTS grading scale, a grade of 12 corresponds to an A, 10 to a B, 7 to a C, 4 to a D, and 2 to an E. The four GPA groups in this study do not align fully with the ECTS grade boundaries. Gap weeks are calculated only for graduates who were employed during the first year after graduation. This explains the different group sizes between having '0 months of student employment' and having 'no student employment'.