What do student jobs on graduate CVs signal to employers?*

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Abstract Due to the prevalence and important consequences of student work, the topic has seen an increased interest in the literature. However, to date the focus has been solely on *measuring* the effect of student employment on later labour market outcomes, relying on signalling theory to explain the observed effects. In the current study, we go beyond measuring the effect of student work and we examine for the first time what exactly is being signalled by student employment. We do this by means of a vignette experiment in which we ask 242 employers to evaluate a set of five fictitious profiles. Whereas all types of student work signal a better work attitude, a larger social network, a greater sense of responsibility, an increased motivation, and more maturity, only student employment in line with a job candidate's field of study is a signal of increased human capital and increased trainability.

Keywords: Student employment; signalling; hiring chances; vignette study.

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1. Introduction

Combining full-time tertiary education with paid work is a reality for many students in OECD countries. More specifically, 47% of students in Europe and 49% of students in the US work while attending tertiary education (Beerkens, Mägi, & Lill, 2011). The main motivation for students to combine their studies with paid work is the short term financial benefits they receive (Watts & Pickering, 2000). Besides these financial benefits, students also consider other factors when deciding to take on a student job, such as the effect of combining work and studying on their educational attainment[1] and whether the student job enhances their résumé. Given both the high prevalence and potential important consequences of student work, these questions have triggered the interest of the scientific community in recent years. Furthermore, over the past few years, student employment also got the attention of policy makers, with many OECD countries supporting and incentivising students to combine study and work (Alam, Carling, & Nääs, 2015; Baert, Rotsaert, Verhaest, & Omey, 2016). However, to make effective policy decisions, more research on the effects of student work and – more importantly – the underlying mechanisms remains to be done.

Indeed, to date, the literature has focussed on measuring the effect of student work on later employment outcomes. A majority of these studies found a positive effect on labour market outcomes such as employment rates, wages, job quality, and job match quality, both when considering student work in secondary education (Ruhm, 1997; Light, 2001; Hotz, Xu, Tienda, & Ahituv, 2002) and when examining student work in tertiary education (Ruhm, 1997; Light, 2001; Brennan, Blasko, Little, & Woodley, 2002; Hotz et al., 2002; Häkkinen, 2006; Joensen 2009; Geel & Backes-Gellner, 2012; Jewell, 2014; Passaretta & Triventi 2015). Nevertheless, some studies found no effect of student employment on later labour market success (Hotz et al., 2002; Baert et al., 2016, examining student work in secondary education). It is important to note however, that the type and timing of the student work plays a non-negligible role. Multiple studies have shown that student jobs in line with the students' field of study have significantly larger positive effects on later labour market outcomes compared with student work with no relation to the field of study (Brennan et al., 2002; Geel & Backes-Gellner, 2012; Jewell, 2014; Passaretta & Triventi, 2015). Additionally, the timing of the student work (i.e. whether the student job was performed only during summer or also during the academic year) has been shown to be important as well (Baert et al., 2016).

While quantifying the relationship between student work and labour market outcomes is a crucial first step, a question that largely remains unanswered is *why* this relationship exists. However, both for students

[1] See Neyt, Omey, Verhaest, and Baert (2019) for an overview of the literature on the effect of student work on educational attainment.

and educational institutions guiding students in their transition from education to the labour market, understanding the underlying mechanisms of these effects is of crucial importance.

Previous literature has suggested several theoretical mechanisms that could explain the relationship between student work and labour market outcomes, situated both on the demand- and supply-side of the labour market. Supply-side theories, such as human capital theory (Becker, 1964), social network theory (Granovetter, 1973), and screening theory (Stiglitz, 1975) could help explain why students with work experience earn more or why they are more likely to get hired by the same employer where they did their student job.[2] In the context of applying for a job with a different employer (i.e. the context we will focus on in this research), the only relevant theory is, however, signalling theory (Spence, 1973). In the context of a hiring decision, signalling theory argues that employers are confronted with limited information and therefore use the available information on the résumé as signals of unobserved factors (Van Belle, Di Stasio, Caers, De Couck, & Baert, 2018). Following this line of thought, the relationship between student employment and hiring chances could be explained by the signal that is sent to potential employers by including student work in one's résumé.

While some hypotheses on possible signals associated with student work can be made based on theoretical reasoning and the existing literature on the topic (as reviewed in Section 2), the empirical relevance of these potential signals has not yet been tested. Consequently, it is not clear from the existing literature on the topic what exactly is being signalled by student employment and whether these signals are positive or negative. The current study aims to fill this gap in the literature by examining – to the extent of our knowledge for the first time – what exactly is being signalled by student employment revealed in one's résumé. For this purpose, we conduct a vignette experiment among employers in Flanders (the Northern Dutch-speaking region of Belgium), who were asked to evaluate a set of fictitious job candidates who differ in their experience with student employment. We did not only ask the employers to what extent they were willing to invite these candidates for a job interview, but we additionally asked them to rate several statements to unravel what student employment exactly signals to them.

We find that including student work in one's résumé signals a better work attitude, a larger social network, a greater sense of responsibility, an increased motivation, and more maturity. Additionally, only student employment in line with a job candidate's field of study is a signal of increased human capital and increased

[2] Human capital theory (Becker, 1964) argues that student employment allows students to develop both hard, marketable skills and soft, transferable skills such as work attitude, sense of responsibility, and respect towards authority (Ruhm, 1997; Light, 2001; Hotz et al., 2002; Baert et al. 2016). Social network theory (Granovetter, 1973) states that students who combine their education with a student job build a larger network than their peers who do not, which might facilitate their future job search. Screening theory (Sitglitz, 1975) finally claims that employers might use student work as an inexpensive screening device to assert someone's unobservable productivity (Baert et al., 2016).

trainability. These findings are interesting for several reasons. Firstly, they shed light on the mechanisms of why student employment can increase hiring chances, a question which, as stated above, has remained largely unanswered by the academic literature on the subject. Secondly, for recent graduates who are looking for work, these findings indicate which experiences to highlight and, if student work experience is lacking, which signals to compensate for by including other activities in one's résumé. Thirdly, these results are interesting for educational institutions who prepare students to enter the labour market. Informing students about the characteristics employers are looking for and which channels you can use to signal these characteristics might facilitate the transition from education to the labour market. Finally, for policy makers, these findings confirm that student employment could be a valuable experience enhancing the transition from education to the labour market for young people. It therefore seems important to stimulate the combination of work and studies.

While we believe that our vignette experiment is the most adequate way to answer our research question, this research design has some limitations. Firstly, our experiment did not happen under real-life circumstances. This implies that the participants knew they were being surveyed, which might have led to socially desirable answers. Nevertheless, we believe this restraint to be minimised for two reasons. On the one hand, this experiment did not measure opinions or decisions on ethical subjects so there might not necessarily be a socially desirable answer in this case. On the other hand, the participants only assessed a fraction of the vignette universe which means that they did not see all the possible combinations of vignette factors. This made it almost impossible for them to determine what the most socially desirable answers were (see also Van Belle et al. (2018)). Additionally, the fact that participants were aware that they participated in an experiment could also lead to them completing the experiment with less care than they would allocate to a similar task in a real-life setting. Nevertheless, we find meaningful, non-random effects, indicating that our respondents did complete the experiment rigorously. A second limitation of this study is that our results are only to some extent generalisable to settings very different from the one in this study. Indeed we only surveyed a specific sample of employers in a geographically limited region concerning three specific vacancies. Moreover, all profiles graduated from higher education, while it could be the case that student employment is a more or less important signal for lower skilled profiles. We come back to this second limitation in the conclusion.

The remainder of this study is structured as follows. Section 2 gives an expansive overview of the potential signals that could be sent by including student employment in one's résumé as predicted by the economic and sociological literature. Section 3 gives a detailed outline of the experimental setup and data gathering process. The subsequent data analysis is presented in Section 4. Section 5 concludes and proposes directions for future research.

2. Possible signals of student employment

As mentioned in the introduction, the signal sent to prospective employers by revealing a student job in one's résumé may be an important explanation of the effect of student work on later hiring chances. Indeed, when employers screen a set of job applicants, they use signals to form an idea on unobservable characteristics. Therefore, signalling will play an important part in the initial stage of the hiring process, which is in itself a crucial step towards employment. However, it remains unclear what exactly is being signalled by student work experience, as student work can send a number of different signals – both positive and negative – to prospective employers. Based on economic and sociological theory, in the next four paragraphs, we identify several possible signals student employment may send to potential employers. We cluster these potential signals in four overarching groups of signals, the latter of which are closely linked to four theories. It is important to note that these signals are not mutually exclusive, i.e. student employment could signal all, some, or none of the elements proposed below.

Firstly, human capital theory (Becker, 1964) has been applied by several scholars to explain the relationship between student employment and later labour market outcomes (Ruhm, 1997; Hotz et al., 2002; Baert et al., 2016). To the extent that the effect of student work on an individual's human capital (an individual's skills and knowledge) is directly observable by potential employers, this might directly alter the job candidate's hiring chances. However, it could also be the case that the effect of student employment on one's skills and knowledge is not (entirely) directly observable, but that employers nevertheless believe that holding a student job affects the job candidate's skills and knowledge. Participating in student work could, in other words, be a ***signal of human capital*** to employers, which in turn may influence their hiring decision. Indeed, student employment could constitute *a signal of knowledge* or *a signal of skills* to future employers. Further, it is likely that the extent of these signals of human capital depends on the type of student job. More specifically, employers may assume that student work in line with the student's field of study has a different effect on this student's human capital compared to student work with no relation to this student's field of study (Brennan et al., 2002; Geel & Backes-Gellner, 2012; Jewell, 2014; Passaretta & Triventi, 2015). Finally, the timing of the student job might have an impact as well. As stated by the zero-sum theory (Becker, 1965; Kalenkoski & Pabilonia, 2009; 2012) every hour spent on student work is necessarily one hour spent less on study activities. Therefore, the human capital accumulated by performing a student job could be (fully) offset – or even be overcompensated – by the human capital foregone by not studying. This could be particularly true when the student job was performed during the academic year rather than during the summer holidays.

Secondly, following social network theory (Granovetter, 1973), work experience as a student may lead to an enlargement of this student's social capital. This may consist of establishing personal relationships and

acquiring valuable labour market information which in turn may facilitate the job finding process (Häkkinen, 2006; Geel & Backes-Gellner, 2012; Baert, Neyt, Omey, & Verhaest, 2017). Like human capital, this social capital could have a direct effect on a student's hiring chances, if this student would exploit her/his social network in the job application process. However, again as with human capital, there could also be an indirect effect through the ***signal of social capital***. Indeed, if employers believe that students who held a student job have enhanced social skills and a larger social network – factors which could help the candidate in the execution of their tasks – this could positively influence their hiring decision.

Thirdly, queuing theory (Thurow, 1975) argues that the most relevant skills for a job are obtained via on-the-job training. In order to minimise their training costs, employers will look for the most trainable applicants (i.e. fast learners who will be easy to teach). For this means, employers rank applicants based on their (perceived) trainability, with the most (least) trainable applicants at the top (bottom) of the ranking. Only applicants above an imaginary threshold within this ranking will be taken into consideration and will be invited for a job interview (Di Stasio, 2014; Di Stasio & Van De Werfhorst, 2016). However, the trainability of an applicant is not directly visible from her/his résumé. Nonetheless, an individual's trainability might be closely linked to her/his level of education and previous on-the-job experience, both elements which are influenced by whether an applicant worked as a student. Therefore, student employment could be a ***signal of trainability***.

Fourthly, student employment might be a ***signal of attitude***. For example, employers may interpret student employment as a *signal of motivation* (Joensen, 2009) or *a signal of ambition* (Beerkens et al., 2011). This is even more applicable for student work performed during the academic year because it shows that the student was motivated/ambitious enough to (successfully) combine full-time education with working (Baert et al., 2017). Further, having some previous work experience in the form of a student job could send a *signal of greater maturity* (Piopiunik, Schwerdt, Simon & Woessmann, 2018), *a signal of a larger sense of responsibility*, and *a signal of more respect towards authority* (Baert et al., 2016). Additionally, prospective employers could have the perception that recent graduates with some student work experience had the opportunity to develop *the right work attitude*, which their colleagues without this experience did not. As all of these important characteristics are difficult to infer from a job candidate's résumé, it is likely that employers will resort to signals sent by the applicant, among which the inclusion of student work in their résumé (Archer & Davison, 2008; Lowden, Hall, Elliot, & Lewin, 2011).

3. Experimental design

To quantify the importance of the abovementioned potential signals of student work, we conducted a vignette experiment. A vignette experiment is an example of a factorial survey (Rossi & Nock, 1982; Auspurg & Hinz, 2014) and is often used to study human judgements and beliefs (Jasso, 2006). Moreover, vignette experiments are nowadays commonly used to study hiring decisions (Baert & De Pauw, 2014; Di Stasio, 2014; Liechti, Fossati, Bonoli, & Auer, 2017; Van Belle et al., 2018; Van Borm & Baert, 2018; Damelang, Abraham, Ebensperger, & Stumpf, 2019; Van Belle, Caers, De Couck, Di Stasio, & Baert, 2019).

In a vignette experiment, participants are asked to make a series of judgements based on a set of fictitious descriptions (vignettes), which vary randomly or systematically on a pre-defined number of factors (vignette factors). When used to study hiring decisions, these vignettes typically consist of résumés of fictitious job candidates, varying on a set of characteristics.

The main advantage of vignette experiments, as opposed to non-experimental methods, is that in a vignette experiment, the correlation between different vignette factors can be minimised to practically zero, allowing for a causal interpretation of the relation between vignette factors and outcomes of interest (Auspurg & Hinz, 2014). Furthermore, vignette experiments also have an advantage compared with résumé-based audit studies, i.e. field experiments, where two sets of false résumés are sent to real job openings (only varying on the treatment of interest). That is, it is possible to ask the participants to make several judgements about the job candidates as opposed to a binary hiring decision. Next to this, much relevant additional information about the participants themselves can be collected. However, while studies have shown social desirable answers to be less of a problem for vignette experiments as opposed to direct surveys (Auspurg, Hinz, Liebig & Sauer, 2014), the fact that participants are aware that they are partaking in an experiment has potential caveats, as discussed in the introduction.

3.1. Vignette design

As mentioned above, the vignettes used in vignette experiments to study hiring decisions, typically consist of résumés of fictitious job candidates. In our experiment each participant was shown a set of five vignettes (a 'deck'). Each vignette contained brief information on one fictitious job candidate and varied in five vignette factors over a defined number of levels (vignette levels), meaning that there were five characteristics of the

fictitious candidate that could vary among the different vignettes.[3] An overview of the vignette factors and corresponding levels can be found in Table 1.

< Table 1 about here >

The most important factor in our vignettes is the one concerning student employment performed during tertiary education. We chose to not only make a distinction between candidates with and without student work experience, but also with respect to the period in which student employment was performed and whether the student job was in line with the applicant's field of study. This resulted in four vignette levels for this particular factor (i.e. none, during the summer holidays with relation to field of study, during the summer holidays without relation to field of study, during both the summer holidays and the academic year without relation to field of study). The decision for these four levels rather than a binary variable was motivated, first and foremost, by the fact that we can expect different signals of student employment depending on the job content and timing. Moreover, the aforementioned literature also often took (one of) these different aspects of student employment into account (for example Brennan et al., 2002; Geel & Backes-Gellner, 2012; Jewell, 2014; Passaretta & Triventi, 2015; Baert et al., 2016; Baert et al., 2017). In addition, we believe that using these four levels instead of a factor with only two levels, mimics a real-life hiring decision more closely. Besides the student employment factor, the other factors varying across vignettes were (i) gender (male or female), (ii) delay in study duration in tertiary education (none or one year), (iii) obtained honours in tertiary education (none, cum laude, magna cum laude, or summa cum laude), and (iv) extra-curricular activities (none, sport activities, fraternity, or volunteering). Again, these factors and their levels were chosen based on a review of the relevant literature (Di Stasio, 2014; Pinto & Ramalheira, 2017; Baert & Vujić, 2018) and aimed to make the fictitious hiring decisions mimic real-life as closely as possible. Next to this, we chose our factors and their levels so that no implausible or illogical combinations of vignette factors could occur (Auspurg & Hinz, 2014).

All possible combinations of the vignette levels resulted in a total vignette universe of 256 (2 × 2 × 4 × 4 × 4) vignettes. In other words, the full factorial design of our experiment requires a minimum of 256 runs for

[3] This choice for five vignette factors was driven by the findings of Sauer, Hinz, Auspurg, and Liebig (2011). They argue that using fewer than five vignette factors would lead to respondents having to evaluate very similar vignettes, resulting in respondents' fatigue and boredom. Moreover, we believe that using less than five vignette factors would cause the experiment to deviate too much from real-life hiring decisions, where HR personnel and employers are confronted with the assessment of job applicants differing in several personal characteristics. Additionally, following the research of Van Belle et al. (2018), we decided to use not more than five vignette factors to minimise the bias due to participants' fatigue, as they had to evaluate five different job candidates and had to assess several statements about each fictitious job candidate related to the potential signals of student employment. This decision to stick to the minimum of five factors is also in line with Box, Hunter, and Hunter (1978), who argue to keep the number of vignette factors to a minimum to avoid inconsistent judgements due to an over-complex research design. It is important to note that the choice to limit the vignette factors to five could result in an exaggeration of the effect of any of the factors on the outcome. The aim of our paper is nevertheless not to quantify the effect sizes, but to determine what is being signalled by student employment. Additionally, the importance of each of the signals as well as the importance of the other vignette factors is being assessed using the same framework so that their relative importance can be compared.

each of our three chosen job vacancies (*infra* Subsection 3.2).[4] As this is not realistic due to participants' fatigue, we instead opted for a D-efficient fractional factorial design to draw vignettes out of the vignette universe (Box et al., 1978; Auspurg & Hinz, 2014). A D-efficient design selects these combinations of vignette levels that have the most statistical power, resulting in a more efficient design where one needs fewer vignette judgments (i.e. vignettes per participants, participants, or a combination of both) to achieve the same amount of statistical power as a less efficient design. We followed the algorithm proposed by Kuhfeld, Tobias and Garrat (1994) as described in Auspurg and Hinz (2014) to select 65 vignettes out of the vignette universe,[5] which resulted in a substantially high D-efficiency of 99.882.[6]

After the 65 vignettes were selected, these vignettes were grouped in 13 decks of five vignettes using a deliberate rather than a random blocking technique to avoid that parameters become confounded within the vignette decks. Technically, this is realised by treating the deck number as a factor that needs to be orthogonalised in the experimental design (Kuhfeld, 2010; Auspurg & Hinz, 2014). An overview of the resulting design is reported in Table A-1 in Appendix A. To assure maximum randomisation, each participant was first randomly assigned to one of three job descriptions (*infra* Subsection 3.2). Subsequently, each participant was randomly allotted to one of the 13 decks in such a way that the same 13 decks could be evaluated with the same probability for each of the three vacancies. Furthermore, the order in which the five candidates were presented to the participants varied randomly within decks. Looking at the resulting correlations (reported in Table A–2 in Appendix A) between the different vignette factors for the final sample, it is clear that our D-efficient randomisation was successful, as all remaining correlations are fairly small and not significantly different from zero

3.2. Data collection

The vignette experiment was conducted via an online tool and invitations to participate were sent via email to a total of 2,148 professionals familiar with real-life hiring processes (referred to as employers from here

[4] Ideally, we want each candidate to be evaluated by at least 5 participants, as a single judgement will not be independent of the participant. This means that we need at least 256x5x3 = 3,840 observations in order to estimate the full factorial design.

[5] To select these 65 vignettes, we used the freeware macro %Mktex developed by Warren Kuhfeld (2010). Taking into account the full factorial (i.e. the number of factors and associated levels), the parameters one wants to identify, and the factorial fraction (i.e. the number of vignettes one wants to use in the experiment), this algorithm first builds a set of potential designs and subsequently searches for the design with the highest D-efficiency (Auspurg & Hinz, 2014).

[6] A D-efficient design enhances statistical precision by maximising both orthogonality and level balance (i.e. equal frequencies of all levels) (Auspurg & Hinz, 2014). Formally, the D-efficiency, given by the following formula, is maximised (Kuhfeld et al., 1994):

$$D-efficiency = 100 * \frac{1}{n_s * |(X'X)^{-1}|^{\frac{1}{p}}} = 100 * (\frac{1}{n_s} * |X'X|^{\frac{1}{p}}),$$

where X is the vector of the vignette variables, n_s indicates the number of vignettes in the sample and p presents the number of regression coefficients (including the intercept) in the analysis of the experimental data. For more information, we refer to Auspurg and Hinz (2014).

on) living in Flanders. These employers were part of a larger list of individuals who selected themselves into a database of people interested in research in human resources (in response to calls online and via email). From this larger database, those individuals who had indicated in an earlier study (see Van Belle et al., 2018) to be familiar with the hiring process were withheld to participate in the current survey experiment. These employers came from all Flemish provinces and from various social backgrounds, providing a database not biased by geographical location or social class. All employers declared to be responsible for the recruitment and selection of staff in their organisation. The data collection took place over the course of May 2018.[7] We sent out one initial invitation, followed by one reminder six days later. The invitation to participate, the reminder, and the questionnaire itself were all administered in Dutch. After closing the online questionnaire, 242 of the 2,148 employers (hereafter: 'the participants') completed the entire experiment, yielding a common response rate of 11.3%.[8] As they each rated five vignettes, this resulted in a total of 1,210 observations (242 × 5).

In the invitation it was explained to the participants that they were selected to participate in a scientific study on hiring decisions in Flemish enterprises, deliberately remaining vague about the purpose of the study, as to not bias the participants. The participants were assured of the confidentiality of their responses and the voluntary nature of participation in this study. They were given the option to have their contact information removed from the database and were provided with an email address they could use to transmit questions or remarks.[9] Finally, it was mentioned that the experiment would take at most 15 minutes and that all responses were of great value for the scientific knowledge on the hiring process.

At the beginning of the survey experiment, the participants received clear experimental instructions. They were informed about their fictitious position as head of recruitment in a made-up firm. In this role, they had to make hiring decisions for one of three possible vacancies: project engineer, physiotherapist, or human resources consultant. We selected these vacancies as these were the most frequently occurring vacancies – requiring tertiary education and no previous experience – on the job portal of the Flemish Public Employment Service (PES). Next to this, we selected vacancies for jobs in three very distinct sectors, to improve the generalisability of our experiment. Every participant only got to see one of the three vacancies, following random assignment. Each vacancy was constructed in a similar way and mentioned the required capabilities of the potential hires. The requirements for each of the three vacancies are reported in Table A–3 in Appendix

[7] To rule out misconceptions and uncertainties we performed a pilot study with twelve people of different ages and backgrounds, which did not reveal any important issues with the vignette design.

[8] In order to maximise the response rate, we put in place an incentive to participate by means of three gift vouchers of 50 euro (a total value of 150 euro) that were distributed among participants in the form of a lottery.

[9] A total of 15 participants contacted us with questions and/or remarks. All of their questions were answered within three hours. There were no critical incidents.

A. Eventually, out of the 242 participants, 103 were shown the vacancy of physiotherapist, 70 participants received the job description for a human resources consultant, and 69 participants were shown the vacancy of project engineer.[10]

After the participants were shown the vacancy, they were told that the five candidates they had to evaluate were pre-assessed by an administrative secretary. Additionally, it was asserted that the candidates were all suitable for the position and that a tabulated summary[11] of the most important characteristics (i.e. the five vignette factors as described in Subsection 3.1) of each candidate could be found on the following screens. Each screen contained the summarising table of a candidate, as well as a series of twelve statements for the participant to rate with that candidate in mind. It was always possible to scroll back to the table with the candidate's characteristics. Moreover, the participants could jump between the different candidates and adjust their ratings when desired. All statements were rated on a seven-point Likert scale, by means of which the participants indicated on a range from one (completely disagree) to seven (completely agree) to what extent they (dis)agreed with the proposed statement.

The first two statements surveyed the probability with which the participants would (i) invite the applicant for a job interview (hereafter: 'interview scale') and (ii) hire the applicant for the job (hereafter: 'hiring scale'). These two statements thus allow us to replicate (and expand) the existing correspondence experiments. Next, ten additional statements had to be rated on the same, seven-point Likert scale. These statements surveyed the importance of the possible signals student employment sends to prospective employers, stemming from the economic and sociological literature on student employment as described in Section 2. An overview of the ten statements is reported in Table 2. The first two statements were linked to the *signal of human capital* as derived from human capital theory. More concretely, we asked the participants whether they thought the candidate had (i) enough knowledge and (ii) enough skills in order to perform properly in the job. Next, linked to social network theory and to capture a *signal of a social capital*, we questioned participants whether they thought that the candidate had a strong enough social network to perform properly in the job. Subsequently, to question the *signal of trainability* derived from queuing theory, we asked participants whether they thought that the person was adequately trainable in order to perform properly in the job. Finally, six statements tested for a *signal of attitude*. Here, the participants had to answer whether they thought that the candidate had (i) the right work attitude, (ii) enough maturity, (iii) enough

[10] This uneven distribution is due to the fact that each participant was randomly assigned a vacancy at the moment of distribution of the survey. As the response rate was not equal across vacancies, this resulted in a larger share of participants being shown the vacancy of physiotherapist.

[11] We chose to present the vignettes in a tabulated way because, compared to text vignettes, "tabular vignettes might be better suited to decision tasks (i.e. résumés or many consumer product descriptions), which frequently involve lists of decision criteria" (Auspurg and Hinz 2014: p. 70).

responsibility, (iv) enough respect towards authority, (v) enough motivation, and (vi) enough ambition to perform properly in the job. In some of the analyses reported below, the statements linked to the same signal are combined into one scale, i.e. the human capital scale (Cronbach's alpha for internal consistency; $\alpha = 0.805$), the social capital scale ($\alpha = 1.000$), the trainability scale ($\alpha = 1.000$),[12] and the attitude scale ($\alpha = 0.903$), respectively.

< Table 2 about here >

As a final step, the participants were asked to leave their fictitious role as a recruiter and complete a post-experimental survey in their own identity. We first wanted to assure that all our participants were indeed familiar with the real-life hiring process. To do this, we asked them to indicate on a seven-point Likert scale to what extent they felt professionally capable of making the earlier hiring decisions. We use the answers to this question in a robustness test in the next section. In addition, they were asked to provide some personal information, including their gender, age, nationality, highest obtained degree, and work experience as a recruiter. Finally, we asked them about their own experience with student employment. Table 3 gives the descriptive statistics of these characteristics for our sample of participants. In addition, this table shows the mean of these participant characteristics separately for participants who were asked to rate candidates with the four different levels of student employment experience. We performed an ANOVA analysis, which showed that none of these means were significantly different from each other. This again indicates that our randomisation was successful, in line with the correlations in Table A–2.

< Table 3 about here >

From Table 3, it is clear that our participants matched the target population of employers. The vast majority of participants (81.4%) indicated to feel competent to make the prompted hiring decisions. Moreover, 21.6% even felt completely competent. Another fact demonstrating the credibility of our participants, was their experience within the field. A great majority of 72.3% indicated to have more than five years of experience in recruiting. Nevertheless, we cannot claim that our sample is representative for the population of employers in Flanders. To get a better insight into how our sample compares with the population of employers, we compared some descriptive statistics of our sample with the sample of employers in the European Social Survey, which can be found in Table A–4 in Appendix A. In general, our sample is slightly more likely to be male (57.0% in our sample compared to 41.8% in the ESS), on average eight years older, and somewhat higher educated than the employers in the representative sample of the ESS (91.1% in our sample completed tertiary education compared to 78.4% in the ESS).

[12] For both the social capital and trainability scales, only one statement was used.

4. Results

The data collected in our vignette experiment is used to answer two questions. Firstly, in Subsection 4.1, we examine whether student employment, when shown on a résumé, affects one's hiring chances because of its signal of unobservable characteristics to prospective employers. In other words, we look at whether our vignette experiment is able to replicate the findings of earlier correspondence experiments. Secondly, and more importantly, in Subsection 4.2, we investigate what exactly is signalled by student employment.

4.1. The effect of student employment on hiring chances

To have a first idea of the effect of student work experience on later hiring chances, we split our sample of fictitious job candidates into two groups: those who had student work experience and those who had not. The bar charts left of the vertical line in Figure 1 show the average rating of the fictitious job candidates on the interview and hiring scales. It becomes clear that a job candidate with student work experience (compared with a job candidate without such experience) has a higher chance of both being invited for a job interview (difference = 0.306, p = 0.000) and being hired for the position (difference = 0.195, p = 0.002).[13]

< Figure 1 about here >

Given our experimental design, this finding is in itself already very informative on the (positive) signalling value of student employment. As a next step, we examine the effect of student employment on the probability of being invited for a job interview (or being hired for the position) while controlling for several candidate and participant characteristics. For this means, we estimate the following equation:

$$Y = \alpha + \beta CC + \gamma PC + \delta SW + \varepsilon \qquad (1)$$

SW reflects a job candidate's student employment experience, either in one dummy variable or in three dummy variables for four levels (*supra*, Subsection 3.1). CC (PC) is the vector of candidate (participant) characteristics, including the order in which the candidates were presented. Y is the dependent variable and can be either the interview or the hiring scale. Outcome variables in all regressions were standardised to have mean zero and standard deviation one. β, γ, and δ are the vectors of parameters associated with CC, PC, and SW. Lastly, α is the intercept and ε is the error term which is corrected for clustering of the

[13] To check whether the differences are significantly different from zero, we ran t-tests.

observations at the participant level.[14] In later steps, we will introduce interactions between SW on the one hand, and CC (PC) on the other hand to analyse what moderates the relationship between student employment and hiring outcomes.

The results of this linear regression[15] with the interview scale as outcome is reported in the first column of Table 4. Again, it is clear that having student work experience has a significantly positive effect on the probability of being invited for a job interview. Additionally, having a delay in study duration negatively impacts interview invitations, while having obtained higher honours or mentioning extra-curricular activities on one's résumé positively impacts this outcome. Regarding the characteristics of the participants, lower educated participants are more likely to invite a job candidate for an interview.

< Table 4 about here >

Column 2 (3) report similar regressions, where the dummy of student employment is interacted with the candidate (participants) characteristics. As none of these interaction terms is significantly different from zero at the 95% confidence level, this indicates that the effect of student employment is not moderated by any of the candidate or participants characteristics. This finding might be slightly counterintuitive. Indeed, we might have expected student employment to be even more positive for those applicants graduating with higher honours or who reported extra-curricular activities, as this might have taken away any suspicion that the time spent working had a negative influence on educational outcomes.

As stated in Subsection 3.1, we introduced four different levels of the variable 'student employment' in our vignettes. Column 4 of Table 4 show the results of the regressions where these different types of student employment are introduced separately. A first interesting observation is that student employment that took place both during the summer and the academic year does not increase the probability of being invited to a job interview as opposed to no student employment. This suggests that employer's perceptions are guided by zero-sum theory as introduced in Section 2. Indeed, the results could point to the fact that employers believe that student work during the academic year leads to lower educational attainment or lower participation in extra-curricular activities and, as a result, does not make a candidate more attractive than a similar candidate without student work experience. Note however that following zero-sum theory, we would also have expected to find significant interaction effects between student work and educational attainment, which, as reported above, we do not find. We come back to this when looking at the specific signals of student

[14] We relax the assumption that the observations are independent, but instead assume that observations are independent across clusters (i.e. participants), but not within clusters. Practically, this is done by computing the cluster-robust variance matrix as specified in Cameron and Miller (2015).

[15] We estimate Equation (1) using OLS, as this provides us the most intuitive results. By means of a robustness test we have re-estimated Equation (1) using an ordered logit model, and our results are robust to the use of this estimator. The results of the ordered logit estimations are available upon request.

employment. Next, both student employment during summer holidays with and without a relation to the field of study increases the probability of being invited to a job interview, compared with no student work experience. Nevertheless, and as predicted by the existing literature, the effect of student employment in relation to the field of study is more than double the effect of student employment unrelated to the field of study ($F(1, 241) = 10.49$, $p = 0.001$).

Finally, remember that we had three different fictitious job vacancies that participants were asked to fill. Column 5 of Table 4 report the results of regression analyses where we interact our variable of interest, i.e. whether someone reported student employment, with the different vacancies, where the vacancy of project engineer is taken as the reference category. While student work experience appears to be beneficial when applying for a job as a project engineer, we find that the effect of student work experience is not significant when applying for the position of physiotherapist ($\beta = 0.099$, $p = 0.105$) or for the position of HR consultant ($\beta = 0.099$, $p = 0.222$). Moreover, the differences in the effect of student employment for the vacancy of project engineer and the vacancies of physiotherapist and HR consultant are statistically significant, even though this difference is only marginally significant for the vacancy of HR consultant. One possible, albeit speculative, explanation for why student employment could be less important for physiotherapists, is that skills necessary for this function are fairly job-specific compared to the other vacancies. Moreover, the training for physiotherapists is likely to include a number of internships, which could reduce the importance of student employment.

The results of similar estimations with the hiring scale as the outcome of interest are reported in Table A-5 in Appendix A. It suffices to say that the results are largely in line with the findings for the interview scale, as discussed above, albeit that the relation of student employment with hiring is less strong than with the interview probability.

4.2. The signal of student employment

In the previous subsection, and in line with the literature, we found clear evidence that student employment sends a positive signal to prospective employers. In this subsection, we answer the central research question of this paper and examine what exactly is signalled by student work experience on one's résumé. As in Subsection 4.1, we start by plotting the average scores on the ten statements regarding possible signals of student employment. This is demonstrated in the bar charts on the right of the vertical line in Figure 1 for both students with and without student employment experience. As for the hiring and interview scale, we again used t-tests to test whether these differences in means were significantly different from zero. It is clear that candidates with student work experience score, on average, better on all ten statements as compared to candidates who did not have this experience. These differences were statistically

significant for all statements apart from the statement concerning the knowledge of the fictitious candidate. In other words, employers had the perception that candidates with student work experience had significantly more skills, had a significantly larger social network, were easier to train, and had a better work attitude, maturity, sense of responsibility, respect towards authority, motivation, and ambition than comparable candidates without student work experience. Looking at the size of the differences, the differences between both groups of candidates seem upon first glance largest for the signals of attitude, and especially for the statements related to 'work attitude', 'sense of responsibility', and 'maturity'.

Again, we examine these effects of student employment while controlling for both candidate and participant characteristics. We do this by re-estimating Equation (1), but using the possible signals of student employment as the outcome variable, rather than the interview (or hiring) scale. The results of this exercise are reported in Table 5. Column 1, 3, 5, and 7 of Table 5 show the results – with each of the scales as an outcome – when estimating the effect of student employment with one dummy variable. We find that student employment has a large positive effect on the human capital, social capital, and attitude scale; and a smaller and marginally significant effect on the trainability scale. When looking at the individual statements, as reported in Table A–6 in Appendix A, we find that the effect on the human capital scale is solemnly driven by the positive signal of skills. For the attitude scale, the rating on all statements is positively influenced by including student employment in one's résumé, but we find by far the largest effects for work attitude, followed by sense of responsibility, motivation, and maturity. These findings are in line with the evidence from Figure 1. It is important to note that the order in which the candidate was presented has a significant effect on all of these outcomes (but not on the interview scale as reported in Subsection 4.1). This effect is nevertheless independent of the effects of the other candidate characteristics, as vignettes were presented in a random order.[16]

To put these findings in perspective, we compare the effect of student employment with the effect of having obtained summa cum laude (seen as a signal of hard skills, in, e.g., Pinto & Ramalheira, 2017, Baert & Verhaest, 2018) and with the effect of volunteering (seen as a signal of soft(er) skills in, e.g., Baert & Vujić, 2018). The effect of student employment is about two-thirds of the effect of graduating with summa cum laude for the hard signal of skills. For the signals of soft skills, the effects of student employment on the signal of work attitude is of the same order as the effect of volunteering, while the effect is about two-thirds of that of volunteering for the signal of motivation and the signal of ambition. The effect of student employment on maturity, respect for authority, and sense of responsibility is about half of that of volunteering. Finally, the

[16] Table A-7 in Appendix A shows the average rating for each of the 12 statements by order of the candidate to get a better insight into this ordering effect. We find evidence for an anchoring effect, where the candidate who is presented first gets a worse rating on average than the subsequent candidates. Nevertheless, this does not influence any of our key findings due to the random order in which candidates were presented within a deck.

effect of student employment on the signal of social capital is about one-third of that of mentioning volunteering in one's résumé.

< Table 5 about here >

As before, we look whether the type and the timing of the student employment impacts these findings. Columns 2, 4, 6, and 8 of Table 5 show the regressions results when estimating the effect of student employment with three dummy variable for four levels. Interestingly, only student employment during the summer and in line with the field of study appears to be better than no student employment with regards to the human capital scale. This finding is in line with human capital theory, as student employment in line with the field of study should provide students with better opportunities to enhance their job-relevant skills. It is also in line with zero-sum theory, given that employers do not value student work during the academic year more than no student work. This again suggests that employers believe that student work during the academic year must interfere with study time and thus negatively impacts educational attainment. Relatedly, for the trainability scale, again only student employment during the summer and in line with the field of study appears to send a positive signal of trainability, as opposed to no student employment. When looking at social capital and attitude scales, all types of student work are better than no student work for the signals related to these theories. These findings are confirmed when we look at the individual statements as outcomes rather than the four scales, as reported in Table A–8 in Appendix A.

As mentioned in Subsection 3.2, we asked the participants whether they felt competent to make the requested hiring decisions. As a robustness test, we exclude participants who only scored this statement a four or less (on a seven-point Likert scale) and therefore indicated that they did not feel (very) competent to make the hiring decisions. This resulted in the exclusion of 45 participants or 225 (45 × 5) vignettes. The results of this exercise are reported in Table A–9 in Appendix A. Our results are robust to the exclusion of these participants.

In a last step, we run a multivariate mediation model in line with Hayes (2013) and Van Belle et al. (2018) to explore the mediating role of the different signals in explaining the effect of student employment on the possibility to be invited to a job interview. By including all different signals in the mediation model jointly, we are able to examine which of the signals are the dominant mechanisms driving the effect of student employment on one's hiring chances. The mediation model, as well as the associated results are discussed and presented in Appendix B.

5. Conclusion

In this study we answered the question what student employment revealed in one's résumé exactly signals to prospective employers. For this means, we conducted a vignette experiment where we asked employers not only to make fictitious hiring decisions, but also to indicate to what extent they agreed with several statements linked to possible signals that could be sent by including student work in one's résumé. These possible signals were chosen on the basis of a thorough review of existing theories and literature concerning student employment and later labour market outcomes and can be separated into four main groups: signals of (i) human capital, (ii) social capital, (iii) trainability, and (iv) attitude.

In line with previous studies finding a positive effect between student employment and labour market outcomes, we find that student work increases the probability of being invited for a job interview (and the probability of being hired for the job). However, this effect is only present when student work is done during the summer only (and not when it is combined with study activities during the academic year). Next – and more importantly – we empirically quantified the signals student employment sent to prospective employers. Concerning these signals, we again found that there exist remarkable differences between different types of student work experience. Any type of student work experience allows job candidates to signal that they possess a better work attitude, a larger sense of responsibility, more maturity, an increased motivation, and a larger social capital. Additionally, we find that student employment does not signal more knowledge and especially not when this student employment was performed during the academic year. Moreover, only student work in line with one's field of study is a positive signal of increased skills and trainability. In order to give an idea on the practical significance of these findings, we compared the relative importance of the effect of student employment on these signals with the effect of other – more established – vignette factors (i.e. graduating summa cum laude for the signals of hard skills, and voluntary work for the signals of soft skills). These comparisons indicate that the findings are not only statistical, but also practically significant.

This study innovates in being – to the extent of our knowledge – the first to quantify in a causal way what exactly is being signalled by student employment, therefore offering a potential explanation for the effect of student employment on hiring probabilities. In doing so, we fill a gap in the existing literature which has mainly focused on measuring the effect of student work on later labour market outcomes. Next to being relevant from an academic point of view, our results are also socially relevant. Indeed, to give correct advice to students, and to design an adequate policy response, it is not only crucial to know what the effect of student employment experience is on hiring chances, but also what exactly is signalled by this experience. This knowledge can be relevant in the context of school-to-work programs implemented by governments

and educational institutions, who can inform students regarding the benefits of student employment, the characteristics employers are looking for and how to use student employment to signal these characteristics. More concretely, our findings indicate what students with and without student employment experience should highlight in order to maximise the positive signal send by their résumé. Firstly, job applicants with student work experience could benefit from highlighting how this experience has increased their (job-specific) knowledge. For applicants who performed student work during the academic year, it could be important to signal that this did not get in the way of their academic performance (see Baert, Marx, Neyt, Van Belle & Van Casteren, 2017). For job applicants without student work experience on the other hand, it might be beneficial to underscore different experiences that provided them with the necessary work attitude and social capital.

We end this article by emphasising the need for more systematic research into student employment. Indeed, as discussed in the introduction, we only surveyed a specific sample of employers concerning specific fictitious candidates to fill three specific vacancies. Our results are therefore not easily generalisable to settings beyond this specific set-up. The large prevalence of student work and the increased interest in the subject, both from an academic and policy point of view, justify further research into the topic.

References

Alam, M., Carling, K., & Nääs, O. (2015). The effect of summer jobs on post-schooling incomes. *Evaluation Review, 39*(3), 339–359.

Archer, W., & Davison, J. (2008). *Graduate employability: What do employers think and want.* London: Council for Industry and Higher Education.

Auspurg, K., & Hinz, T. (2014). *Factorial Survey Experiments*. Thousand Oaks: Sage.

Auspurg, K., Hinz, T., Liebig, S., & Sauer, C. (2014). The factorial survey as a method for measuring sensitive issues. In *Improving survey methods: Lessons from recent research* (137–149). New York: Routledge.

Baert, S., & De Pauw, A. (2014). Is ethnic discrimination due to distaste or statistics? *Economics Letters, 125*(2), 270–273.

Baert, S., Marx, I., Neyt, B., Van Belle, E., & Van Casteren, J. (2018). Student employment and academic performance: An empirical exploration of the primary orientation theory. *Applied Economics Letters*, *25*(8), 547–552.

Baert, S., Neyt, B., Omey, E., & Verhaest, D. (2017). Student work, educational achievement, and later employment: A dynamic approach. *IZA Discussion Paper Series*, *no. 11127*.

Baert, S., Rotsaert, O., Verhaest, D., & Omey, E. (2016). Student employment and later labour market success: No evidence for higher employment chances. *Kyklos, 69*(3), 401–425.

Baert, S., & Verhaest, D. (2018). Work Hard or Play Hard? Degree Class, Student Leadership and Employment Opportunities. *IZA Discussion Paper Series, no. 11971*.

Baert, S., & Vujić, S. (2018). Does it pay to care? Volunteering and employment opportunities. *Journal of Population Economics, 31*(3), 819–836.

Beerkens, M., Mägi, E., & Lill, L. (2011). University studies as a side job: Causes and consequences of massive student employment in Estonia. *Higher Education, 61*(6), 679–692.

Becker, G. S. (1964): *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: National Bureau of Economic Research.

Becker, G. S. (1965). A theory of the allocation of time. *Economic Journal, 75*(299), 493–517.

Brennan, J., Blasko, Z., Little, B., & Woodley, A. (2002). *UK Graduates and the Impact of Work Experience*. London: HEFCE.

Box, G. E., Hunter, W. G., & Hunter, J. S. (1978). *Statistics for experimenters*. New York: Wiley.

Cameron, A. C., & Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, *50*(2), 317–372.

Damelang, A., Abraham, M., Ebensperger, S., & Stumpf, F. (2019). The hiring prospects of foreign-educated immigrants: A factorial survey among German employers. *Work, Employment and Society*, *33*(5), 739–758.

Di Stasio, V. (2014). Education as a signal of trainability: Results from a vignette study with Italian employers. *European Sociological Review, 30*(6), 796–809.

Di Stasio, V., & Van De Werfhorst, H. G. (2016). Why does education matter to employers in different institutional contexts? A vignette study in England and the Netherlands. *Social Forces, 95*(1), 77–106.

Geel, R., & Backes-Gellner, U. (2012). Earning while learning: When and how student employment is beneficial. *Labour, 26*(3), 313–340.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360–1380.

Häkkinen, I. (2006). Working while enrolled in a university: Does it pay? *Labour Economics, 13*(2), 167–189.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford.

Hotz, V. J., Xu, L. C., Tienda, M., & Ahituv, A. (2002). Are there returns to the wages of young men from working while in school? *Review of Economics and Statistics, 84*(2), 221–236.

Jasso, G. (2006). Factorial survey methods for studying beliefs and judgments. *Sociological Methods and Research, 34*(3), 334–423.

Jewell, S. (2014). The impact of working while studying on educational and labour market outcomes. *Business Economics Journal*, *5*(3), 1–12.

Joensen, J. S. (2009). Academic and labor market success: The impact of student employment, abilities, and preferences. *SSRN Electronic Journal, no. 1352077.*

Kalenkoski, C. M., & Pabilonia, S. W. (2009). Does working while in high school reduce US study time? *Social Indicators Research*, *93*(1), 117–121.

Kalenkoski, C. M., & Pabilonia, S. W. (2012). Time to work or time to play: The effect of student employment on homework, sleep, and screen time. *Labour Economics*, *19*(2), 211–221.

Kuhfeld, W. F. (2010). *Statistical graphics in SAS: An introduction to the graph template language and the statistical graphics procedures*. SAS Publishing.

Kuhfeld, W. F., Tobias, R. D., & Garratt, M. (1994). Efficient experimental design with marketing research applications. *Journal of Marketing Research*, *31*(4), 545–557.

Liechti, F., Fossati, F., Bonoli, G., & Auer, D. (2017). The signalling value of labour market programmes. *European sociological review, 33*(2), 257–274.

Light, A. (2001). In-school work experience and the returns to schooling. *Journal of Labor Economics, 19*(1), 65–93.

Lowden, K., Hall, S., Elliot, D., & Lewin, J. (2011). *Employers' Perceptions of the Employability Skills of New Graduates.* London: Edge Foundation.

Neyt, B., Omey, E. Verhaest, D., & Baert, S. (2019). Does student work really affect educational outcomes? A review of the literature. *Journal of Economic Surveys, 33*(3), 896–921.

Passaretta, G., & Triventi, M. (2015). Work experience during higher education and post-graduation occupational outcomes: A comparative study on four European countries. *International Journal of Comparative Sociology, 56*(3–4), 232–253.

Pinto, L.H., & Ramalheira, D.C. (2017). Perceived employability of business graduates: The effect of academic performance and extracurricular activities. *Journal of Vocational Behavior, 99,* 165–178.

Piopiunik,M., Schwerdt, G., Simon, L., & Woessmann, L. (2018). Skills, signals, and employability: An experimental investigation. *Mimeo*.

Rossi, P. H., & Nock, S. L. (1982). *Measuring Social Judgements: The Factorial Survey Approach*. Thousand Oaks: Sage.

Ruhm, C. J. (1997). Is high school employment consumption or investment? *Journal of Labor Economics*, *15*(4), 735–776.

Sauer, C., Hinz, T., Auspurg, K. & Liebig, S. (2011). The application of factorial surveys in general population samples: The effects of respondent age and education on response times and response consistency. *Survey Research Methods, 5*(3), 89–102.

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics, 87*(3), 355–374.

Stiglitz, J. E. (1975). The theory of "screening," education, and the distribution of income. *American Economic Review*, *65*(3), 283–300.

Thurow, L. C. (1975). *Generating Inequality*. New York: Basic Books.

Van Belle, E., Di Stasio, V., Caers, R., De Couck, M., & Baert, S. (2018). Why are employers put off by long spells of unemployment? *European Sociological Review*, *34*(6), 694–710.

Van Belle, E., Caers, R., De Couck, M., Di Stasio, V., & Baert, S. (2019). The signal of applying for a job under a vacancy referral scheme. *Industrial Relations: A Journal of Economy and Society, 58*(2), 251–274.

Van Borm, H., & Baert, S. (2018). What drives hiring discrimination against transgenders? *International Journal of Manpower, 39*(4), 581–599.

Watts, C., & Pickering, A. (2000). Pay as you learn: Student employment and academic progress. *Education + Training, 42*(3), 129–135.

Appendix A: Additional Tables

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Appendix B: Mediation Model

As stated in Subsection 4.2, we estimate the following mediation model to investigate whether the causal relation we reported between student employment and the probability of being invited for an interview is mediated by the different signals associated to student work.

$$M_1 = \alpha_{M_1} + \delta_1 SW + \varepsilon_{M_1}; \quad \text{(B–1)}$$

$$M_2 = \alpha_{M_2} + \delta_2 SW + \varepsilon_{M_2}; \quad \text{(B–2)}$$

$$M_3 = \alpha_{M_3} + \delta_3 SW + \varepsilon_{M_3}; \quad \text{(B–3)}$$

$$M_4 = \alpha_{M_4} + \delta_4 SW + \varepsilon_{M_4}; \quad \text{(B–4)}$$

$$Y = \alpha_Y + \delta' SW + \theta_1 M_1 + \theta_2 M_2 + \theta_3 M_3 + \theta_4 M_4 + \varepsilon_Y \quad \text{(B–5)}$$

Where M_1, M_2, M_3, and M_4 are human capital, social capital, trainability and attitude mediation scales, respectively; SW is a dummy variable indicating whether or not a candidate had student employment experience; δ_i is the parameter associated with SW in the equations with M_i as dependent variable, where α_{M_i} is the intercept. δ' and α_Y are the corresponding parameters in the equation with Y as dependent variable. Finally, θ_1, θ_2, θ_3, and θ_4 are the parameters associated with the mediator scales in the latter equation. Consequently, δ' is the remaining direct effect of student employment after controlling for the mediated effects. Our main interest lies in the products $\delta_i \theta_i$, namely, the indirect effect of student work through each of the mediators. We estimate equations (B–1)-(B–5) simultaneously, and correct the standard errors for clustering of the observations at the participant level (Van Belle et al., 2018).

The results of the mediation analysis described above are portrayed in Figure B-1. The left-hand side of Figure B-1 shows the effect of student employment on each of the (groups of) signals, in line with the results reported in Subsection 4.2. The right-hand side shows the effect of each of the mediating scales on the probability of being invited for a job interview. It is important to note that while the left-hand side of Figure B-1 shows a causal relationship, the different signals are not experimentally varied. Consequently, the right-hand side of Figure B-1 cannot be given a causal interpretation. The portrayed coefficients should thus be interpreted as correlations. We can see that higher signals of human capital, social capital and attitude are associated with a higher probability of being invited for a job interview. This correlation is by far the most important for the human capital scale. As stated above, δ' is the remaining direct effect of student employment on the interview probability after controlling for the four mediators. This direct effect is not significantly different from zero, indicating that the entire effect of student employment on interview probability is explained by the four mediators.

Finally, the box in the bottom right indicates which part of the total effect of student employment on interview probability is explained by each of the mediators. About 42% of the total effect is explained by the

mediation effect passing through the human capital scale, 17% of the total effect is mediated by the attitude scale and 8% by the social capital scale. The mediation through the trainability scale, on the other hand, is not statistically significant.

Table 1. Vignette factors and vignette levels.

Vignette factors	Vignette levels
Gender	Male
	Female
Delay in study duration	None
	One year
Honours obtained	None
	Cum laude
	Magna cum laude
	Summa cum laude
Student work experience	None
	During summer holidays; with relation to field of study
	During summer holidays; without relation to field of study
	During both the summer holidays and the academic year; without relation to field of study
Extra-curricular activities	None
	Fraternity
	Sport activities
	Volunteering

Table 2. Survey statements and corresponding scale of signals of student employment.

Scale	Statement
Interview probability	I will invite the candidate to a job interview.
Hiring probability	There is a high probability that I would actually hire the candidate.
Human capital	I think this person possesses enough **knowledge** to perform properly in this job.
	I think this person possesses enough **skills** to perform properly in this job.
Social capital	I think this person possesses a sufficiently strong **social network** to perform properly in this job.
Trainability	I think this person is sufficiently **trainable** to perform properly in this job.
Attitude	I think this person possesses the right **work attitude** to perform properly in this job.
	I think this person possesses enough **maturity** to perform properly in this job.
	I think this person possesses enough **sense of responsibility** to perform properly in this job.
	I think this person possesses enough **respect towards authority** to perform properly in this job.
	I think this person possesses enough **motivation** to perform properly in this job.
	I think this person possesses enough **ambition** to perform properly in this job.

Table 3. Descriptive statistics of participants.

	(1) Full sample (N = 1,210)	(2) SW during summer and academic year; without relation to field of study (N = 317)	(3) SW during summer; with relation to field of study (N = 310)	(4) SW during summer; without relation to field of study (N = 293)	(5) No SW (N = 290)	(6) F-statistic (df= 3.242)
Female	0.430	0.426	0.435	0.433	0.424	0.038
Age	48.905	49.230	48.981	48.683	48.693	0.193
Belgian nationality	0.975	0.975	0.977	0.973	0.976	0.049
Highest degree obtained						
Secondary education or lower	0.087	0.082	0.087	0.089	0.090	0.045
Tertiary education outside university	0.376	0.366	0.381	0.386	0.372	0.099
Tertiary education at university	0.537	0.552	0.532	0.526	0.538	0.157
Frequency of hiring: weekly	0.260	0.252	0.255	0.263	0.272	0.127
Experience with hiring: ≥ 5 years	0.723	0.719	0.729	0.734	0.710	0.160
Student work	0.905	0.893	0.916	0.915	0.897	0.519

Notes. We present the descriptive statistics for our full sample, as well as for four subsamples of participants classified by the student employment experience of the evaluated candidates. The statistics in column 6 are F-values from one-way ANOVA estimations. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level. The following abbreviations are used: SW (Student Work), df (degrees of freedom).

Table 4. Regression results with interview scale as outcome variable.

	(1)	(2)	(3)	(4)	(5)
A. Candidate characteristics					
SW (ref. = none)	0.166*** (0.046)	0.146 (0.282)	0.571** (0.281)		0.326*** (0.093)
SW in summer and academic year				0.085 (0.054)	
SW with relation to field of study				0.285*** (0.056)	
SW without relation to field of study				0.125** (0.054)	
Female	0.027 (0.038)	0.017 (0.141)	0.031 (0.039)	0.024 (0.039)	0.024 (0.038)
Delay in study duration	-0.126*** (0.039)	-0.257 (0.164)	-0.122*** (0.039)	-0.132*** (0.038)	-0.131*** (0.038)
Honours obtained (ref. = none)					
Cum laude	0.248*** (0.059)	0.170 (0.173)	0.247*** (0.059)	0.227*** (0.058)	0.244*** (0.058)
Magna cum laude	0.373*** (0.058)	0.470** (0.215)	0.370*** (0.059)	0.348*** (0.056)	0.375*** (0.058)
Summa cum laude	0.389*** (0.059)	0.424** (0.192)	0.382*** (0.060)	0.377*** (0.058)	0.392*** (0.059)
Extra-curricular activities (ref. = none)					
Fraternity	0.210*** (0.057)	0.254 (0.256)	0.209*** (0.057)	0.224*** (0.056)	0.205*** (0.057)
Sport activities	0.283*** (0.052)	0.289 (0.231)	0.281*** (0.052)	0.295*** (0.053)	0.277*** (0.052)
Volunteering	0.322*** (0.059)	0.526*** (0.176)	0.325*** (0.059)	0.327*** (0.059)	0.314*** (0.058)
SW × female		0.005 (0.151)			
SW × delay in study duration		0.176 (0.176)			
SW × cum laude		0.097 (0.189)			
SW × magna cum laude		-0.135 (0.240)			
SW × summa cum laude		-0.057 (0.217)			
SW × fraternity		-0.010 (0.305)			
SW × sport activities		0.029 (0.266)			
SW × volunteering		-0.240 (0.215)			
Job vacancies (ref. = project engineer)					
Physiotherapist					0.479*** (0.166)
HR consultant					0.281 (0.180)
SW × physiotherapist					-0.227** (0.111)
SW × HR consultant					-0.234* (0.119)
Order (ref = 1st)					
2nd	0.058 (0.050)	0.063 (0.052)	0.051 (0.050)	0.068 (0.050)	0.060 (0.050)
3rd	0.051 (0.053)	0.058 (0.053)	0.058 (0.053)	0.039 (0.052)	0.057 (0.053)
4th	0.067 (0.060)	0.060 (0.047)	0.060 (0.060)	0.063 (0.059)	0.072 (0.060)
5th	0.044 (0.058)	0.047 (0.058)	0.047 (0.058)	0.047 (0.058)	0.048 (0.058)

Table 4. Regression results with interview scale as outcome variable (continued).

	(1)	(2)	(3)	(4)	(5)
B. Participant characteristics					
Female	-0.023 (0.118)	-0.024 (0.118)	-0.156 (0.139)	-0.028 (0.119)	-0.038 (0.118)
Age	0.002 (0.006)	0.002 (0.006)	0.005 (0.008)	0.001 (0.006)	0.001 (0.006)
Highest degree (ref. = TE at uni.)					
Secondary education or lower	0.380*** (0.135)	0.380*** (0.135)	0.552*** (0.160)	0.385*** (0.138)	0.337** (0.145)
TE outside university	-0.124 (0.119)	-0.124 (0.119)	-0.050 (0.146)	-0.119 (0.119)	-0.127 (0.119)
Frequency of hiring: weekly	-0.186 (0.151)	-0.186 (0.150)	-0.092 (0.182)	-0.172 (0.150)	-0.145 (0.151)
Exp. with hiring: ≥ 5 years	0.134 (0.127)	0.134 (0.127)	0.100 (0.154)	0.126 (0.127)	0.130 (0.128)
SW	-0.193 (0.179)	-0.200 (0.179)	-0.028 (0.247)	-0.205 (0.179)	-0.170 (0.175)
SW × female gender			0.169* (0.088)		
SW × age			-0.004 (0.005)		
SW × secondary education or lower			-0.210* (0.113)		
SW × TE (any)			-0.085 (0.094)		
SW × frequency of hiring			-0.104 (0.120)		
SW × exp. with hiring			0.036 (0.111)		
SW (participant) × SW (candidate)			-0.228 (0.146)		
N			1,210		

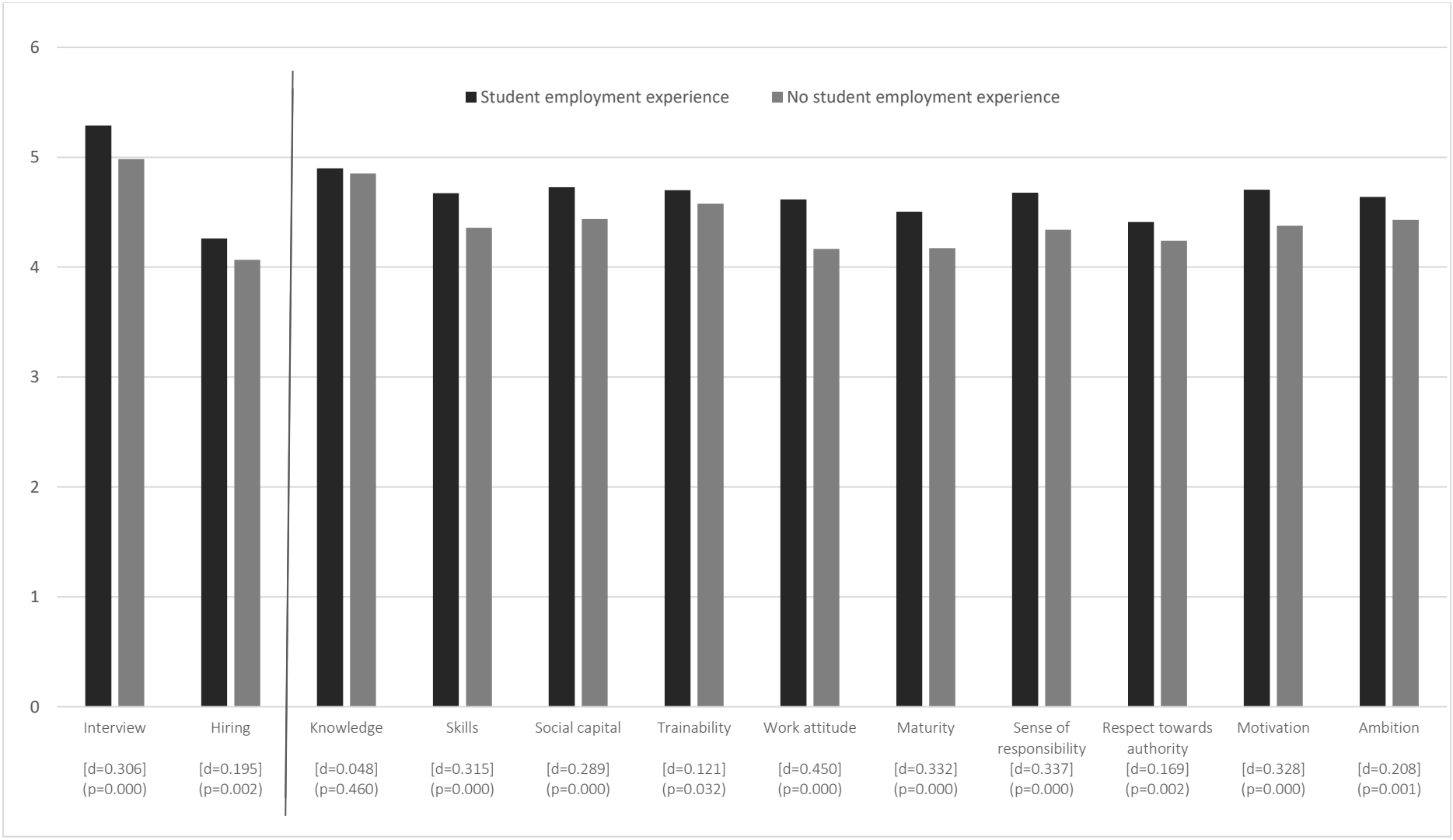
Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level.

Table 5. Regression results with signal scales as outcome variables.

	Human capital scale		Social capital scale		Trainability scale		Attitude scale	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Candidate characteristics								
SW (ref. = none)	0.120** (0.048)		0.251*** (0.053)		0.091* (0.051)		0.284*** (0.053)	
SW in summer and academic year		0.090* (0.054)		0.295*** (0.058)		0.090 (0.058)		0.263*** (0.057)
SW with relation to field of study		0.207*** (0.061)		0.219*** (0.064)		0.138** (0.064)		0.351*** (0.063)
SW without relation to field of study		0.058 (0.056)		0.239*** (0.064)		0.044 (0.058)		0.234*** (0.063)
Female	0.011 (0.035)	0.010 (0.035)	-0.027 (0.040)	-0.026 (0.040)	0.070* (0.040)	0.070* (0.041)	0.082** (0.040)	0.081** (0.041)
Delay in study duration	-0.104*** (0.036)	-0.105*** (0.036)	0.045 (0.041)	0.049 (0.042)	-0.041 (0.039)	-0.040 (0.039)	-0.081* (0.042)	-0.082** (0.041)
Honours obtained (ref. = none)								
Cum laude	0.326*** (0.053)	0.317*** (0.055)	0.177*** (0.061)	0.188*** (0.062)	0.185*** (0.056)	0.184*** (0.057)	0.232*** (0.059)	0.225*** (0.059)
Magna cum laude	0.408*** (0.061)	0.394*** (0.060)	0.138** (0.065)	0.149** (0.065)	0.241*** (0.058)	0.236*** (0.059)	0.318*** (0.060)	0.308*** (0.060)
Summa cum laude	0.517*** (0.057)	0.511*** (0.058)	0.157** (0.066)	0.161** (0.066)	0.237*** (0.065)	0.234*** (0.066)	0.418*** (0.067)	0.413*** (0.067)
Extra-curricular activities (ref. = none)								
Fraternity	0.209*** (0.052)	0.222*** (0.052)	1.018*** (0.075)	1.016*** (0.075)	0.012 (0.059)	0.020 (0.060)	0.319*** (0.060)	0.329*** (0.060)
Sport activities	0.164*** (0.054)	0.174*** (0.056)	0.583*** (0.063)	0.581*** (0.063)	0.120** (0.054)	0.127** (0.056)	0.264*** (0.053)	0.272*** (0.054)
Volunteering	0.211*** (0.058)	0.216*** (0.057)	0.825*** (0.071)	0.825*** (0.071)	0.224*** (0.058)	0.227*** (0.058)	0.485*** (0.059)	0.489*** (0.059)
Order (ref = 1st)								
2nd	0.224*** (0.047)	0.232*** (0.047)	0.211*** (0.064)	0.208*** (0.064)	-0.107** (0.053)	-0.103* (0.053)	0.233*** (0.055)	0.239*** (0.055)
3rd	0.318*** (0.054)	0.312*** (0.054)	0.241*** (0.067)	0.246*** (0.067)	-0.115** (0.055)	-0.117** (0.055)	0.324*** (0.057)	0.320*** (0.057)
4th	0.338*** (0.058)	0.335*** (0.058)	0.286*** (0.069)	0.287*** (0.069)	-0.174*** (0.059)	-0.175*** (0.059)	0.332*** (0.063)	0.330*** (0.063)
5th	0.360*** (0.058)	0.361*** (0.058)	0.287*** (0.075)	0.286*** (0.075)	-0.118** (0.059)	-0.118** (0.060)	0.338*** (0.061)	0.339*** (0.061)
B. Participant characteristics								
Female	0.123 (0.125)	0.122 (0.125)	-0.018 (0.104)	-0.018 (0.104)	-0.063 (0.121)	-0.063 (0.121)	-0.061 (0.118)	-0.062 (0.119)
Age	0.008 (0.006)	0.008 (0.006)	0.003 (0.005)	0.003 (0.005)	0.003 (0.006)	0.003 (0.006)	0.005 (0.006)	0.005 (0.006)
Highest degree (ref = TE at uni.)								
Secondary education or lower	-0.139 (0.156)	-0.139 (0.157)	0.181 (0.162)	0.183 (0.161)	-0.124 (0.268)	-0.123 (0.268)	0.030 (0.189)	0.030 (0.190)
TE outside university	-0.226* (0.119)	-0.226* (0.119)	-0.082 (0.095)	-0.081 (0.095)	-0.171 (0.107)	-0.171 (0.107)	-0.231** (0.108)	-0.231** (0.108)
Frequency of hiring: weekly	-0.093 (0.149)	-0.092 (0.149)	0.009 (0.107)	0.008 (0.107)	0.084 (0.138)	0.084 (0.138)	-0.027 (0.128)	-0.027 (0.128)
Exp. with hiring: ≥ 5 years	-0.090 (0.127)	-0.091 (0.127)	0.024 (0.119)	0.025 (0.119)	-0.100 (0.133)	-0.100 (0.133)	-0.059 (0.125)	-0.059 (0.125)
SW	0.019 (0.190)	0.017 (0.191)	0.098 (0.123)	0.100 (0.123)	-0.148 (0.187)	-0.149 (0.187)	0.174 (0.156)	0.172 (0.156)
N	1,210							

Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level.

Figure 1. Comparison of statements between candidates with and without student employment experience.



Notes. See Table 2 for the complete statements. The y-axis shows the score on a Likert scale of 0 (completely disagree) to 7 (completely agree). We ran t-tests to control whether the differences are statistically different from zero. P-values of these tests are reported between parentheses.

Table A–1. Overview vignettes used in the experiment.

Vignette ID	Deck	Vignette number	Gender	Delay in SD	Honours obtained	SW experience	ECA
1	1	1	Male	One year	Cum laude	None	Fraternity
2	1	2	Male	One year	Cum laude	During Summer; without relation to field of study	Fraternity
3	1	3	Female	None	None	During Summer and academic year; without relation to field of study	Volunteering
4	1	4	Female	None	Magna cum laude	During Summer; with relation to field of study	None
5	1	5	Female	None	Summa cum laude	During Summer and academic year; without relation to field of study	Sport activities
6	2	1	Male	None	Cum laude	During Summer and academic year; without relation to field of study	Sport activities
7	2	2	Male	One year	None	None	Fraternity
8	2	3	Male	One year	Summa cum laude	During Summer; without relation to field of study	None
9	2	4	Female	None	None	During Summer; without relation to field of study	Fraternity
10	2	5	Female	One year	Magna cum laude	During Summer; with relation to field of study	Volunteering
11	3	1	Male	One year	None	During Summer and academic year; without relation to field of study	None
12	3	2	Male	One year	Magna cum laude	During Summer; with relation to field of study	Volunteering
13	3	3	Female	None	Cum laude	None	None
14	3	4	Female	None	Summa cum laude	During Summer; without relation to field of study	Fraternity
15	3	5	Female	One year	Cum laude	During Summer; without relation to field of study	Sport activities
16	4	1	Male	None	None	During Summer and academic year; without relation to field of study	Volunteering
17	4	2	Male	One year	Magna cum laude	None	Sport activities
18	4	3	Male	One year	Summa cum laude	During Summer; with relation to field of study	None
19	4	4	Female	None	Cum laude	During Summer; with relation to field of study	Fraternity
20	4	5	Female	None	Magna cum laude	During Summer; without relation to field of study	Sport activities
21	5	1	Male	None	Magna cum laude	None	None
22	5	2	Male	None	Summa cum laude	During Summer and academic year; without relation to field of study	Fraternity
23	5	3	Male	One year	None	During Summer; with relation to field of study	Sport activities
24	5	4	Female	None	None	None	Volunteering
25	5	5	Female	One year	Cum laude	During Summer; without relation to field of study	Sport activities
26	6	1	Male	None	None	During Summer; without relation to field of study	None
27	6	2	Male	None	Magna cum laude	None	Volunteering
28	6	3	Male	None	Summa cum laude	During Summer and academic year; without relation to field of study	Sport activities
29	6	4	Female	One year	Cum laude	During Summer; with relation to field of study	None
30	6	5	Female	One year	Magna cum laude	None	Fraternity
31	7	1	Male	None	None	During Summer; with relation to field of study	Sport activities
32	7	2	Male	None	Summa cum laude	None	Fraternity
33	7	3	Male	One year	Magna cum laude	During Summer; without relation to field of study	None
34	7	4	Female	None	Magna cum laude	During Summer; with relation to field of study	Sport activities
35	7	5	Male	One year	Cum laude	During Summer and academic year; without relation to field of study	Volunteering

Table A–1. Overview vignettes used in the experiment (continued).

Vignette ID	Deck	Vignette number	Gender	Delay in SD	Honours obtained	SW experience	ECA
36	8	1	Female	None	Cum laude	None	Sport activities
37	8	2	Male	None	Cum laude	During Summer; with relation to field of study	Fraternity
38	8	3	Male	One year	None	During Summer; without relation to field of study	Volunteering
39	8	4	Male	None	Summa cum laude	During Summer; with relation to field of study	Volunteering
40	8	5	Female	One year	Magna cum laude	During Summer and academic year; without relation to field of study	None
41	9	1	Female	None	Cum laude	During Summer and academic year; without relation to field of study	None
42	9	2	Male	One year	Magna cum laude	During Summer and academic year; without relation to field of study	Fraternity
43	9	3	Male	None	None	None	None
44	9	4	Female	One year	Summa cum laude	During Summer; without relation to field of study	Volunteering
45	9	5	Female	One year	Summa cum laude	During Summer; with relation to field of study	Sport activities
46	10	1	Female	None	Cum laude	During Summer; with relation to field of study	Volunteering
47	10	2	Male	None	Magna cum laude	During Summer; without relation to field of study	Volunteering
48	10	3	Male	One year	None	None	Sport activities
49	10	4	Female	One year	None	During Summer and academic year; without relation to field of study	None
50	10	5	Female	One year	Summa cum laude	During Summer and academic year; without relation to field of study	Fraternity
51	11	1	Female	None	Magna cum laude	During Summer; with relation to field of study	Fraternity
52	11	2	Male	One year	Cum laude	During Summer and academic year; without relation to field of study	Volunteering
53	11	3	Male	One year	Summa cum laude	None	Sport activities
54	11	4	Male	None	Summa cum laude	None	None
55	11	5	Female	One year	None	During Summer; without relation to field of study	Fraternity
56	12	1	Female	None	Summa cum laude	During Summer; without relation to field of study	Volunteering
57	12	2	Male	One year	None	During Summer; with relation to field of study	Sport activities
58	12	3	Male	None	Cum laude	During Summer; without relation to field of study	None
59	12	4	Female	One year	Magna cum laude	During Summer and academic year; without relation to field of study	Fraternity
60	12	5	Female	One year	Summa cum laude	None	Volunteering
61	13	1	Female	None	Magna cum laude	During Summer; without relation to field of study	Sport activities
62	13	2	Male	One year	Summa cum laude	During Summer; with relation to field of study	None
63	13	3	Male	None	None	During Summer; with relation to field of study	Fraternity
64	13	4	Female	None	Magna cum laude	During Summer and academic year; without relation to field of study	Sport activities
65	13	5	Female	One year	Cum laude	None	Volunteering

Notes. The following abbreviations were used: SD (Study Duration), SW (Student Work), and ECA (Extra-Curricular Activity).

Table A–2. Correlations between vignette factors.

	1	2	3	4	5
1 Gender	1.000				
2 Delay in study duration	-0.061	1.000			
3 Honours obtained	0.018	0.019	1.000		
4 Work experience as student	0.039	0.020	0.092	1.000	
5 Extra-curricular activities	0.022	-0.062	-0.019	0.026	1.000

Note. Cramer's V is reported as all values are categorical. These statistics are based on the full sample of 1,210 observations. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level.

Table A–3. Required capabilities mentioned in vacancies.

Vacancy	Requirements
Physiotherapist	Responsibility for patient follow-up
	Team spirit
	Ability to work independently
	Social and communication skills
	No previous experience required
Human resources consultant	Responsibility for recruitment of new personnel
	Administrative skills
	Communication skills
	Insight into human behaviour
	No previous experience required
Project engineer	Team leader
	Communicative skills
	Analytically strong
	Organised
	No previous experience required

Table A–4. Comparison between participant characteristics and characteristics of HR professionals in ESS.

Participant characteristics	Mean in experiment	Mean among HR professionals in ESS
Female gender	0.430	0.582
Age	48.905	40.900
Highest degree obtained		
Secondary education or lower	0.087	0.216
Tertiary education: outside university	0.376	0.252
Tertiary education: university	0.537	0.532

Note. We combined waves 1 to 8 of the European Social Survey, conducted between 2002 (wave 1) and 2016 (wave 8) and selected all respondents with ISCO-88 occupation codes 1232 (Personnel and industrial relations department managers), 2412 (Personnel and careers professionals), and 3423 (Employment agents and labour contractors) for waves 1 to 6 and ISCO-08 codes 1212 (Human resource managers), 2423 (Personnel and careers professionals), 3333 (Employment agents and contractors), and 4416 (Personnel clerks) for waves 7 and 8.

Table A–5. Regression results with hiring scale as outcome variables.

	(1)	(2)	(3)	(4)	(5)
A. Candidate characteristics					
SW (ref. = none)	0.131*** (0.049)	0.354 (0.263)	0.398 (0.305)		0.234*** (0.088)
SW in summer and academic year				0.062 (0.056)	
SW with relation to field of study				0.225*** (0.062)	
SW without relation to field of study				0.102* (0.057)	
Female	0.045 (0.039)	0.157 (0.127)	0.042 (0.039)	0.042 (0.039)	0.045 (0.039)
Delay in study duration	-0.111*** (0.040)	-0.257 (0.160)	-0.109*** (0.041)	-0.116*** (0.040)	-0.116*** (0.040)
Honours obtained (ref. = none)					
Cum laude	0.222*** (0.057)	0.272* (0.163)	0.221*** (0.057)	0.204*** (0.057)	0.222*** (0.057)
Magna cum laude	0.386*** (0.061)	0.547*** (0.195)	0.383*** (0.061)	0.365*** (0.061)	0.388*** (0.061)
Summa cum laude	0.374*** (0.066)	0.459** (0.195)	0.369*** (0.066)	0.365*** (0.066)	0.373*** (0.066)
Extra-curricular activities (ref. = none)					
Fraternity	0.190*** (0.060)	0.376 (0.245)	0.191*** (0.061)	0.201*** (0.060)	0.186*** (0.061)
Sport activities	0.240*** (0.054)	0.401* (0.212)	0.239*** (0.054)	0.249*** (0.055)	0.236*** (0.054)
Volunteering	0.292*** (0.062)	0.545*** (0.180)	0.291*** (0.063)	0.296*** (0.062)	0.286*** (0.062)
SW × female		-0.129 (0.141)			
SW × delay in study duration		0.167 (0.176)			
SW × cum laude		-0.060 (0.186)			
SW × magna cum laude		-0.196 (0.221)			
SW × summa cum laude		-0.110 (0.219)			
SW × fraternity		-0.179 (0.288)			
SW × sport activities		-0.154 (0.246)			
SW × volunteering		-0.306 (0.223)			
Job vacancies (ref. = project engineer)					
Physiotherapist					0.374** (0.154)
HR consultant					0.010 (0.157)
SW × physiotherapist					-0.143 (0.114)
SW × HR consultant					-0.153 (0.124)
Order (ref = 1st)					
2nd	0.255*** (0.053)	0.258*** (0.054)	0.253*** (0.053)	0.263*** (0.053)	0.256*** (0.054)
3rd	0.314*** (0.059)	0.314*** (0.059)	0.316*** (0.059)	0.304*** (0.059)	0.317*** (0.059)
4th	0.261*** (0.062)	0.269*** (0.062)	0.261*** (0.062)	0.258*** (0.062)	0.264*** (0.062)
5th	0.300*** (0.062)	0.304*** (0.063)	0.303*** (0.063)	0.302*** (0.063)	0.302*** (0.063)

Table A–5. Regression results with hiring scale as outcome variables (continued).

	(1)	(2)	(3)	(4)	(5)
B. Participant characteristics					
Female	-0.204 (0.124)	-0.202 (0.123)	-0.182 (0.142)	-0.205* (0.124)	-0.212* (0.119)
Age	-0.002 (0.006)	-0.002 (0.006)	0.002 (0.007)	-0.002 (0.006)	-0.003 (0.006)
Highest degree (ref. = TE at uni.)					
Secondary education or lower	0.098 (0.181)	0.088 (0.179)	0.289 (0.217)	0.096 (0.181)	0.058 (0.180)
TE outside university	-0.144 (0.112)	-0.146 (0.111)	-0.126 (0.130)	-0.145 (0.112)	-0.174 (0.110)
Frequency of hiring: weekly	-0.052 (0.138)	-0.063 (0.139)	0.008 (0.168)	-0.051 (0.138)	-0.022 (0.136)
Exp. with hiring: ≥ 5 years	-0.092 (0.122)	-0.087 (0.123)	-0.204 (0.137)	-0.093 (0.122)	-0.079 (0.124)
SW	0.061 (0.176)	0.068 (0.179)	0.134 (0.255)	0.056 (0.176)	0.097 (0.169)
SW × female gender			-0.028 (0.095)		
SW × age			-0.005 (0.005)		
SW × secondary education or lower			-0.253 (0.170)		
SW × TE (any)			-0.020 (0.101)		
SW * frequency of hiring			-0.076 (0.128)		
SW × exp. with hiring			0.148 (0.116)		
SW (participant) × SW (candidate)			-0.093 (0.151)		
N			1,210		

Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level.

Table A–6. Regression results with one student work dummy variable and each statement as an outcome variable.

	Knowledge	Skills	Social capital	Trainability	Work attitude	Maturity	Sense of responsibility	Respect towards authority	Motivation	Ambition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Candidate characteristics										
SW (ref. = none)	-0.010	0.243***	0.251***	0.091*	0.353***	0.263***	0.252***	0.147***	0.275***	0.161***
	(0.047)	(0.053)	(0.053)	(0.051)	(0.060)	(0.060)	(0.056)	(0.055)	(0.055)	(0.053)
Female	-0.016	0.039	-0.027	0.070*	0.079*	0.060	0.048	0.080	0.099**	0.059
	(0.037)	(0.038)	(0.040)	(0.040)	(0.045)	(0.044)	(0.043)	(0.049)	(0.043)	(0.039)
Delay in study duration	-0.125***	-0.061	0.045	-0.041	-0.076	-0.082*	-0.082*	-0.066	-0.065	-0.048
	(0.037)	(0.040)	(0.041)	(0.039)	(0.050)	(0.048)	(0.048)	(0.045)	(0.041)	(0.041)
Honours obtained (ref. = none)										
Cum laude	0.308***	0.288***	0.177***	0.185***	0.201***	0.207***	0.216***	0.059	0.231***	0.266***
	(0.051)	(0.058)	(0.061)	(0.056)	(0.063)	(0.064)	(0.064)	(0.067)	(0.061)	(0.057)
Magna cum laude	0.413***	0.330***	0.138**	0.241***	0.267***	0.304***	0.326***	0.087	0.267***	0.366***
	(0.061)	(0.066)	(0.065)	(0.058)	(0.067)	(0.064)	(0.064)	(0.068)	(0.062)	(0.062)
Summa cum laude	0.586***	0.348***	0.157**	0.237***	0.371***	0.367***	0.386***	0.196***	0.343***	0.476***
	(0.056)	(0.064)	(0.066)	(0.065)	(0.066)	(0.070)	(0.069)	(0.071)	(0.070)	(0.075)
Extra-curricular activities (ref. = none)										
Fraternity	0.088*	0.307***	1.018***	0.012	0.124*	0.353***	0.402***	0.150**	0.208***	0.391***
	(0.050)	(0.062)	(0.075)	(0.059)	(0.068)	(0.068)	(0.069)	(0.066)	(0.062)	(0.066)
Sport activities	0.034	0.280***	0.583***	0.120**	0.202***	0.257***	0.256***	0.149**	0.236***	0.256***
	(0.054)	(0.060)	(0.063)	(0.054)	(0.062)	(0.052)	(0.055)	(0.064)	(0.060)	(0.058)
Volunteering	0.091*	0.309***	0.825***	0.224***	0.412***	0.538***	0.612***	0.330***	0.357***	0.235***
	(0.052)	(0.066)	(0.071)	(0.058)	(0.065)	(0.064)	(0.065)	(0.059)	(0.067)	(0.064)
Order (ref = 1st)										
2nd	0.111**	0.311***	0.211***	-0.107**	0.217***	0.299***	0.230***	0.151**	0.163***	0.136**
	(0.048)	(0.057)	(0.064)	(0.053)	(0.065)	(0.065)	(0.068)	(0.065)	(0.062)	(0.059)
3rd	0.232***	0.358***	0.241***	-0.115**	0.297***	0.360***	0.344***	0.253***	0.207***	0.205***
	(0.052)	(0.067)	(0.067)	(0.055)	(0.071)	(0.070)	(0.063)	(0.071)	(0.062)	(0.060)
4th	0.245***	0.381***	0.286***	-0.174***	0.307***	0.444***	0.349***	0.200***	0.216***	0.185***
	(0.056)	(0.066)	(0.069)	(0.059)	(0.076)	(0.071)	(0.073)	(0.071)	(0.067)	(0.064)
5th	0.279***	0.387***	0.287***	-0.118**	0.291***	0.406***	0.317***	0.272***	0.221***	0.233***
	(0.058)	(0.067)	(0.075)	(0.059)	(0.076)	(0.072)	(0.067)	(0.071)	(0.064)	(0.062)

Table A–6. Regression results with one student work dummy variable and each statement as an outcome variable (continued).

	Knowledge	Skills	Social capital	Trainability	Work attitude	Maturity	Sense of responsibility	Respect towards authority	Motivation	Ambition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
B. Participant characteristics										
Female	0.168	0.050	-0.018	-0.063	-0.052	-0.008	-0.028	0.001	-0.125	-0.103
	(0.125)	(0.115)	(0.104)	(0.121)	(0.105)	(0.107)	(0.107)	(0.113)	(0.113)	(0.115)
Age	0.007	0.008	0.003	0.003	0.001	0.007	0.004	0.004	0.006	0.005
	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Highest degree obtained (ref. = TE at uni.)										
Secondary education or lower	-0.179	-0.069	0.181	-0.124	-0.048	0.028	-0.012	-0.068	0.144	0.109
	(0.154)	(0.156)	(0.162)	(0.268)	(0.177)	(0.164)	(0.156)	(0.201)	(0.202)	(0.202)
Tertiary education outside university	-0.185	-0.232**	-0.082	-0.171	-0.195**	-0.244**	-0.182*	-0.210**	-0.194*	-0.172
	(0.119)	(0.110)	(0.095)	(0.107)	(0.098)	(0.099)	(0.102)	(0.100)	(0.105)	(0.107)
Frequency of hiring: weekly	-0.131	-0.035	0.009	0.084	-0.062	0.025	-0.047	-0.062	0.001	0.001
	(0.145)	(0.140)	(0.107)	(0.138)	(0.120)	(0.117)	(0.124)	(0.124)	(0.118)	(0.122)
Experience with hiring: ≥ 5 years	-0.083	-0.083	0.024	-0.100	-0.053	-0.029	-0.033	-0.035	-0.072	-0.083
	(0.133)	(0.120)	(0.119)	(0.133)	(0.109)	(0.112)	(0.111)	(0.118)	(0.123)	(0.126)
SW	-0.107	0.158	0.098	-0.148	0.106	0.229	0.179	0.083	0.186	0.107
	(0.196)	(0.174)	(0.123)	(0.187)	(0.158)	(0.170)	(0.169)	(0.119)	(0.145)	(0.141)
N	1,210									

Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level. As the social capital scale and the trainability scale consist of only one signal, columns 3 and 4 are exact replications of columns 3 and 5 in Table 5.

Table A–7. Average rating of the twelve statements by order of the vignette.

	interview	hiring	knowledge	skills	social capital	trainability	work attitude	maturity	sense of responsibility	respect for authority	motivation	ambition
1	5,153	3,934	4,678	4,260	4,434	4,777	4,256	4,095	4,318	4,202	4,450	4,421
2	5,256	4,264	4,810	4,640	4,678	4,678	4,533	4,446	4,603	4,364	4,649	4,583
3	5,219	4,318	4,963	4,682	4,719	4,649	4,574	4,479	4,698	4,434	4,665	4,657
4	5,231	4,244	4,967	4,686	4,698	4,591	4,591	4,562	4,690	4,388	4,669	4,599
5	5,219	4,310	5,025	4,723	4,760	4,661	4,587	4,541	4,678	4,459	4,694	4,686

Table A–8. Regression results with three student work dummy variables and each statement as an outcome variable.

	Knowledge	Skills	Social capital	Trainability	Work attitude	Maturity	Sense of responsibility	Respect towards authority	Motivation	Ambition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. Candidate characteristics										
SW (ref. = none)										
SW in summer and academic year	-0.010	0.186***	0.296***	0.090	0.318***	0.240***	0.292***	0.147**	0.234***	0.110*
	(0.053)	(0.059)	(0.058)	(0.058)	(0.067)	(0.068)	(0.062)	(0.063)	(0.064)	(0.058)
SW with relation to field of study	0.054	0.342***	0.219***	0.138**	0.402***	0.340***	0.287***	0.173**	0.365***	0.232***
	(0.058)	(0.068)	(0.064)	(0.064)	(0.073)	(0.067)	(0.070)	(0.069)	(0.064)	(0.065)
SW without relation to field of study	-0.076	0.197***	0.239***	0.044	0.338***	0.205***	0.175***	0.119*	0.223***	0.139**
	(0.056)	(0.062)	(0.064)	(0.058)	(0.069)	(0.071)	(0.066)	(0.062)	(0.064)	(0.064)
Female	-0.016	0.037	-0.026	0.070*	0.078*	0.059	0.050	0.080	0.097**	0.058
	(0.037)	(0.038)	(0.040)	(0.041)	(0.045)	(0.044)	(0.043)	(0.049)	(0.043)	(0.039)
Delay in study duration	-0.124***	-0.065	0.049	-0.040	-0.078	-0.082*	-0.077	-0.065	-0.067	-0.052
	(0.037)	(0.040)	(0.042)	(0.039)	(0.050)	(0.047)	(0.047)	(0.044)	(0.041)	(0.041)
Honours obtained (ref. = none)										
Cum laude	0.305***	0.273***	0.188***	0.184***	0.192***	0.200***	0.223***	0.058	0.220***	0.253***
	(0.053)	(0.059)	(0.062)	(0.057)	(0.064)	(0.064)	(0.064)	(0.067)	(0.062)	(0.058)
Magna cum laude	0.407***	0.310***	0.149**	0.236***	0.256***	0.293***	0.330***	0.084	0.251***	0.350***
	(0.060)	(0.065)	(0.065)	(0.059)	(0.067)	(0.063)	(0.063)	(0.069)	(0.061)	(0.061)
Summa cum laude	0.582***	0.340***	0.161**	0.234***	0.366***	0.361***	0.386***	0.194***	0.336***	0.470***
	(0.057)	(0.065)	(0.066)	(0.066)	(0.066)	(0.070)	(0.070)	(0.072)	(0.070)	(0.075)
Extra-curricular activities (ref. = none)										
Fraternity	0.099**	0.320***	1.016***	0.020	0.130*	0.364***	0.411***	0.154**	0.220***	0.399***
	(0.049)	(0.062)	(0.075)	(0.060)	(0.068)	(0.068)	(0.069)	(0.067)	(0.062)	(0.065)
Sport activities	0.043	0.290***	0.581***	0.127**	0.207***	0.266***	0.263***	0.153**	0.246***	0.263***
	(0.055)	(0.061)	(0.063)	(0.056)	(0.063)	(0.053)	(0.057)	(0.065)	(0.060)	(0.058)
Volunteering	0.095*	0.313***	0.825***	0.227***	0.414***	0.542***	0.616***	0.331***	0.361***	0.237***
	(0.052)	(0.066)	(0.071)	(0.058)	(0.065)	(0.064)	(0.065)	(0.060)	(0.067)	(0.063)

Table A–8. Regression results with three student work dummy variables and each statement as an outcome variable (continued).

	Knowledge	Skills	Social capital	Trainability	Work attitude	Maturity	Sense of responsibility	Respect towards authority	Motivation	Ambition
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Order (ref = 1st)										
2nd	0.116**	0.320***	0.208***	-0.103*	0.221***	0.305***	0.233***	0.153**	0.170***	0.143**
	(0.047)	(0.057)	(0.064)	(0.053)	(0.064)	(0.065)	(0.068)	(0.064)	(0.062)	(0.059)
3rd	0.229***	0.349***	0.246***	-0.117**	0.292***	0.355***	0.346***	0.252***	0.200***	0.199***
	(0.051)	(0.067)	(0.067)	(0.055)	(0.071)	(0.071)	(0.063)	(0.071)	(0.062)	(0.060)
4th	0.243***	0.378***	0.287***	-0.175***	0.305***	0.442***	0.348***	0.199***	0.213***	0.182***
	(0.056)	(0.066)	(0.069)	(0.059)	(0.077)	(0.071)	(0.073)	(0.072)	(0.067)	(0.064)
5th	0.280***	0.389***	0.286***	-0.118**	0.292***	0.407***	0.316***	0.272***	0.223***	0.235***
	(0.058)	(0.067)	(0.075)	(0.060)	(0.076)	(0.072)	(0.067)	(0.071)	(0.065)	(0.063)
B. Participant characteristics										
Female	0.168	0.050	-0.017	-0.063	-0.052	-0.009	-0.028	0.001	-0.126	-0.104
	(0.125)	(0.115)	(0.104)	(0.121)	(0.105)	(0.107)	(0.107)	(0.113)	(0.113)	(0.115)
Age	0.007	0.008	0.003	0.003	0.001	0.007	0.003	0.004	0.005	0.005
	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Highest degree obtained (ref. = TE at uni.)	-0.178	-0.070								
Secondary education or lower	(0.154)	(0.157)	0.183	-0.123	-0.049	0.028	-0.009	-0.067	0.143	0.108
	-0.185	-0.233**	(0.161)	(0.268)	(0.177)	(0.164)	(0.155)	(0.201)	(0.203)	(0.203)
Tertiary education outside university	(0.119)	(0.110)	-0.081	-0.171	-0.196**	-0.244**	-0.181*	-0.210**	-0.194*	-0.173
	-0.130	-0.034	(0.095)	(0.107)	(0.098)	(0.099)	(0.102)	(0.101)	(0.105)	(0.108)
Frequency of hiring: weekly	(0.145)	(0.140)	0.008	0.084	-0.061	0.025	-0.046	-0.061	0.002	0.002
	-0.083	-0.083	(0.107)	(0.138)	(0.120)	(0.117)	(0.124)	(0.124)	(0.118)	(0.122)
Experience with hiring: ≥ 5 years	(0.133)	(0.120)	0.025	-0.100	-0.053	-0.029	-0.032	-0.035	-0.073	-0.084
	-0.108	0.153	(0.119)	(0.133)	(0.110)	(0.112)	(0.111)	(0.119)	(0.123)	(0.126)
SW	(0.196)	(0.174)	0.100	-0.149	0.104	0.227	0.180	0.083	0.183	0.104
	-0.178	-0.070	(0.123)	(0.187)	(0.158)	(0.170)	(0.169)	(0.119)	(0.145)	(0.142)
N					1,210					

Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level. As the social capital scale and the trainability scale consist of only one signal, columns 3 and 4 are exact replications of columns 4 and 6 in Table 5.

Table A–9. Duplication of Table 4 and Table 5 while excluding participants who did not feel (very) competent to make a hiring decision.

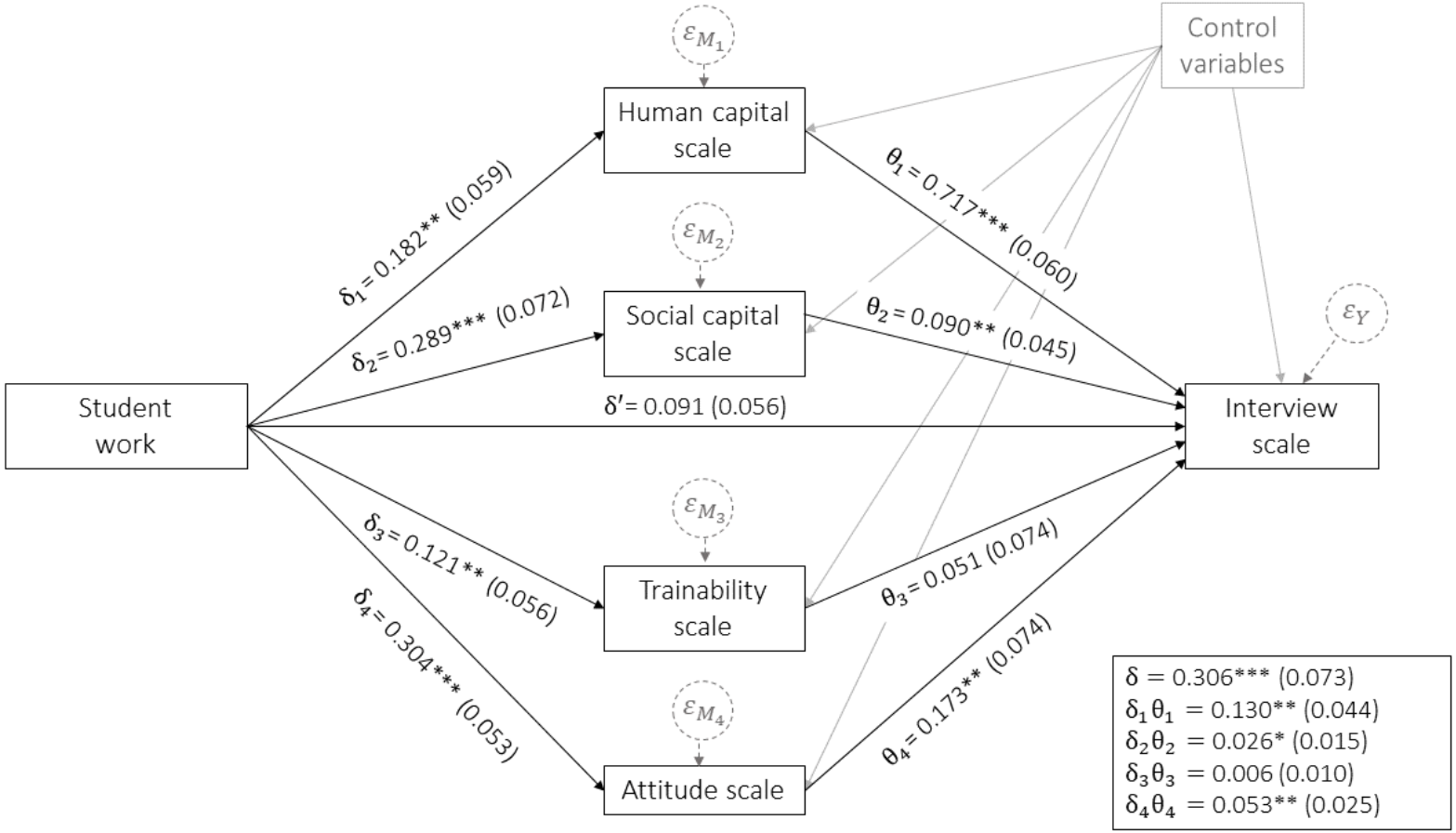
	Interview scale	Human capital scale	Social capital scale	Trainability scale	Attitude scale
	(1)	(2)	(3)	(4)	(5)
A. Candidate characteristics					
SW (ref. = none)	0.209***	0.195***	0.258***	0.085	0.323***
	(0.052)	(0.053)	(0.055)	(0.057)	(0.057)
Female	0.029	0.012	-0.013	0.081*	0.084*
	(0.044)	(0.040)	(0.045)	(0.046)	(0.044)
Delay in study duration	-0.099**	-0.091**	0.070	0.003	-0.063
	(0.043)	(0.041)	(0.046)	(0.043)	(0.044)
Honours obtained (ref. = none)					
Cum laude	0.225***	0.296***	0.165**	0.172***	0.212***
	(0.067)	(0.060)	(0.070)	(0.063)	(0.063)
Magna cum laude	0.376***	0.423***	0.177**	0.238***	0.333***
	(0.066)	(0.070)	(0.072)	(0.065)	(0.068)
Summa cum laude	0.347***	0.489***	0.183**	0.219***	0.414***
	(0.066)	(0.062)	(0.071)	(0.070)	(0.074)
Extra-curricular activities (ref. = none)					
Fraternity	0.157**	0.201***	1.074***	-0.037	0.313***
	(0.062)	(0.059)	(0.080)	(0.066)	(0.067)
Sport activities	0.276***	0.191***	0.624***	0.118*	0.302***
	(0.058)	(0.060)	(0.073)	(0.061)	(0.057)
Volunteering	0.334***	0.251***	0.849***	0.222***	0.538***
	(0.065)	(0.064)	(0.076)	(0.064)	(0.066)
Order (ref = 1st)					
2nd	0.048	0.231***	0.174**	-0.101*	0.215***
	(0.056)	(0.051)	(0.070)	(0.058)	(0.062)
3rd	0.052	0.333***	0.234***	-0.088	0.332***
	(0.060)	(0.062)	(0.077)	(0.061)	(0.065)
4th	0.023	0.334***	0.262***	-0.167**	0.332***
	(0.067)	(0.067)	(0.076)	(0.068)	(0.069)
5th	0.024	0.360***	0.311***	-0.101	0.352***
	(0.066)	(0.067)	(0.083)	(0.069)	(0.067)

Table A–9. Duplication of Table 4 and Table 5 while excluding participants who did not feel (very) competent to make a hiring decision (continued).

	Interview scale	Human capital scale	Social capital scale	Trainability scale	Attitude scale
	(1)	(2)	(3)	(4)	(5)
B. Participant characteristics					
Female	-0.033	0.108	0.029	-0.016	-0.062
	(0.124)	(0.128)	(0.115)	(0.126)	(0.121)
Age	-0.002	0.008	0.002	0.003	0.005
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Highest degree obtained (ref. = TE at uni.)					
Secondary education or lower	0.335**	-0.258	0.080	-0.204	-0.056
	(0.139)	(0.160)	(0.167)	(0.279)	(0.197)
Tertiary education outside university	-0.183	-0.311**	-0.182*	-0.296**	-0.301***
	(0.130)	(0.127)	(0.109)	(0.116)	(0.108)
Frequency of hiring: weekly	-0.131	-0.066	0.058	0.153	-0.020
	(0.161)	(0.157)	(0.113)	(0.137)	(0.130)
Experience with hiring: ≥ 5 years	0.161	-0.104	-0.033	-0.126	-0.063
	(0.123)	(0.117)	(0.129)	(0.137)	(0.124)
SW	-0.232	0.057	0.077	-0.168	0.216
	(0.199)	(0.216)	(0.137)	(0.210)	(0.175)
N			985		

Notes. The following abbreviations were used: ref. (reference category), exp. (experience), SW (Student Work), TE (Tertiary Education), uni. (university). The presented statistics are coefficient estimates and standard errors in parentheses. Standard errors are corrected for clustering of the observations at the participant level. * (**) ((***)) indicates significance at the 10% (5%) ((1%)) level.

Figure B–1



Notes. The presented statistics are coefficient estimates and standard errors in parentheses for the mediation model outlined above. δ stands for the total effect, δ' for the direct effect, and $\delta_i\theta_i$ for the indirect effect of student employment on the interview scale passing through mediator M_i. Standard errors are corrected for clustering of the observations at the participant level. The confidence intervals for the mediation effects are based on 10,000 bootstrap samples. ***(**)((*)) indicates significance at the 1 per cent (5 per cent)((10 per cent)) significance level.