

Part-time jobs and study performance: The difference between
students with non-regular working hours and students without non-
regular working hours

Name Bob Kamp

Student number 4778529

Supervisor Pierre Cavalini

2nd examiner Karen Pak

Abstract

More and more students are engaging in a part-time job besides their full-time study. The relation between part-time jobs and study performance, with study year as moderator and stress and effort as mediators, was analysed by executing a multiple regression analysis for moderated mediation models via the PROCESS option in SPSS. Data was collected via a questionnaire and respondents (students) were gathered via the snowball sampling method (n= 311). The results indicate no difference in study performance between students who work and students who do not work. In contrast, differences in study performance were found between students who work during non-regular working hours and students who do not work during non-regular working hours. Effort and stress are affecting study performance, while study year has no effect on study performance. Therefore, this study concludes that there is no effect of part-time jobs on study performance, while there is an effect of non-regular working hours on study performance. Possible explanations for the results, practical and theoretical implications and limitations of this study are explored in the discussion.

Keywords: Part-time jobs; full-time study; non-regular working hours; study performance.

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1. Introduction

In most (Western) European countries, more than 30% of the students are engaging in (part-time) jobs, with percentages going up to 91% in the Netherlands (HIS, 2005). Therefore, student part-time employment has been receiving an increased level of interest from researchers in the last few decades (Robotham, 2012, p. 65). The interest of researchers came with the increase in labour market participation of students in the last decades, leading to a situation where students who do not work part-time besides their study are rather an exception than the norm (Robotham, 2012). Figures of a study conducted in Australia (Long & Hayden, 2001) show that the number of students engaging in (part-time) jobs has increased with 20% since 1984. Further evidence for a rising number of students engaging in part-time jobs since 2000 is presented by, among others, Manthei and Gilmore (2005) and Tam and Morrison (2005). These studies show that in New-Zealand and China the amount of students that work part-time is increasing. The growth of full-time students engaging in part-time jobs is related to the fact that there is an existing gap between students' financial resources and the college fees (Darolia, 2014). As working part-time becomes more common among students who follow full-time education, it may negatively affect study performance of the students (Darolia, 2014). Above showed numbers indicate that the field of students and their part-time jobs is rising, and so is the interest of researchers in this topic. Besides the study of Darolia (2014), multiple other studies found part-time jobs to negatively affect students and study performance in school, among others by reducing time available to study (Harrison and Chudry, 2011).

Academic studies have been focusing on the effects of part-time jobs on the academic performance of students (see for example, Curtis and Shani, 2002; Neill et al., 2004; Watts and Pickering, 2000). Richardson et al. (2014) found that students report both positive and negative effects of part-time jobs during their academic study. Reported positive effects are, among others, development of transferable skills, like time management, and the testing, development and reflecting upon specific career paths (Richardson et al., 2014). However, academic studies report some negative consequences following from students engaging in part-time jobs. McVicar and McKee (2002) and Salamonson and Andrew (2006) find part-time work to negatively affect study performance of students, in particular when the part-time job entails students working 15 or more hours per week. So, they find that working more than 15 hours is deleterious for students' study performance. Later studies report similar findings and add that students are having difficulties coping with their study performance due to part-

time job commitments and the limited time available for study purposes (Hall, 2010; Harrison and Chudry, 2011).

Many researchers tried to come up with an all-embracing definition of the concept of part-time workers (e.g., Nardone, 1986 and Darolia, 2014). The most common definition of part-time workers is given by Nardone (1986), and is as follows: “*Employees who work fewer than 35 hours a week*”. Borowczyk-Martins & Lalé (2016, p.7) develop a more general definition: “*A part-time job is one in which the usual number of hours worked per week is below a specified threshold.*” Borowczyk-Martins & Lalé (2016) base this threshold on the Bureau of Labour Statistics in the United States, which indicates a part-time job is a job in which the metric of hours is less than 34 hours per week. Ermisch & Wright (1993) argue that full-time jobs and part-time jobs should not only be distinguished based on hours worked per week, but also on evaluations by individuals on their considerations of a job being a part-time or a full-time occupation. However, this idea is not common in scientific literature, as it makes the concept of ‘part-time jobs’ less measurable.

Before elaborating on the effects of part-time jobs on study performance of students, the concept of ‘study performance’ needs to be introduced. Ariani & Mirdad (2016, p. 175) define study performance as ‘*the average of final achievement scores of students*’. Johnson (1997) and Bacon & Bean (2016) name GPA (Grade Point Average) and SAT (Scholastic Aptitude Test) as possible measures of study performance. Here, GPA is more reliable to measure the (average of) final achievement scores of students (Bacon & Bean, 2016).

In current times, a full-time study entails a 40-hour working week. This means that a part-time job can be seen as an extra deterioration to the time spent on study purposes (and study performance) by students following a full-time study. However, a study of Verrijt & Sijbers (2011) found that the average student spends 32.5 hours per week for study purposes. These numbers were based on the survey ‘Algemene Studentenenquête 2010’ conducted by the Radboud University Nijmegen. Svanum & Bigatti (2006) conclude that the more time students spend on (part-time) jobs, the less time the students use for study purposes. Svanum & Bigatti (2006) hereby indicate that there exists a negative relationship between (the size of) part-time jobs and time spent on study purposes. Other studies add to this that students who work besides their full-time study have worse study performance than students who do not work besides their full-time study (e.g., Ma, 1984; Hawkins et al., 2005). Thus, the more time

students spend on job purposes, the less time they spend on study purposes, the less their study performance. The negative effects of part-time jobs on study performance can be named work-school conflict (WSC). Markel & Frone (1998, p.278) define this concept as *“the extent to which work interferes with an adolescent’s ability to meet school-related demands and responsibilities.”*

However, several studies do not support this finding and conclude that part-time jobs bring both several general advantages and study performance-specific advantages (Butler, 2007; Wang et al., 2010; Robotham, 2012; Try, 2004). Butler (2007) defines the positive effects of part-time job ‘work-school facilitation’. This entails both school and work related activities interacting, and interchangeably improving each other, by improving skills and knowledge (Butler, 2007). Try (2004) concludes that another advantage of having a part-time job as a student is having an easier entrance to the labour market when students finish their study. Thirdly, Wang et al. (2010) find that having a part-time job during study life can encourage students to enlarge their social support networks, thereby enriching the school life of students, which may affect study performance positively. Lastly, Robotham (2012) finds that students engaging in part-time jobs during their study report more positive outcomes than negative outcomes of their part-time employment during their study.

When summarizing this, it becomes clear that there is no consensus among researchers on whether students with part-time jobs perform better in their study than students without a part-time job: Having a part-time job can stimulate study performance (Robotham, 2012), but it can also hold back study performance of students (Hawkins et al., 2005). This disagreement between researchers about the effects of part-time jobs on students’ study performance in combination with the unclarity among researchers about the effects of (non-)regular working hours on study performance, forms a gap in literature (Svanum & Bigatti, 2006; Hawkins et al., 2005; Wang et al., 2010; Robotham, 2012). This study attempts to fill this gap in scientific literature. Below, the (possible) effects of (non-)regular working hours will shortly be discussed, in order to introduce the research goal and central question of this study.

Many students perform their jobs during non-regular and varying working hours, for instance in clubs and bars. Non-regular or heavily varying working hours are associated with increased impairments to students’ health, which in turn can affect the study performance of students (Janssen & Nachreiner, 2004). Non-regular working hours can be working hours during nights or during weekends. As a result, student jobs with non-regular working hours

can be compared to shift work. Shift work is defined as: ‘*An arrangement of (daily) work that deviates from the standard “daylight hours”*’ (Smith et al., 2003). Daylight hours are normally between 8 a.m. and 6 p.m. (Smith et al., 2003), but they may differ per country and/or sector. In some countries the daylight hours are from 8 a.m. to 8 p.m. (Smith et al., 2003). With shift work come disadvantages (Härmä, 2006). Among these disadvantages are some personal risks: Sleep disturbances, fatigue and accidents at work (Härmä, 2006). Besides, non-regular working hours causes a disruption in the biological rhythm of humans. This may lead to more feelings of tiredness. Thus, when students perform their part-time job during non-regular working hours (like shift work), it may increase feelings of tiredness. These feelings may in turn lead to a decrease in study performance of students.

Many factors can affect the study performance of students (Robotham, 2012). In his article Marsh (1991) conducts a study on the effects of student employment on the development of personality characteristics and academic goals during high school. He concludes that part-time jobs affect the social status of students, but more importantly for this study, may affect the student study (school) performance. Marsh (1991) indicates that high school students in their first or second (sophomore) year have higher chances of dropping out of school. This increased drop-out probability is linked to higher stress levels following from the students engaging in part-time jobs besides their study. Marsh (1991) indicates there is a difference between senior year students (third or fourth year) and first or second year students in the susceptibility for increased stress levels following from part-time employment (and thus probability of school drop-outs). Marsh (1991) finds that senior year students’ study performance is affected less by part-time jobs than first and second year students’ study performance.

Besides study year as moderator, more factors are influencing the relationship between part-time jobs and study performance according to literature (e.g., Derous & Ryan, 2008, Hawkins et al., 2005). Two central factors affecting students’ study performance are stress and effort. Here, stress negatively affects the study performance, while effort positively affects study performance (Deraus & Ryan, 2008; Moissa et al., 2019). Stress is linked with lower levels of well-being, and this influences the study performance negatively. Effort is explained by a trade-off students have to make between spending time on study purposes and spending time on work purposes: The more time the students spend on work, the less time they spend on study, which leads to lower study performance (Moissa et al., 2019). In this study the effects

of both stress and effort as mediators between part-time jobs and study performance will be examined.

1.1 Research goal

The first goal of this study is to analyse what effects a part-time job has on study performance, in order to add new insights to literature, or to confirm or refute literature. Here, the focus will be on the subtopics of stress and effort, that both can influence the study performance of students. By investigating these subtopics, this study contributes to literature by further exploring the central relation between part-time jobs and study performance of students.

The second goal of this study is to analyze whether or not a difference in study performance exists between student who have a part-time job with non-regular working hours and student whose part-time job has regular working hours. In this way new insights into the relation between students' part-time jobs and students' study performance can be made. The focus of this study will specifically be on the effect of (non-regular) working hours of the part-time jobs students engage in, and if differences in study performance exist between groups.

1.2 Research question

Derived from the central topic of the effects of part-time jobs on study performance is the subtopic of '(non-)regularity of working hours' and its effects on the study performance of students. Specifically, the focus of this study will be on the possible differences in study performance between students whose part-time job has regular working hours and students whose part-time job has non-regular working hours. Besides, the role of study year, stress and effort in this relationship will be investigated. Following from this, the following research question can be developed:

“To what extent do part-time jobs influence study performance of students and to what extent is this association mediated through stress and effort, and to what extent is this possible indirect effect moderated by study year?”

1.3 Scientific and practical relevance

There are many perspectives of scientific researchers on the relationship between the students' part-time jobs and the students' study performance (e.g., Robotham, 2012; Wang et al., 2010; Svanum & Bigatti, 2006; Butler, 2007). Until now, there is no consensus on the effects of part-time jobs on study performance. Besides, the effects of (forms of) shift work, in the form of non-regular working hours, on students' study performance is a rather untreated topic in scientific research. Therefore, this study can add to literature on the relationship between part-time jobs students engage in and students' study performance. Besides, this study may clarify the effects of (non-)regular working hours in part-time jobs on the study performance of students, hereby filling the current knowledge gap in scientific literature. By conducting a study on the effects of part-time jobs on study performance, this study may add new perspectives or may validate existing perspectives. Besides, by filling a knowledge gap in scientific literature, this study may add new perspectives regarding a subtopic ('the effect of non-regular working hours in part-time jobs on the students' study performance'). This ensures the scientific relevance of this study.

Besides the scientific relevance, the practical relevance of this study is also ensured. The findings of this study may have implications for students engaging in part-time jobs (Robotham, 2012). In the first place, the findings may show students whether having a part-time job during their study is beneficial or disadvantageous for their study performance. Secondly, the findings may indicate whether or not students' part-time jobs with non-regular working hours differ from part-time jobs with regular working hours, in their effects on the students' study performance (Härmä, 2006; Smith et al., 2003). Therefore, this study can act as a guideline for students to decide upon engaging in a part-time job during their study, and to decide upon engaging in part-time jobs with non-regular working hours, in order to sustain their performance as a student. Besides students, employers may also benefit from this study, as the effects of working during (non-)regular working hours are researched. Implications for employers may be to adjust their working hours for students, in order to reduce stress levels, improve effort levels and improve students' study performance.

This paper is divided into five chapters. Chapter 1 already introduced the (sub)topic and the line of reasoning, with accompanying research goal and research question.

In Chapter 2 the most important concepts of this study will be listed, defined and related to each other. In addition, the most important insights from scientific literature for this research

will be (critically) reviewed and linked. This includes a brief overview of the various insights researchers have on the relationship between part-time jobs and students' study performance. Also in this chapter expectations and hypotheses will be put forward about the relationships between various concepts.

In Chapter 3 the research methods will be discussed. Furthermore, the research strategy will be examined, the central concepts will be operationalised and the applied statistical analyses and tests to measure the concepts will be reviewed.

In Chapter 4 the results of the statistical analyses and tests will be discussed. In addition, the findings on the tested expectations and hypotheses will be examined. Here, the results of the statistical tests will be posited.

In Chapter 5 an answer to the research question will be given. In this chapter the expectations and hypotheses will be compared with perspectives of scientific literature.

Finally, in Chapter 6 the conducted study will be reviewed. The implications and limitations of this research, recommendations for students and suggestions for future research will be listed.

2. Theoretical framework

In this chapter the central concepts of this study will be put forward, defined, and related to each other. Theories and perspectives on study performance and the (possible) effects of part-time jobs on study performance will be critically reviewed. Here, both positive and negative

effects of part-time jobs on study performance will be examined. At the end of this chapter, several hypotheses will be posited. These hypotheses will be made visible via a conceptual model (Figure 1).

2.1 (Effects of) Part-time jobs

Part-time jobs can have multiple effects on students' study performance and, as mentioned in the introduction, much research has been conducted on the relationship between part-time jobs of students and study performance (e.g., Robotham, 2012; Wang et al., 2010; Try, 2004). The most common definition of part-time workers is given by Nardone (1986, p.14), and is stated in the introduction. Dekker (2000) distinguishes three job categories: Short part-time jobs, long part-time jobs, and full-time jobs. Here, working 12 hours per week or less is regarded as short part-time jobs, while working more than 12 hours per week but less than 33 hours per week is defined as long part-time jobs. Working more than 33 hours is regarded as a full-time job (Dekker, 2000). The threshold between part-time and full-time jobs can differ per country or sector, but is normally around the amount of 34 or 35 hours per week (Dekker, 2000).

Part-time jobs can affect study performance both positively and negatively. Positive effects of part-time jobs can be beneficial for study performance in several ways. Firstly, Butler (2007) finds that the interaction between school responsibilities and work responsibilities can lead to an interchangeable improvement in skills needed for both work and school performance. Butler (2007) names this 'work-school facilitation': The interchangeable improvement of skills and knowledge between work and school environments. Cinamon (2018) finds a positive relation between work-school facilitation and school grades. Here, Cinamon (2018) adds that the number of working hours influences the work-school facilitation of students, which in turn affects the grades (study performance) of students. According to Cinamon (2018) side effects of students engaging in part-time jobs are a higher participation in physically active leisure activities as well as community activities. Again, she argues that participation in these activities can improve both work and school performance of students. Besides, Cinamon (2018) concludes in her article that working a moderate number of hours per week has been associated with higher school commitment and stronger intentions to attend college, which has been found to improve study performance (Lee & Staff, 2007). However, in this line of reasoning by Cinamon (2018), it is unclear what she indicates as a moderate number of working hours per week. She concludes that negative

effects enter students' life when they are working more than 20 hours a week, but she does not indicate whether this is a moderate amount of hours.

Other positive effects of part-time jobs on students are named by Try (2004), Wang et al. (2010), and Robotham (2012). Try (2004) finds that part-time jobs are leading to an easier entry to (future) labour markets for the students. Wang et al. (2010) conclude that students engaging in part-time jobs during their study life are more likely to enlarge their social support networks. Social support networks have found to be affecting school life and school performance positively (Wang et al., 2010; Cinamon, 2018). A general finding of Robotham's study (2012) is that students engaging in part-time jobs during their study report more positive effects than they report negative effects of their part-time jobs. These reported effects differ from school specific effects to general quality of life effects, like stress. Overall, students report more positive (general) effects of engaging in a part-time job during their study than they report negative effects of having a part-time job during their study (Robotham, 2012).

However, opposing literature has shown that students working during their study time can have deleterious effects on several factors in students' life (Cinamon, 2018), especially when students have more than 20 working hours per week. Mainly, student employment in part-time jobs negatively affects school behaviour, school grades, school engagement, and class attendance (Marsh & Kleitmann, 2005; Zierold et al., 2005). Besides, working students may experience lack of sleep, leading to feelings of tiredness (Bachman et al., 2013; Härmä, 2006). Also, the probabilities of psychological strain and physical injury increase (Bachman et al., 2013; Härmä, 2006). Other studies indicate an increase in risk-taking behaviours when students engage in part-time jobs besides their study. Risk-taking behaviours include smoking and alcohol use (Butler et al., 2010; Liu et al., 2014).

Robotham (2012) finds that when students engage in part-time jobs to fund their study and study life, feelings of pressure to work rise. Here, Robotham (2012) concludes that when students have feelings of pressure to work, this influences both work and school performance. When financial pressure is the main driver for students to work part-time besides their study, work and school is affected by the stress following from this. Stress, in turn, leads in most occasions to worse study and work performance (Robotham, 2012).

Lens et al. (2005) find that part-time jobs affect four factors of students' study performance. Study motivation, study attitude, study persistence, and study performance suffer from students engaging in part-time jobs during their study. Deros & Ryan (2008)

confirm this, and add that part-time jobs besides a full-time study negatively affects the well-being of students. Lower levels of well-being among students is linked with worse study performance (Derous & Ryan, 2008). Derous & Ryan (2008) also find evidence for students postponing study assignments, when engaging in part-time jobs besides their study. This postponing of assignments can cause stress when deadlines are nearing, and stress, which is normally seen as a factor that worsens the students' study performance (Derous & Ryan, 2008). The combined negative effects of part-time jobs on study performance is called work-school conflict (Markel & Frone, 1978).

To further investigate the relationship between part-time jobs and study performance of students, Cinamon (2018) describes two mechanisms to describe students' interfaces between school and work: Work-school facilitation (WSF) and work-school conflict (WSC). These concepts are derived from the ecological system theory, developed by Bronfenbrenner (1989). This theory focuses on the reciprocal interaction between life environments, such as school and work environments. The immediate environments of students, like family, school or work, are called microsystems. These microsystems create interrelations, that in turn, generate subsystems (mesosystems), like the work-school environment. All these systems interact with broad social structures, like institutions (exosystems) and politics or power (macrosystems). This originally has led to the development of the 'work-family interface', but later was further developed into the work-school interface. Markel and Frone (1998) adapted the definition of work-family conflict to work-school conflict. They defined WSC as *"the extent to which work interferes with an adolescent's ability to meet school-related demands and responsibilities."* (Markel & Frone, 1998, p.278). Following from this was the development of a definition for WSF, which originally was posited and used for research purposes by Butler (2007). Butler (2007) defined WSF as an improvement in the quality of the school role resulting from participation in a work role, by interchangeably acquiring and using skills to come to good performance in both roles. McNall & Michel (2011) and Cinamon (2015) found WSC to negatively affect study performance and WSF to positively affect study performance, with WSC having more impact on study performance than WSF (Cinamon, 2015).

2.2 Study performance of students

Study performance can be defined in many ways, depending on what factors are taken into account. Ariani & Mirdad (2016, p. 175) define study performance as 'the average of final

achievement scores of students'. This definition is in line with the statement of Johnson (1997), who states that GPA (Grade Point Average) is the most widely used measure for indicating study performance. Johnson (1997), however, sees a shortcoming of GPA as a measure for study performance: Most of the time, students and researchers misunderstand GPA, by, for instance, using non-recent grades or grades from irrelevant courses. According to Johnson (1997) this may lead to misinterpretation of GPA and thus of study performance. Bacon & Bean (2016) show that this problem can be overcome by using the overall GPA of students. They find that using the overall GPA of students instead of course-specific GPAs or the most recent GPAs of students, is more reliable than the other two options.

Johnson (1997) sees another shortcoming of GPA as a measure for study performance, which is that GPA is hard to measure when this is asked in a questionnaire. Johnson (1997) finds that students who were asked to report their GPAs, reported significantly higher GPAs than they in reality achieved. Again, Bacon & Bean (2016) invalidate this finding. In their article Bacon & Bean (2016) reproduce findings from Cassady (2001), that show a high correlation of .97 between self-reported GPA and the registered GPA of students. Bacon & Bean (2016) therefore recommend (future) researchers to ask for GPA in questionnaires.

Another often used measure for measuring study performance is Scholastic Aptitude Test (SAT), which is mainly popular in the United States (Bacon & Bean, 2016). This test entails tests in several aspects of school, like math and verbal skills. The goal of this aptitude test is to measure the capacity or potentiality of an individual for a particular kind of behaviour, where previous experience or training is either assumed to be lacking or to be constant for all individuals (Slack & Porter, 1980, p.155). However, Bacon & Bean (2016) argue that using GPA scores when measuring study performance is more reliable when study performance is measured via a questionnaire. Students tend to (self-)report higher SAT grades when these grades are asked in questionnaires. When using GPA as a measure, the self-reported scores are more reliable, as they correlate more with the registered scores. Therefore, Bacon & Bean (2016) recommend using GPA over SAT scores to measure study performance.

It can be argued that part-time jobs have multiple negative effects on the study performance (GPA), which overshadow the positive effects. The studies of, among others, Marsh & Kleitmann (2005), Zierold et al. (2005), Deros & Ryan (2008) and Cinamon (2015) are taken into account, which all report negative effects of part-time jobs on the students' study

performance, where Cinamon (2015) describes WSC as a mechanism that decreases study performance. Therefore, the following hypothesis can be developed (H1).

H1: Students who engage in part-time jobs have lower study performance than students who do not engage in part-time jobs, as part-time jobs bring negative effects for students' study performance via work-school conflict.

2.3 (Non-)regular working hours

Shift work is an extensively researched concept (Smith et al., 2003). Many researchers conducted studies on the effects of shift work on mental and physical health of employees (e.g., Zedeck et al., 1983; Presser, 2000; Beers, 2000). Shift work involves working hours during non-regular or alternative hours, and on the weekends (Perucci et al., 2007). Smith et al. (2003) add to this that the working hours of shift work fall outside the daylight hours. The daylight hours are normally from 8 in the morning until 5 in the afternoon, from Monday to Friday (Presser, 2000). Shift work shifts may entail evening shifts (e.g., 3 p.m. to 11 p.m.), night shifts (e.g., 11 p.m. to 7 a.m.) or rotating shifts that lead to alternating shifts between evening, night, and day shifts. Besides the alternative working hours, shift work can also entail different duration of shifts. Sometimes shifts may have a duration of up to 12 hours. The working hours and duration of shifts may differ per country and sector, according to the legislation in the specific country or sector.

Perucci et al. (2007) state that non-regular working hours should not be confused with flexible schedules. Flexible schedules involve varying the times of arrival and departure from the workplace. Working non-regular working hours is mostly organized around fixed or rotating patterns. Fixed patterns entail employees to work evenings or nights on a standard basis, while rotating patterns may entail an alternation between day, evening, and night shifts.

Many researchers conducted studies on the effects of shift work (and non-regular working hours), often focusing on mental and physical health of employees (e.g., Zedeck et al., 1983; Presser, 2000; Beers, 2000). In most studies, the effects of non-regular working hours turn out to be negative for employees. Firstly, employees engaging in work which entails non-regular working hours report higher prevalence of physiological symptoms, like digestion problems, chest pains, cold, cramps, and inadequate and irregular sleep patterns (Perucci et al., 2007). Secondly, employees engaging in work with non-regular working hours do not

adapt to the working hours over time, and do not get used to working alternating shifts, which negatively influences motivation and productivity (Perucci et al., 2007). Thirdly, several studies indicate that employees working shift during non-regular working hours report higher numbers of gastro-intestinal disorders (e.g., Dunham et al., 1977). Dawson & Fletcher (2001) conclude that the main problem of non-regular working hours is not the time or timing of the work, but mainly the lack of a correct work-rest ratio and the opportunity to rest sufficiently to be successful in other roles (like school or family roles). Iskra-Golec et al. (1996) suggest that personality characteristics of individuals can worsen or weaken the negative effects of non-regular working hours. They find that personality variables and interaction terms of personality variables, like neuroticism and/or morningness, can improve or lower the probabilities of workers being tolerant to the effects of non-regular working hours (Iskra-Golec et al., 1996).

Perucci et al. (2007, p. 606) conclude their article with a literature overview of the most common found effects of non-regular working hours on employees. Here, the five common-found effects of shift work, of which two are relevant for this study on students, are posited:

- “1. Shift work, especially nights and rotating shifts, has negative effects on physical health.*
- 2. Shift work effects on health are strongest for gastrointestinal disorders and sleep problems.”*

In their article Perucci et al. (2007) also conclude that shift work (and non-regular working hours) indirectly lead(s) to more stress. This is the case because the feelings of fatigueness following from non-regular working hours decrease the resistance to stress. In literature, stress has been found to be having a negative influence on study performance of students (e.g., Try, 2004; Robotham, 2012). Therefore, students engaging in part-time jobs whose working hours are non-regular (like shift work) may have lower study performance than students whose part-time jobs are during regular ‘daylight’ working hours (Perucci et al., 2007; Try, 2004; Dunham et al., 1977). This results in the following hypothesis (H2).

H2: There are differences in the study performance between students who work during non-regular working hours and students who do not work during non-regular working hours.

2.4 Study year

In his article Marsh (1991) conducts a study on the effects of student employment during high school on the development of personality characteristics and academic goals. Marsh (1991) reports both positive and negative effects of student employment during high school.

He concludes that working influences the social status of students in the first and second year of their study, and that, by the end of high school, working has no positive, even negative effects on students' social status. Besides the social effects of student employment during their study, several effects on student school performance are reported. He indicates that high school students have higher chances of school drop-out when they engage in (part-time) jobs, especially when students are in their first or second (sophomore) year of their study. The probabilities of school drop-outs, linked to high stress levels gained from (part-time) employment, for senior year students was found to be lower than for first or second year students. Therefore, one can argue that the further a student proceeds in his/her study, the lower the (negative) effects of part-time jobs on study performance. In this way, study year can, as a moderator, affect the relationship between part-time jobs and study performance of students.

Although the study of Marsh (1991) incorporates only high school students, it may indicate an effect of study year on the relationship between students' part-time jobs and students' study performance. Besides Marsh's study (1991), study year as moderator is a rather unexamined variable in the relationship between students' part-time jobs and students' study performance. Therefore, adding this variable as a moderator to the relationship may lead to new scientific insights and therefore is relevant to research. The following hypothesis can be developed (H3):

H3: Study year is a moderator between students' part-time jobs and the study performance of students, via stress and effort. This moderator weakens the effects of students' part-time jobs on study performance of students.

Here, the expectations are that the higher the year of study the students are in, the lower the negative effects of part-time jobs on study performance. This line of reasoning is structured according to the research of Marsh (1991), who conducted a study on high school students. This study will focus on students (see Chapter 3 'Methodology' for further explanations on the sample).

2.5 Stress and Effort

Deros & Ryan (2008) show that part-time jobs besides a full-time study negatively affects the well-being of students. A lower level of well-being among students is linked with worse study performance (Deros & Ryan, 2008). Deros & Ryan (2008) also find evidence for

students postponing study assignments, when engaging in part-time jobs besides their study due to limited time for study purposes. This postponing of assignments often causes stress when deadlines are nearing, and stress is seen as a factor that worsens the students' study performance (Derous & Ryan, 2008). Therefore, one can state that students without a part-time job have more time to study well, and have lower stress levels compared to students who engage in a part-time job besides their study. The following hypothesis can be developed:

H4: Stress is a mediator in the relationship between part-time jobs and study performance, and negatively affects study performance.

Besides stress, also effort influences the relationship between part-time jobs and study performance. Hawkins et al. (2005) and Ma (1984) find that the more time students spend on a part-time job, the worse the study performance, as less time is available for study purposes. Moissa et al. (2019) argue that students have to decide on this trade-off by either putting less effort in their study or putting less effort in a part-time job. In the end, the goal of students with a part-time job is to balance their effort put into different aspects of their life (Moissa et al., 2019), to come to good (or sufficient) performance in both study and job aspects. However, as this is a trade-off, putting more effort into a part-time job will lead to lower study performance, and vice versa. Therefore, the following hypothesis can be developed:

H5: Effort is a mediator in the relationship between part-time jobs and study performance, and positively affects study performance.

A conceptual model that fits the stated hypotheses, distilled from the theoretical framework, is shown below (Figure 1).

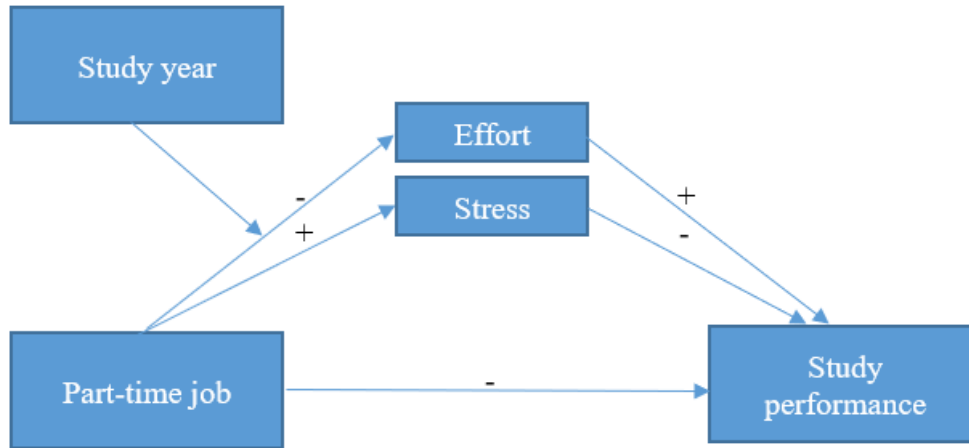


Figure 1. Conceptual model.

The conceptual model (Figure 1) shows that part-time jobs of students affect the students' study performance. Here, the expectation is that the effect of part-time jobs on students' study performance is negative, based on scientific knowledge (H1) (e.g. Marsh & Kleitmann, 2005; Zierold et al., 2005). In Figure 1 stress and effort are also taken into account as mediators between part-time jobs and study performance of students. Here, stress levels increase with the presence of a part-time job, which in turn decreases study performance. For effort the relationships are reversed: The presence of part-time jobs decrease the levels of effort put in study purposes, which decreases students' study performance.

Besides, Figure 1 shows that study year may be a moderator in the relationship between part-time jobs, stress and effort, and study performance. Study year as a moderating variable may change the relationship between part-time jobs and study performance. H3 states the expectation that study year weakens the effects of part-time jobs of students on students' study performance, via stress and effort: The higher study year the students are in, the weaker the (negative) effects of part-time jobs on students' study performance. Again, the line of reasoning from Marsh (1991) is followed, which concludes that for high school students drop-out rates decreased in higher study years and school motivation, and thus school performance, increased in higher study years. In this study the effects of study year on the relationship between part-time jobs and study performance for students are researched and compared to the effects Marsh (1991) has found for high school students.

3. Methodology

In this chapter the methodological choices made in this study will be explained. The data collection method, the sample and operationalisation of central concepts, and the research ethics will be reviewed in this chapter.

3.1 Methods

In this study a quantitative approach is applied. A quantitative approach is applicable for investigating the relationship between a limited number of variables at a static point in time (Bleijenbergh, 2015). In this study the relationship in question (part-time jobs and study performance) is investigated at a static point in time. The variables are part-time job, study year (moderator), stress and effort, and study performance as the dependent variable. For an overview of the proposed relationships, see Figure 1.

This study is deductive in its approach. The main reason for this is an abundance of literature about the central topic of this study (effects of part-time jobs on study performance of students). With scientific literature as basis, the hypotheses stated in Chapter 2 were developed. Symon & Cassell (2012) see an advantage of applying a deductive approach to scientific studies: The possibilities to explain causal relations are higher compared to an inductive approach. Because this study is mainly interested in whether or not a causal relation between the central concepts exists, a deductive approach is justified.

3.2 Data collection and sample

When applying a quantitative approach, researchers have multiple opportunities for collecting their data (Symon & Cassell, 2012), but the main way of collecting data in quantitative research is by conducting a questionnaire. Therefore, in this study the data collection is done via a questionnaire. The questionnaire is based on Likert scales, as Likert scales are helpful for measuring (numerical) relationships between the central concepts in this study (Symon & Cassell, 2012). The questionnaire that is conducted in this study incorporated all central concepts, as described in Figure 1. Besides, several concepts of fellow-students' studies were asked in the questionnaire, as the fellow-students conduct studies on other subtopics of the central topic of the effects of part-time jobs on student study performance. In the end, the goal of this study and that of fellow-students is to contribute to literature on the effects of part-time jobs on students' study performance, by letting each student conduct a study on a subtopic of part-time jobs and study performance. In this study however, the effect of (non-)regular working hours on study performance is the subtopic studied.

The questionnaire has been filled in by students of the Radboud University in Nijmegen and students of the HAN Nijmegen, and was eventually distributed among students from other universities/schools. The sample, thus, consists mostly of students who are studying in Nijmegen. The questionnaire, developed together with fellow-students, has been spread via our own networks first. This was done via social network platforms like Facebook, LinkedIn and/or Instagram. Vouchers are distributed amongst the people that responded, to increase the willingness among the targeted group (students of universities and/or HBO). In this way, the so-called 'snowball sampling method' was used. By using the snowball sampling method, the inclusion of students from other universities than the Radboud University Nijmegen can not be avoided.

3.3 Sample size

G-power is used as a measure for deciding upon the sample size. This tool indicates the minimum number of respondents is 110. This number is calculated with the G-Power Tool (version 3.1.9.4). The tool finds that a sample size of (at least) 110 is desired, with four predictors (part-time jobs/working hours, study year, effort, stress) and one outcome variable (study performance). Here, the alpha is .05, the effect size .10 and the power is .95. The G-power is calculated using the following parameters: Effects size f-squared (.10), alpha level (.05), and number of predictors (4). The total actual number of respondents of the questionnaire was 311.

3.4 Operationalisation

In this section the central concepts of this study will be operationalized. This entails making the concepts of this study measurable. Scales from scientific literature will be used. The central concepts are: Part-time job (and working hours), study year, study performance, stress, effort. Also, the control variable will be shortly mentioned.

Part-time job (working hours)

For the measurement of part-time jobs and the working hours in this study, it is necessary to make a distinction between regular working hours and non-regular working hours. This distinction can be made on the basis of Perucci et al. (2007), who make a distinction between regular and non-regular working hours for shift workers. Here, the evening (from 8 p.m.) and night working hours plus the working hours in the weekend are described as non-regular

working hours. The first question is: '*Do you have a job besides your study?*'. Another question in the questionnaire is, following an explanation of what this study describes as non-regular working hours: '*Do you work during non-regular working hours?*'. Answer options are *Yes* or *No*. The next question is: '*How many non-regular working hours do you have per week?*'. To get the right depth of information, this question is an open question. However, before the questions on the (non-)regular working hours were posited, first the participants had to indicate whether they engage in a (part-time) job besides their study. Also, the amount of hours worked per week by the participants is asked. Here, the distinction of Dekker (2000) is used to measure the amount of working hours.

Study year

Study year is measured in terms of year. As Marsh (1991) indicates, differences in school performance can arise per school year, as every school year brings different pressure levels and different obligations for the students. In the questionnaire the concept of study year is measured by asking the participants how many years they follow their current study (ranging from 1 year to 5+ years). This measure is based on Marsh (1991), who finds there exist differences between students of each study year. The range is based on the regular time a bachelor in universities (3 years) and HBO take (4 years). Data collected by the Organisatie voor Economische Samenwerking en Ontwikkeling (OESO) in 2019 show that of the Dutch students only 28% completed their bachelor or HBO study in 3 years (4 years for HBO) (Wichgers, 2019). This indicates that students spend their time on things like part-time jobs, besides their full-time study. By measuring study year as concept, the proposed relation (study year as moderator) is investigated.

Study performance

In this study GPA is used as a measure for study performance. This is mainly because students tend to (self-)report higher SAT grades when these grades are asked in a questionnaire. This may lead to incorrect measurement of study performance. GPA scores are more reliable when study performance is measured via a questionnaire (Bacon & Bean, 2016), and have been found to correlate with the registered grades of students. Besides the GPA scores, the ECTS per year is measured in the questionnaire. This measure indicates how many credits students have earned in the past or current study year. A normal study year consists of 60 ECTS per year. This question is an open question to gather as much in-depth information as possible. This measure should indicate how the students performed in the

current study year. In the questionnaire, there was also asked what the students' possible amount of ECTS is for the current study year. In this way it is possible to compare the achieved amount of ECTS and the possible amount of ECTS this study year. However, '*What is your average grade?*' (GPA) is used to measure the study performance, as it is the most reliable way of measuring study performance (Bacon & Bean, 2016).

Stress

The level of stress is measured using four items from the Copenhagen Psychological Questionnaire, originally founded by Kristensen and Borg (2005). This questionnaire is widely used to measure the concept of stress (Nuebling and Hasselhorn, 2010). The four items include questions about how tense, how irritable, and how stressed people are, and about if someone has problems relaxing. The items are measured on a 5-point Liker scale, ranging from 1 (Never) to 5 (Always). The higher the score on these items, the higher the levels of stress among the participants. To ensure the reliability of the stress items, Cronbach's Alpha is measured. For the stress scale, Cronbach's Alpha is .84, with $n=4$. This means the scale of the stress items is reliable, as Cronbach's Alpha $> .60$ is sufficient. Cronbach's Alpha for the stress scale can be improved by deleting the item '*How often are you irritated?*', as Cronbach's Alpha rises to .87. However, to sustain high levels of validity, in this study the item of '*How often are you irritated?*' is taken into account. Besides, the improvements of Cronbach's Alpha if the item in question is deleted is only marginal. The other variables will remain in the analysis, as the Cronbach's Alpha will decrease if those items are deleted.

Effort

Moissa et al. (2019, p.1) define students' effort as '*the experienced cognitive load, which is the total amount of cognitive resources during the execution of a given task*'. Moissa et al. (2019) state that measuring effort is crucial for students' success in several tasks, and therefore they developed a measure for effort. In their study, Moissa et al. (2019) use 'time spent on a task' as the main indicator for effort, as this indicator is easiest to measure in terms of time. However, in this study effort is measured via the following question: '*How much effort does it take for you to study (well)?*'. Answer options will range from 1 ('Very little') to 5 ('Very much'). Here, the participants indicated how they feel about the effort they put into their study.

Control variable

In this study 'Gender' functions as a control variable. Gender is also measured in the questionnaire. Gender is measured according to three categories: 'Male', 'Female', and 'Other, namely'. Gender is a control variable because many studies indicate that women perform better in their study than men (e.g., Ranjeeth et al., 2020; Olowookere et al., 2020). See Appendix 1 for the complete questionnaire, including all items.

3.5 Data analysis procedure - Analysis

For measuring the relationships in this study the program SPSS is used. The concepts and conceptual model (Figure 1) show a moderation-mediation relationship. The quantitative technique that best investigates these sorts of relationships is a (multiple) regression analysis. However, to measure the effects of this relatively complicated mediation-moderation model, the option of PROCESS in SPSS is used. To make use of the stated statistical analysis, the data has to meet certain conditions (Hair et al., 2018). These conditions are:

- All variables are of (at least) interval level.
- The relation between the independent variables and the dependent variable is linear.
- The data is homoscedastic.
- The data is normally distributed.
- The data shows no form of multicollinearity.

Above stated conditions for the applied statistical analysis are tested and the conditions were met for this study.

Besides the multiple regression analysis, a t-test is conducted to examine the differences in study performance between students who work besides their study and students who do not work besides their study. Another t-test is conducted to examine the differences in study performance between students who work during non-regular working hours and students who do not work during non-regular working hours. The outcomes of the t-tests are described in the Results section.

Reliability

A reliable study entails findings that are robust, meaning that if the study is repeated, this will lead to similar findings (Saunders & Lewis, 2012). Potential threats to reliability are bias, inappropriate sampling strategies, and intransparent lines of reasoning. This study ensures reliability by developing an adequate sampling strategy, the 'snowball sampling strategy'.

Secondly, this study ensures reliability via a clear line of reasoning by clearly describing and explaining all research steps that are taken. Thirdly, to measure reliability for the scales of items, Cronbach's Alpha is used. Here, the scale of the stress-items can be assessed on their reliability.

3.6 Research ethics

This study may have several limitations. The first one is that the questionnaire is asking questions about multiple (sub)topics of the central topic 'part-time jobs on study performance'. That leads to a longer questionnaire, which in turn can influence the validity of the answers of participants as they are less concentrated at the end of the questionnaire. The second limitation is that the questionnaire can only be filled out online. This makes the process of conducting the questionnaire less personal and may lead to different answers, then the questionnaire was conducted in a real-life setting.

The participants in this study are students. In principal, the students participated by filling out the questionnaire via a digital link. Filling out the questionnaire via a digital link (with the option to blur the email addresses) ensures that the participants can remain anonymous, and no information can be traced back to the participant. The fact that the participants could remain anonymous is stated at the beginning of the questionnaire. This may have led to more honest answering by the participants, as they feel comfortable and safe filling out the questionnaire. Feelings of (psychological) safety can be enhanced by ensuring the respondents that their participation in the questionnaire is anonymous (Jannink, 2017). Besides the statement about anonymity, the beginning of the questionnaire includes the research goal, the goal of the data collection, what is done with the data, and that the participants can decide to withdraw from the research at any time. However, if the participant wants to be informed about the developments in the research he/she is participating in, the participant could enter his or her email address at the end of the questionnaire. In this way, the 'BBC' function can be used to send information to the participants afterwards. By filling out their email addresses the participants are not fully anonymous anymore. In the end, the consideration and decision about remaining anonymous was up to the participants.

We as researchers provided the digital link via social media and/or in our social networks. Therefore, we did not influence the answers of potential participants of the questionnaire, as we did not interact personally with the potential participants.

The findings may have led to several implications for students who work besides their study. The students who participated and those who are interested in the findings and the implications following from the findings can enter their email addresses. Via this way the participants can learn about the practical implementations of this study.

4. Results

In this chapter the results of the quantitative SPSS analyses will be presented. First, the means and correlations will be shown. Secondly, the hypotheses will be tested. Those hypotheses and expectations will be either confirmed or rejected. The most important SPSS output can be found in Appendix 2.

4.1 Central variables: Means and correlations

Before going into the analyses of the hypotheses, it is important to give an insight in the means of the central variables and socio-demographic variables of this study. Here, the means of those variables will be broken down into a subgroup, namely the subgroup of study direction. First of all, the variable of Age is important to highlight. The F-value for the Age variable is non-significant, which indicates no differences in age between the different study directions ($F(6, 304) = .980, p = .439$). The average age of the respondents who filled out the questionnaire is 22.4, with the standard deviation being 1.987.

In the last column of Table 1, the Pearson Chi-square value shows that there are differences between the study directions in the Male-Female distributions ($\chi^2 = 19.604, p < .05$). Table 1 also shows that the total sample is 311, of which 67.8% is female. Language, communication, art and culture studies contain the highest percentage of women (88.2%), while Science and IT, and Tech studies contain the lowest percentage of women (45.5%).

The Chi-square value of part-time job is non-significant, which indicates no significant differences in the 'part-time job' variable between the different study directions ($\chi^2 = 8.086, p = .232$). Table 1 shows that 247 of the 311 students engage in a part-time job besides their full-time study (79.4%).

The F-value of total working hours is non-significant, which indicates no significant differences in total working hours between the different study directions ($F(6, 304) = 1.217, p = .297$). The average total working hours of students is 9.58 hours per week.

There are no significant differences in Total income of students between the study directions ($F(6, 304) = 1.370, p = .239$). The average total income of the students who filled out the questionnaire is €1222, with a standard deviation of €492.

The F-value of income from part-time jobs indicates differences in income from part-time jobs between the different study directions ($F(6, 304) = 2.776, p < .05$). Because the F-test is significant, the mean of (at least) one subgroup is differentiating from the overall mean. In the case of Income from part-time jobs, the subgroup of Interdisciplinary and/or Education students have a much lower income from their part-time jobs than the mean.

The average income from the students' part-time job is €561, with a fairly high standard deviation of €412. Business and Society students earn the most from their part-time jobs (€682), while Interdisciplinary and/or Education students earn the least (€380).

There are no significant differences between the subgroups of study direction ($F(6, 304) = .709, p = .643$). Students experience average stress levels of 2.72, which is in between the levels of '2: Sometimes' and '3: Regularly', with the standard deviation being .75.

There are no significant differences between the subgroups of study direction ($F(6, 304) = 2.028, p = .062$). This statistical trend is almost significant, which means that effort is close to being a significant predictor. The average student scores 3.17 on a scale of five when being asked about the effort it takes for them to study well, with the standard deviation being .82. This comes down to an average Effort level of 'Regularly'.

There are no significant differences between the different study directions ($F(6, 304) = .551, p = .769$) in the study performance of students (GPA). The students who filled out the questionnaire have an average grade of 7.22, with a standard deviation of .61.

There are no differences in study year between the different study directions ($F(6, 304) = .351, p = .909$). The average student is in study year 2.92, which comes down to their third study year.

55.9% of the students have non-regular working hours. There are no differences between the different study directions ($r = 8.143, p = .228$).

There are differences in the amount of non-regular working hours between the different study directions ($F(6, 304) = 2.596, p < .05$). Students from Science, IT and Tech studies report the highest amount of non-regular working hours (11 hours per week), while Medicine/Healthcare report the lowest amount of non-regular working hours (6 hours per week). The students who engage in a part-time job on average have 7.92 non-regular working hours per week.

There are differences between the study directions in the amount of contact hours of study per week, as the F-value is significant ($F(6, 304) = 3.712, p < .05$). The lowest amount of contact hours is for Law and Governance students (7.30), while Healthcare and Medicine students have the highest amount of contact hours per week (18.17). The average contact hours per week is 10.54.

Table 1. Means of central variables, broken down into study direction(s).

	Economics and Business (n=131)	Healthcare/ Medicine (n=42)	Behavior and Society (n=34)	Language,communi cation, art, culture (n=34)	Interdisciplinary and education (n=25)	Science and IT, Tech studies (n=22)	Law and Governance (n=23)	Total (n=311)	F-value/ Chi-square value	Sign.
Age	22.3	22.3	23.1	22.5	22.1	22.8	22.3	22.4	.980	.439
Women (%)	61.8	76.2	67.6	88.2	60.0	45.5	87.0	67.8	19.604	.003
Part-time job (%)	79.4	85.7	76.5	82.4	88.0	59.1	78.3	79.4	8.086	.232
Total working hours	10.40	8.80	9.61	9.85	8.40	6.09	10.45	9.58	1.217	.297
Having non-reg. hours (%)	52.9	75.0	53.8	50.0	63.6	46.2	44.4	55.9	8.143	.228
Amount of non-reg. hours	9.19	6.00	6.92	6.29	7.43	11.00	8.88	7.92	2.596	.021
Income Part-time job (€)	634	414	682	474	380	550	621	561	2.776	.013
Total Income (€)	1329	1275	1390	1010	923	960	1113	1222	1.370	.239
Average grade (GPA)	7.26	7.08	7.17	7.28	7.24	7.23	7.20	7.22	.551	.769
Current study year	2.92	2.78	3.20	3.00	3.00	2.82	2.67	2.92	.351	.909
Contact hours study per week	9.32	18.17	9.39	10.56	11.12	8.09	7.30	10.54	3.712	.001
Self-study hours per week	17.67	9.18	12.23	13.06	14.28	26.36	19.13	15.97	3.790	.001
Stress scale	2.70	2.55	2.82	2.71	2.70	2.88	2.82	2.72	.709	.643
Effort to study well	3.24	3.12	3.03	3.03	3.24	3.55	2.83	3.17	2.028	.062

Self-study hours per week is significantly differing per study direction, as the F-value is significant ($F(6, 304) = 3.790, p < .05$). The highest amount of self-study hours per week is for Science and IT students (26.36), while Healthcare and Medicine students report the lowest amount of self-study hours per week (9.18). The average students spends 15.97 hours per week on self-study.

Table 2 shows the Correlation Matrix. Here, the correlations between the central variables of the conceptual model (see 'Figure 1') will be shown at different levels of significance ($\alpha < .05$ and $\alpha < .001$). Below the significant correlations between variables are described and explained.

Age and study year correlate ($r = .55, p < .001$). This implies that the older the students get, the higher their study year. Age and Effort to study well correlate with each other ($r = .13, p < .05$). This means that older students put more effort in their study than younger students. Table 2 also indicates that the older the students are, the more hours they work per week. This follows from the correlation between the named variables ($r = .13, p < .05$).

Age has a correlation with Income from part-time jobs ($r = .29, p < .001$). This means that the older the students are, the higher their income from the part-time job(s) they engage in. In a similar manner, Age correlates with Stress levels of the students ($r = .14, p < .05$). This implies that the older the students get, the higher the stress levels they experience. Table 2 also shows Study year has a correlation with Income from part-time jobs ($r = .17, p = .05$). The correlation is only just significant. The correlation between those variables means that the further the students are in their study, the higher the income from part-time jobs, and the other way around.

Effort to study well correlates with Stress levels of students ($r = .32, p < .001$). This implies that students who put more effort into their study report higher levels of stress. Besides, Effort to study well correlates with Study performance (GPA) ($r = -.21, p < .001$). This implies that students who put more effort into their study report higher study performance.

Students who report high scores on Hours worked per week, also report high scores on Income from part-time job(s). This follows from a correlation between those variables ($r = .79, p < .001$). Similarly, Hours worked per week correlates with the amount of Non-regular

working hours ($r = .45, p < .001$). Students who work more hours per week are also working more non-regular working hours per week.

Students who report high scores on Income from part-time jobs report higher scores on Study performance, as the variables correlate ($r = -.14, p < .05$). Also, students who report high scores on Income from part-time jobs report a higher amount of Non-regular working hours, as the named variables have a correlation ($r = .22, p < .001$). This means that students with a higher income from their part-time job work more non-regular working hours.

Table 2. Correlation Matrix with central variables. N = 311.

*: $p < .05$, **: $p < .001$.

	<u>Age</u>	<u>Study year</u>	<u>Effort to study well</u>	<u>Hours worked</u>	<u>Income from P-T job</u>	<u>Non-regular working hours</u>	<u>Study performance (GPA)</u>	<u>%Study credits</u>	<u>Stress scale</u>
<u>Age</u>		.55**	.13*	.13*	.29**	.02	-.09	-.01	.14*
<u>Study year</u>			-.02	.08	.17*	.02	-.05	.09	.10
<u>Effort to study well</u>				-.04	.01	-.03	-.21**	-.03	.32**
<u>Hours worked</u>					.79**	.45**	-.10	-.07	-.04
<u>Income from P-T job</u>						.22**	-.14*	-.03	-.06
<u>Non-regular working hours</u>							-.02	.05	-.02
<u>Study performance (GPA)</u>								.07	.06
<u>%Study credits</u>									.02
<u>Stress scale</u>									

4.2 Multiple regression analysis and PROCESS

After describing the means and other background information of the sample, now the hypotheses stated in Chapter 2 ('Theoretical Framework') will be tested. By using multiple regression analysis and the PROCESS option, the relations stated in H1, H2 and H3 will be exposed. The results of the analysis of the relation stated in H1 are summarized in Table 3.

Table 3 includes two models: Model 1 represents the analysis of the independent variables of 'part-time job' and 'working hours', while model 2 includes the control variable of 'gender'. For Model 1 the R^2 is .012 and the Adjusted R^2 is .005. This means that the Model 1 explains 1.2% of the total variance. Model 2 (with the control variable) has a R^2 of .030 and an Adjusted R^2 of .020. This means that model 2 explains 3.0% of the total variance.

Following from H1 it is expected that a difference in study performance exists between students who have a part-time job and students who do not have a part-time job. This can be tested via a multiple regression analysis (Table 3). Model 1 indicates no significant effect of 'part-time job' on study performance ($b = -.078$, $t = -.704$, $p = .482$). Besides that, the Model 1 also indicates no significant effect of '(amount of) working hours' on the study performance of students ($b = -.011$, $t = -1.812$, $p = .071$). Model 2 shows the effects of part-time jobs and (the amount of) working hours on study performance, under control of gender. The variables 'part-time job' ($b = -.068$, $t = -.611$, $p = .542$) and '(amount of) working hours' ($b = -.011$, $t = -1.833$, $p = .068$) are still not significantly predicting study performance. In Model 2 the control variable Gender significantly affects the study performance of students ($b = .177$, $t = 2.390$, $p < .05$). Although no hypothesis was developed about the influence of Gender, this finding may still be interesting. This finding indicates that women score higher on study performance than men (study performance of 7.27 for women versus 7.09 for men, $t = -2.382$, $p < .05$).

Besides a multiple regression analysis to see if part-time jobs have an effect on study performance of students, a t-test is executed to uncover the expected (possible) differences between students who engage in part-time jobs and students who do not engage in part-time jobs (expectations of H1). The mean study performance of students who engage in a part-time job is 7.21. The mean study performance for students who do not engage in a part-time job is 7.25. The t-test for the equality of means indicates no significant differences in study performance between students with a part-time job and students without a part-time job, as the t-test is not significant ($t(309) = -.549$, $p = .583$). Therefore, H1 is rejected: There is no difference between the study performance of students who engage in part-time jobs and the

study performance of students who do not engage in part-time jobs. This can be concluded from the multiple regression analysis, and mainly from the non-significant t-test.

Table 3. Multiple regression results for (differences in) study performance of students.

Variable	b	Std. Error	Beta	t	p	R ²	Adj. R ²
<u>Model 1</u>	7.411	.179		41.475	.000	.012	.005
Part-time job	-.078	.111	-.052	-.704	.482		
Amount working hours	-.011	.006	-.133	-1.812	.071		
<u>Model 2</u>	7.102	.220		32.352	.000	.030	.020
Gender	.177	.074	.135	2.390	.017		
Part-time job	-.068	.111	-.045	-.611	.542		
Amount working hours	-.011	.006	-.134	-1.833	.068		

To test H2 a t-test for inequality of means will be executed to test the hypothesis. Study performance for students with non-regular working hours is 7.12, for students without non-regular hours 7.31. The t-test for equality of means indicates a significant difference in study performance between students whose part-time job has non-regular working hours and students whose part-time job has no non-regular working hours ($t(245) = -2.463$, $p < .05$). Therefore, H2 is confirmed: There are differences in study performance between students whose part-time job has non-regular working hours and students whose part-time job has no non-regular working hours.

Moderation and mediation effects

H1 and H2 were tested using multiple regression analysis and/or t-tests. Testing H3 is more complicated than H1 and H2, as the hypothesis is defined as a ‘moderated mediation model’ (see ‘Conceptual model’ in Chapter 2). The PROCESS option in SPSS is used to execute the correct statistical tests. Recall from Chapter 2 that H3 stated:

H3: Study year is a moderator between students’ part-time jobs and the study performance of students, via stress and effort. This moderator weakens the effects of students’ part-time jobs on study performance of students.

For testing H3 PROCESS model 7 was used. Here, the dependent variable is ‘study performance (GPA)’, the independent variable is ‘part-time job’, the moderator is ‘study year’ and the mediators are ‘stress’ and ‘effort’. The expected effects and whether the effects are positive or negative are summarized in Figure 1 (‘Conceptual model’). Below the components of the model are shown (Figure 2; path a, b, and c’).

The analysis for testing the moderated mediation is executed by using the PROCESS option in SPSS. Figure 2 shows the different paths that are crucial for testing the moderated mediation. Here, the focus is on whether there is a moderated a-path (with Study year as moderator). Table 4 and 5 summarize the results for the a-paths of both mediators (stress and effort). For stress the explained variance is .013, which means that 1.3% of stress is

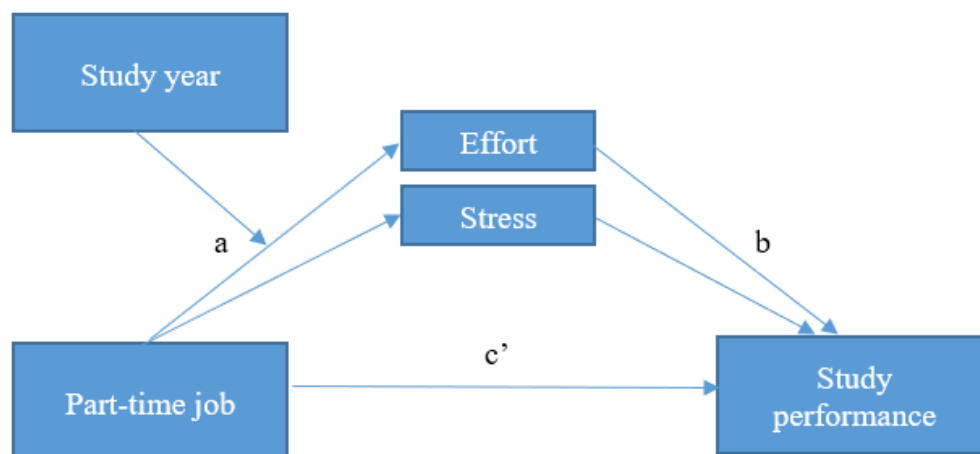


Figure 2. Conceptual model, broken down into three paths.

explained by the variables in Table 4. Besides this, Table 4 shows that the interaction term ‘part-time job’ and ‘study year’ is non-significant ($b = .084$, $p = .482$, $LLCI = -.151$, $ULCI = .319$). This means that there is no (significant) moderation effect of Study year on the relation between ‘part-time job’ and ‘stress’.

Table 4. Moderated a-path for stress as a mediator.

	b	Se	t	p	LLCI	ULCI
Constant	2.797	.494	5.667	.000	1.823	3.771
Part-time job	-.218	.384	-.569	.570	-.977	.540
Study year	-.038	.156	-.242	.809	-.346	.270
Int_1	.084	.119	.705	.482	-.151	.319

$R^2 = .013$

$p = .514$

*Int_1: Part-time job * Study year*

For effort the explained variance is .014 or 1.4%. Table 5 also indicates a non-significant interaction effect of ‘part-time job’ and ‘Study year’ ($b = .186$, $p = .152$, $LLCI = -.069$, $ULCI = .441$). This entails that there is no (significant) moderation effect of Study year on the relation between ‘part-time job’ and ‘effort’.

Table 5. Moderated a-path for effort as a mediator.

	b	se	t	p	LLCI	ULCI
Constant	4.022	.536	7.508	.000	2.965	5.079
Part-time job	-.641	.417	-1.539	.126	-1.462	.121
Study year	-.242	.169	-1.432	.154	-.576	.092
Int_1	.186	.129	1.440	.152	-.069	.441

$R^2 = .014$

$p = .490$

*Int_1: Part-time job * Study year*

Another analysis is executed to test whether there is a moderated mediation in the model. Again, the results from the analysis indicate that there exists no moderated mediation in the model, as the confidence intervals of moderated mediation for both mediators (‘stress’ and ‘effort’) include zero (see Table 6). For stress the moderated mediation is not significant (Index = .012, $LLCI = -.023$, $ULCI = .069$). For effort the moderated mediation is not significant (Index = -.038, $LLCI = -.099$, $ULCI = .024$).

Table 6. The moderated mediation index.

	Index	BootSE	BootLLCI	BootULCI
Index of moderated mediation: job > stress > StPerf	.012	.023	-.023	.069
Index of moderated mediation: job > effort > StPerf	-.038	.031	-.099	.024

The analyses executed for testing the moderation effect of Study year on the relationships between the independent variable ('part-time job') and the mediators ('stress' and 'effort') unanimously indicate no moderation effect of Study year, in the hypothesized moderated mediation model. Therefore, H3 is not supported: Study year is not a moderator for the relation between student's part-time jobs and the study performance of students, via the mediators of stress and effort. As the moderator is non-significant, no statements can be made about the direction of the effect of Study year as moderator. Hereby, the findings oppose H3, which supposes that study year weakens the effects of students' part-time jobs on study performance of students.

Besides the moderated a-path, the b- and c'-path are important to analyse. For the b-path, the mediators of stress (H4) and effort (H5) are tested. 'Stress' is a significant mediator, as the p-value is below the threshold of $\alpha = .05$ and zero is not included between the two confidence interval limits (b= .141, t= 2.174, p < .05, LLCI= .013, ULCI= .268). Therefore, H4 is confirmed. Effort has a significant p-value and zero is not included between the two confidence interval limits (b= -.202, t=-3.396, p < .05, LLCI= -.320, ULCI= -.085). This means that 'effort' is a significant mediator in predicting the dependent variable of 'study performance' and therefore H5 is confirmed.

For the c'-path, the direct effect of 'part-time job' on 'study performance' is tested. In this model, the direct effect of the c'-path is not significant (b= .039, t= .349, p= .728, LLCI= -.180, ULCI= .257). This means that there is no significant (direct) effect of 'part-time job' on study performance of students, as the p-value is above the threshold of $\alpha = .05$ and zero is included between the two confidence interval limits. Table 7 summarizes the findings of the b-path and the c'-path.

Table 7. Results of testing the relations of the b-path and c'-path.

	b	Se	t	p	LLCI	ULCI
Constant	7.378	.252	29.321	.000	6.881	7.874
Part-time job	.039	.111	.349	.728	-.180	.257
Effort	-.202	.060	-3.396	.001	-.320	-.085
Stress	.141	.065	2.174	.031	.013	.268

$R^2 = .068$

$p = .006$

Lastly, by incorporating the bootstrap results of the regression model, it has been checked whether the findings are robust when it comes to violations of normality. The bootstrap results are included in Appendix 2. The bootstrap results indicate that the findings presented earlier are robust and the findings are hereby confirmed.

5. Discussion

In this section the results are discussed and linked with the theoretical framework. Besides, the researcher analyses the practical implications and the theoretical recommendations following from the findings of this study, and reflects on those findings. Also, the limitations and suggestions for future research will be presented.

This study finds no differences in study performance between students who work and students who do not work. This findings contradicts the results and/or conclusions from the theoretical framework (e.g., Marsh & Kleitmann, 2005; Zierold et al., 2005; Cinamon, 2015). The named studies are linking the negative effects of part-time jobs on study performance. This study finds no evidence for part-time jobs (negatively) impacting study performance. However, this study is supporting the results and/or conclusions that find non-regular working hours to (negatively) affect study performance (e.g., Perucci et al., 2007; Try, 2004; Dunham et al., 1977). Those studies found that non-regular working hours negatively affected study performance, and finds evidence for a similar relation. Lastly, the theory of Marsh (1991) states that study year is a moderator for the relation between part-time jobs and study performance, via stress and effort. Although stress and effort are mediating between part-time jobs and study performance, study year is not significant in this study. Therefore, this study contradicts the conclusions of Marsh (1991), explained in the theoretical framework.

Practical implications

The most important practical implication and insight following from this study is that students can decide whether their part-time job is deleterious for their study performance or not, by using the findings from this study. This study finds that working besides a full-time study does not worsen the study performance of students, as there is no difference found in study performance between students who work and students who do not work. Therefore, this study forms the following implication and/or advice for students: Working besides your study is not disastrous for your study performance, doing both is possible. However as stated in the introduction, Salamonson and Andrew (2006) find that part-time jobs negatively affect study performance when students are working more than 15 hours per week. Therefore, working besides a full-time study is possible, but only up to 15 hours per week is preferable.

Also, an insight following from the findings of this study is that working during non-regular working hours negatively impacts the study performance of students with a full-time

study. This has practical implications for both students and employers. This study indicates that students cannot work during non-regular working hours without their study performance suffering from it. This may lead to students engaging less in jobs with non-regular working hours, like night clubs or bars. On the other hand the employers may know that they cannot rely on their student employees during non-regular working hours, without the students suffering from this in their study performance. This entails that students should not work in the evenings/nights and/or weekends, which brings several disadvantages for both employer and student employees. A disadvantage for the employer may be that the students' availability during all working hours (non-regular working hours included) decreases and in this way the employer may have trouble filling the work shifts. A disadvantage for the students may be that they cannot distribute their working hours over a period of time (weekly), as there are fewer hours available to work (only regular working hours, not during non-regular working hours). The impossibility to distribute working hours leads to students having their working hours in a short period of time consecutively. In the end this may cause more stress and less effort put into study purposes by the students. This may lead to (even) lower study performance. For the employers it is important to adjust the working hours of students to the availability of the students (which is preferably not during non-regular working hours).

Reflection on findings

Before describing the theoretical recommendations and limitations of this study, it is crucial to reflect on the findings of this study. The findings do not (completely) confirm the scientifically embedded hypotheses proposed in the theoretical framework: H1 and H3 are rejected, while H2, H4 and H5 are confirmed. A possible explanation for this may be that the line of reasoning was too much focussing on the theories which showed the negative effects of part-time jobs. Hereby, the researcher may have overlooked the positive effects of part-time jobs. Not incorporating (more of) the positive effects in the early stages of this study (introduction, theoretical framework) may have led to the findings differing from the hypotheses and scientific theory. Another explanation for the findings may be that the sample was not evenly distributed (Male-Female distribution). This fact may possibly explain the non-significant effects of part-time jobs on study performance, as the overrepresented women may (genetically predetermined) be better able to deal with their part-time job in combination with studying successfully. However, the sample may represent the student population

correctly, as the share of women studying is exceeding the share of men. In this case the (unevenly distributed) sample does not play a role in the non-significance of the relations.

Although this study does not confirm H1 and H3, the study may add several insights to scientific literature. The theories shown in the theoretical framework find that part-time jobs either are barely affecting study performance (Darolia, 2013) or have a positive effect on study performance (Butler, 2007). This study joins Darolia (2013) in stating that there are no (significant) effects of part-time jobs on study performance. Hereby, this study opposes the theories explained in the theoretical framework. However, the finding that non-regular working hours do affect the study performance of students negatively is a relatively new insight, and therefore this study may be considered as an addition to scientific research. What further meaning the findings have, is translated into several practical implications and theoretical recommendations.

Theoretical recommendations

Although some relations between the central variables of this study are non-significant, this study has several theoretical recommendations (which are related to the limitations). These recommendations will be reflected in the suggestions for future research, but also some other recommendations can be done. The first theoretical recommendation is to incorporate the concepts of WSF and WSC in the conceptual model and in the questionnaire (also see the first limitation). In this way the mechanisms affecting the relation between part-time jobs and study performance can be made visual and can be explained. Here, it can expand literature of Cinamon (2015).

Deros & Ryan (2008) indicate a positive effect of a study-related part-time job on study performance of students. A second theoretical recommendation is to conduct further research into the positive effects of study-related part-time jobs.

A last theoretical recommendation is to conduct further research into the effects of personal characteristics in the relation between part-time jobs and study performance, and which also can affect the mediators of effort and stress. Butler (2007) and Deros & Ryan (2008) indicate that some personal characteristics may positively affect the relationship between part-time jobs and study performance, for example having a proactive attitude towards job and/or study. More suggestions for future research are given below.

Limitations of study and future research

This study has several limitations. The first limitation is that a snowball sampling method is used to gather respondents. Although this is a good way to gather a high amount of respondents, it may have a non-representative sample as a consequence. In this study the share of women is relatively high compared to the male respondents. A suggestion for future research may be to use a sampling method that ensures an evenly distributed sample of respondents, which increases the validity and reliability of the study. If the sample is correctly representing a (women-dominated) student population, then this limitation does not hold.

Another limitation of this study is the self-reporting of study performance by the respondents. This may have led to distorted images of the study performance, as students tend to self-report higher grades than they in reality achieved (Bacon & Bean, 2016). Indeed, the data show that the study performance of the students is rather high. Therefore, there may be a correction on the study performance needed, to ensure a more realistic view of the actual study performance of students, and thereby a higher validity of the study. An idea for future research may be to investigate the differences between self-reported study performance and actual study performance and develop a measure to account for the differences between the two study performance numbers.

A third limitation is the absence of measurement of the concepts of WSF and WSC in the questionnaire. The questionnaire was spread before the researcher(s) came in touch with the two mechanisms, developed by Bronfenbrenner (1989) and described by Cinamon (2015). In this way the two concepts could not be used as variables in the conceptual model, as they were not measured. This diminishes the validity of the research. A suggestion for future research may be to insert the concepts of WSF and WSC in the conceptual model (and the questionnaire), to describe the possible effects of the two mechanisms on the other variables in the conceptual model (Figure 1). However, due to limited time this study did not incorporate WSF and WSC in the conceptual model. To deal with the exclusion of the two named concepts, the researcher focused more on the other central predictors of study performance (study year, effort and stress). When adding the total amount of working hours with the total time spent on study, the average students spends 36.09 hours per week on work and study. When working hours are increasing, the amount of hours spent on study is decreasing, and vice versa. This may indicate that the two mechanisms (WSF and WSC) are balancing each other out.

A fourth and last limitation of this study may be that the positive effects of part-time jobs on study performance are relatively unexamined. This is reflected in the fact that the focus of the theoretical framework, the conceptual model, and the questionnaire is mainly on the negative effects of part-time jobs (for instance, stress levels has a negative connotation in relation with study performance). The lack of focus on positive effects may have led to a distorted and one-sided view on the effects of part-time jobs on study performance. Consequently, a suggestion for future research may be to incorporate both negative and positive effects of part-time jobs instead of (mainly) focussing on negative effects. However, the line of reasoning in this study, which explains why focusing on the negative effects is justified, is logically built up. This increases the reliability and validity of this study.

6. Conclusion

In this study no differences are found between the study performance of students with a part-time job and the study performance of students without a part-time job. This finding hereby contrasts the conclusions of earlier studies of Marsh & Kleitmann (2005), Zierold et al. (2005), Derous & Ryan (2008) and Cinamon (2015). Those studies all establish the link between (the negative effects of) part-time jobs and the study performance of students. This study finds no prove for part-time jobs affecting the study performance of students negatively, and hereby H1 is rejected.

Differences have been found in study performance between students who work during non-regular working hours and students who do not work during non-regular working hours. This finding confirms the findings of studies of Perucci et al. (2007), Try (2004) and Dunham et al. (1977). Those studies compared working during non-regular working hours to performing shift work and showed that shift work is negatively affecting study performance due to several physical and mental adverse effects. This study found evidence to support the statement that working during non-regular working hours negatively affects the study performance of students. As a result H2 is confirmed.

Inconsistent with the study of Marsh (1991), study year has been found to not be a moderating variable in the relation between part-time jobs and study performance of students, via stress and effort. As a consequence H3 is rejected. However, this study does find effort and stress to be mediating the relationship between part-time jobs and study performance. Hereby, H4 and H5 are confirmed. This finding confirms findings of earlier studies of Moissa et al. (2019), Marsh (1991), Robotham (2012), and Derous & Ryan (2008).

In conclusion, no differences in study performance exist between students who engage in part-time jobs and students who do not engage in part-time jobs. This study concludes differences in study performance exist between students who work during non-regular working hours and students who do not work during non-regular working hours. Of the mediators and moderators, effort and stress are affecting the relationship between part-time jobs and students' study performance significantly, while study year is not. These findings do not change under control of Gender. This entails that the expectations of the researcher on the basis of the scientific literature, made visual in Figure 1, are partly confirmed and partly rejected. The effects of effort and stress between part-time jobs and study performance of students, and the effect of non-regular working hours on study performance are significant in this study.

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Appendices

Appendix 1: Questionnaire*

*The attached questionnaire does not incorporate the items of Support, Time management, and Study involvement, as those items are not relevant for this study (only for studies of fellow-students).

Het leven van een student met een voltijd studie op hbo of wo niveau en een eventuele bijbaan

Survey Master Thesis voor studenten van hbo/wo niveau

Beste student,

Alvast heel erg bedankt dat je tijd wil vrijmaken om de vragenlijst in te vullen en wil deelnemen aan ons onderzoek. De vragenlijst is onderdeel van vijf master scripties die worden geschreven voor de master Strategic Human Resources Leadership aan de Radboud Universiteit. De scripties hebben een gezamenlijk hoofdonderwerp, namelijk het leven van een student met een voltijd studie op hbo of wo niveau en een eventuele bijbaan.

Het invullen van de vragenlijst duurt ongeveer 10 minuten. Deelname aan de vragenlijst is geheel vrijwillig en de door jou verstrekte antwoorden worden zorgvuldig behandeld. Dat betekent dat de gegevens anoniem worden verwerkt en dat de gegevens op geen enkele manier door derden herleidbaar zijn naar respondenten. Je kan te allen tijde je deelname stoppen door de vragenlijst niet verder in te vullen en deze browser af te sluiten. Jouw persoonlijke informatie zal dan niet worden opgeslagen.

Een leuke bijkomstigheid is dat er drie bol.com cadeaubonnen worden verloot onder de deelnemers van het onderzoek. Als je de vragenlijst volledig invult, maak je kans op één van deze drie cadeaubonnen.

Als je vragen, opmerkingen of klachten hebt, kan je contact opnemen met femke.dings@student.ru.nl

Groet,

Sam Kremers, Inge van Wijk, Veerle Karsdorp, Bob Kamp & Femke Dings

Ik heb de informatie over het doel van het onderzoek gelezen en ben me ervan bewust dat mijn gegevens anoniem gebruikt worden. Door onderstaande aan te vinken, stem ik in met deelname aan het onderzoek.

[0 Ik geef toestemming]

Algemene vragen

- Wat is je leeftijd? [Open vraag]
- Wat is je geslacht? [Man, vrouw, anders]
- Ben je thuis- of uitwonend? [Thuiswonend of uitwonend]
- Hoeveel geld ontvang je van je ouders per maand? [Open vraag]

- Onder welke categorie valt jouw studie het beste?
 - Aarde en Milieu
 - Economie en Business
 - Exact en Informatica
 - Gedrag en Maatschappij
 - Gezondheid
 - Interdisciplinair
 - Kunst en Cultuur
 - Onderwijs en Opvoeding
 - Recht en Bestuur
 - Taal en Communicatie
 - Techniek
- Op welk niveau studeer je?
 - Associate Degree
 - HBO Bachelor
 - HBO Master
 - WO Bachelor
 - WO Master
 - Pre-Master

Studiejaar

- Is je huidige studie de eerste studie die je volgt? [Ja of nee]
- Hoeveel jaar studeer je op dit moment? [1, 2, 3, 4, 5+]
- Als je een Bachelor student bent, in welk studiejaar van je huidige studie zit je dan momenteel? [1, 2, 3, 4, 5+]
- Op welke hogeschool studeer je als je een HBO Bachelor of Master volgt?
- Op welke universiteit studeer je als je een WO Bachelor of Master volgt?

Studentenlening

- Maak je gebruik van een studentenlening via DUO? [Ja of Nee]
- Wat is het bedrag van jouw studentenlening per maand? (open vraag, nummer)
- Wat is (bij benadering) jouw huidige studieschuld op dit moment? (exclusief reisproduct/prestatiebeurs) (open vraag, nummer)

De bijbaan

Bijbaan

- Heb je een bijbaan naast je studie? Een bijbaan is een baan waarvoor je betaald krijgt, die je hebt naast je voltijd studie. [Ja of nee]
- Hoeveel uur werk je gemiddeld **per week** bij je bijbaan? Als je meer dan één bijbaan hebt, tel dan het aantal uren bij elkaar op. [Open vraag]
- In welke categorie valt je bijbaan het beste? [Horeca, bezorging, retail, logistiek, sales, zorg, kantoorbaan, bijles, anders, namelijk ...] + meerdere antwoordopties mogelijk (i.v.m. verschillende bijbanen)
- Hoeveel verdien je **per maand** met je bijbaan? [Open vraag + niet verplichte vraag]

Studie gerelateerde bijbaan

Studie gerelateerde bijbanen zijn bijbanen die enige overeenkomsten hebben met de inhoud van je studievakken of die gerelateerd zijn aan het vakgebied waarin je je wilt ontwikkelen in je verdere loopbaan.

- Is jouw bijbaan aan je studie gerelateerd? [Ja of Nee]

Werkuren

Non-reguliere werktijden zijn: Avonden/nachten na 20.00 uur, en de weekenden.

- Werk je tijdens non-reguliere werktijden? [Ja of Nee]
- Hoeveel non-reguliere werkuren heb je **per week**? [Open vraag]

Studeertijd

De volgende drie vragen gaan over contacturen en de tijd en moeite die je in je studie steekt.

- Hoeveel (verplichte) contacturen heb je gemiddeld **per week**? [Open vraag; aantal in uren]
- Hoeveel uur spendeer je gemiddeld aan je studie **per week**? [Open vraag; aantal in uren]
- Hoeveel moeite kost het je om (goed) te studeren?
 - o Likertschaal: 1. Heel weinig, 2. Weinig, 3. Niet weinig, niet veel, 4. Veel, 5. Heel veel

Uitkomsten

Stress

De volgende vier vragen worden gevraagd om je mate van stress te meten. Geef voor elke vraag aan in hoeverre dit van toepassing is op jou.

- Hoe vaak heb je problemen gehad om te ontspannen?
- Hoe vaak ben je geïrriteerd?
- Hoe vaak ben je gespannen?
- Hoe vaak ben je gestrest?

Antwoordmogelijkheden: 1 Nooit, 2 soms, 3 regelmatig, 4 vaak, 5 altijd

Studieprestaties

De volgende vragen gaan over je studieprestaties. Vaak zijn de antwoorden op de volgende vragen gemakkelijk terug te vinden in je studenten app.

- Wat is (bij benadering) je gemiddelde cijfer?
- Hoeveel studiepunten heb je tot nu toe behaald in het huidige studiejaar? [Open question; number]
- Hoeveel studiepunten had je kunnen behalen in het huidige studiejaar? [Open question; number]

Bedankt voor je tijd om aan deze enquête deel te nemen.

Als je graag op de hoogte wil worden gebracht van de resultaten en als je kans wil maken op één van de drie cadeaubonnen, dan kan je hier je emailadres invullen. Bij de verwerking van de gegevens zal je emailadres worden verwijderd, zodat het niet mogelijk is om je antwoorden te herleiden naar jou.

[.....]

Appendix 2: SPSS output

Correlation matrix

Correlations										
		Wat is je leeftijd?	In welk jaar van je huidige studie zit je momenteel?	Hoeveel moeite kost het je om (goed) te studeren?	Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op.	Hoeveel verdien je per maand met je bijbaan?	Hoeveel non-reguliere werkuren heb je per week?	Wat is (bij benadering) je gemiddelde cijfer?	Percentage_Study_Credits	Gemiddelde van de variabelen problems relaxing, irritated, strained en stressed.
Wat is je leeftijd?	Pearson Correlation	1	,552**	,127*	,126*	,288**	,132	-,091	-,006	,140*
	Sig. (2-tailed)		,000	,026	,027	,000	,129	,108	,919	,013
	N	311	179	311	308	247	133	311	280	311
In welk jaar van je huidige studie zit je momenteel?	Pearson Correlation	,552**	1	-,019	,079	,165*	,136	-,049	,089	,099
	Sig. (2-tailed)	,000		,804	,296	,050	,213	,517	,261	,187
	N	179	179	179	178	142	86	179	160	179
Hoeveel moeite kost het je om (goed) te studeren?	Pearson Correlation	,127*	-,019	1	-,039	,008	-,060	-,210**	-,032	,319**
	Sig. (2-tailed)	,026	,804		,495	,898	,494	,000	,599	,000
	N	311	179	311	308	247	133	311	280	311
Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op.	Pearson Correlation	,126*	,079	-,039	1	,790**	,383**	-,101	-,073	-,038
	Sig. (2-tailed)	,027	,296	,495		,000	,000	,078	,225	,503
	N	308	178	308	308	244	131	308	277	308
Hoeveel verdien je per maand met je bijbaan?	Pearson Correlation	,288**	,165*	,008	,790**	1	,320**	-,142*	-,028	-,058
	Sig. (2-tailed)	,000	,050	,898	,000		,000	,026	,681	,364
	N	247	142	247	244	247	133	247	220	247
Hoeveel non-reguliere werkuren heb je per week?	Pearson Correlation	,132	,136	-,060	,383**	,320**	1	-,018	-,008	,034
	Sig. (2-tailed)	,129	,213	,494	,000	,000		,839	,931	,699
N		133	86	133	131	133	133	133	118	133
Wat is (bij benadering) je gemiddelde cijfer?	Pearson Correlation	-,091	-,049	-,210**	-,101	-,142*	-,018	1	,072	,056
	Sig. (2-tailed)	,108	,517	,000	,078	,026	,839		,231	,325
	N	311	179	311	308	247	133	311	280	311
Percentage_Study_Credits	Pearson Correlation	-,006	,089	-,032	-,073	-,028	-,008	,072	1	,020
	Sig. (2-tailed)	,919	,261	,599	,225	,681	,931	,231		,737
	N	280	160	280	277	220	118	280	280	280
Gemiddelde van de variabelen problems relaxing, irritated, strained en stressed.	Pearson Correlation	,140*	,099	,319**	-,038	-,058	,034	,056	,020	1
	Sig. (2-tailed)	,013	,187	,000	,503	,364	,699	,325	,737	
	N	311	179	311	308	247	133	311	280	311

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Output to test H1:

Model 1:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,108 ^a	,012	,005	,61260

a. Predictors: (Constant), Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op., Heb je een bijbaan naast je studie?

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7,411	,179		41,475	,000
	Heb je een bijbaan naast je studie?	-,078	,111	-,052	-,704	,482
	Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op.	-,011	,006	-,133	-1,812	,071

a. Dependent Variable: Wat is (bij benadering) je gemiddelde cijfer?

Model 2:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,173 ^a	,030	,020	,60792

a. Predictors: (Constant), Wat is je geslacht?, Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op., Heb je een bijbaan naast je studie?

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7,102	,220		32,352	,000
	Heb je een bijbaan naast je studie?	-,068	,111	-,045	-,611	,542
	Hoeveel uur werk je gemiddeld per week bij je bijbaan? Als je meer dan 1 bijbaan hebt, tel dan het aantal uren per week bij elkaar op.	-,011	,006	-,134	-1,833	,068
	Wat is je geslacht?	,177	,074	,135	2,390	,017

a. Dependent Variable: Wat is (bij benadering) je gemiddelde cijfer?

T-test:

Group Statistics					
Heb je een bijbaan naast je studie?		N	Mean	Std. Deviation	Std. Error Mean
Wat is (bij benadering) je gemiddelde cijfer?	Ja	247	7,2073	,61619	,03921
	Nee	64	7,2545	,59814	,07477

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Wat is (bij benadering) je gemiddelde cijfer?	Equal variances assumed	,010	,919	-,549	309	,583	-,04720	,08592	-,21626 ,12186
	Equal variances not assumed			-,559	100,466	,577	-,04720	,08442	-,21469 ,12028

Output to test H2:

T-Test

Group Statistics					
Werk je tijdens non-reguliere werktijden?		N	Mean	Std. Deviation	Std. Error Mean
Wat is (bij benadering) je gemiddelde cijfer?	Ja	138	7,1224	,59080	,05029
	Nee	109	7,3149	,63339	,06067

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Wat is (bij benadering) je gemiddelde cijfer?	Equal variances assumed	1,627	,203	-2,463	245	,014	-,19247	,07816	-,34642 -,03852
	Equal variances not assumed			-2,442	224,034	,015	-,19247	,07880	-,34776 -,03718

Output to test H3:

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*****
Model : 7
  Y : GPA
  X : Job
  M1 : Effort
  M2 : Stress
  W : StudyYr

Sample
Size: 179

*****
OUTCOME VARIABLE:
Effort

Model Summary

      R      R-sq      MSE      F      df1      df2      p
,1170    ,0137    ,6581    ,8099    3,0000    175,0000    ,4900

Model

      coeff      se      t      p      LLCI      ULCI
constant    4,0219    ,5357    7,5077    ,0000    2,9646    5,0792
Job         -,6414    ,4169   -1,5386    ,1257   -1,4642    ,1813
StudyYr     -,2423    ,1692   -1,4318    ,1540   -,5763    ,0917
Int_1       ,1860    ,1291    1,4405    ,1515   -,0688    ,4408

Product terms key:
Int_1 :      Job      x      StudyYr

Test(s) of highest order unconditional interaction(s):

      R2-chng      F      df1      df2      p
X*W      ,0117    2,0752    1,0000    175,0000    ,1515

*****
OUTCOME VARIABLE:
Stress

Model Summary

      R      R-sq      MSE      F      df1      df2      p
,1139    ,0130    ,5586    ,7666    3,0000    175,0000    ,5142

Model

      coeff      se      t      p      LLCI      ULCI
constant    2,7972    ,4935    5,6674    ,0000    1,8231    3,7712
Job         -,2184    ,3841   -,5687    ,5703   -,9765    ,5396
StudyYr     -,0378    ,1559   -,2423    ,8088   -,3455    ,2699
Int_1       ,0838    ,1190    ,7045    ,4821   -,1510    ,3186

Product terms key:
Int_1 :      Job      x      StudyYr

Test(s) of highest order unconditional interaction(s):

      R2-chng      F      df1      df2      p
X*W      ,0028    ,4963    1,0000    175,0000    ,4821

*****
OUTCOME VARIABLE:
GPA

Model Summary

      R      R-sq      MSE      F      df1      df2      p
,2614    ,0684    ,3582    4,2800    3,0000    175,0000    ,0061

Model

      coeff      se      t      p      LLCI      ULCI
constant    7,3776    ,2516   29,3210    ,0000    6,8810    7,8742
Job         ,0386    ,1107    ,3483    ,7280   -,1799    ,2570
Effort     -,2024    ,0596   -3,3959    ,0008   -,3200   -,0848
Stress     ,1406    ,0647    2,1741    ,0310    ,0130    ,2682

```

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
,0386	,1107	,3483	,7280	-,1799	,2570

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

Job -> Effort -> GPA

StudyYr	Effect	BootSE	BootLLCI	BootULCI
1,8000	,0621	,0548	-,0469	,1756
3,0000	,0169	,0373	-,0562	,0962
4,0000	-,0208	,0459	-,1140	,0734

Index of moderated mediation:

StudyYr	Index	BootSE	BootLLCI	BootULCI
	-,0376	,0306	-,0997	,0242

INDIRECT EFFECT:

Job -> Stress -> GPA

StudyYr	Effect	BootSE	BootLLCI	BootULCI
1,8000	-,0095	,0342	-,0896	,0522
3,0000	,0046	,0246	-,0453	,0579
4,0000	,0164	,0353	-,0399	,1028

Index of moderated mediation:

StudyYr	Index	BootSE	BootLLCI	BootULCI
	,0118	,0225	-,0225	,0692

***** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS *****

OUTCOME VARIABLE:

Effort

	Coeff	BootMean	BootSE	BootLLCI	BootULCI
constant	4,0219	4,0053	,5471	2,9398	5,1032
Job	-,6414	-,6274	,4614	-1,5500	,2648
StudyYr	-,2423	-,2390	,1697	-,5879	,0931
Int_1	,1860	,1828	,1395	-,0951	,4618

OUTCOME VARIABLE:

Stress

	Coeff	BootMean	BootSE	BootLLCI	BootULCI
constant	2,7972	2,8051	,5018	1,8111	3,7734
Job	-,2184	-,2245	,4087	-1,0037	,5972
StudyYr	-,0378	-,0409	,1586	-,3520	,2714
Int_1	,0838	,0864	,1279	-,1662	,3358

OUTCOME VARIABLE:

GPA

	Coeff	BootMean	BootSE	BootLLCI	BootULCI
constant	7,3776	7,3678	,2611	6,8625	7,8828
Job	,0386	,0397	,1110	-,1801	,2567
Effort	-,2024	-,2019	,0692	-,3396	-,0656
Stress	,1406	,1435	,0672	,0111	,2687