

The Daily Juggling Act:  
A Diary Study on Role Overload and Balance  
Related to Well-being among Mature-age Students

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## **Abstract**

Mature-age students (over the age of 25 years) face pressure to balance their roles in work, school, and home, which may result in role overload. Little is known about how mature-age students balance multiple roles on a daily level and how this affects their well-being. This diary study aims to examine (a) the influence of objective load and social support of the student's intimate partner on exhaustion and engagement, and (b) if role overload and balance mediate these processes. Objective load is defined as hours spent on work, study and home chores. One baseline questionnaire and a week-long daily diary study were used. The sample consisted of 81 Dutch mature-age students, who had a paid job for at least 16 hours per week, had an intimate partner, and filled in at least three daily questionnaires ( $M=5.8$ ). In the analyses, the influence of the corona crisis (self-reported measure) was adjusted. Multilevel and mediation analyses showed that the more hours worked, or the more hours studied, the higher the student's exhaustion levels were, and is mediated by more role overload. Additionally, the more hours worked or studied, the lower the student's role balance, and the lower engagement which is mediated by role balance. The more emotional support was perceived, the lower the student's exhaustion, and the higher their engagement, both through role balance. Future research could benefit from this measurement of multiple roles for other target groups. Three directions for practical interventions to enhance well-being among mature-age students are discussed.

Keywords: *Diary Study, Role Balance, Role Overload, Well-being, Mature-age students*

## **1. Introduction**

Much is claimed about the rise of psychological well-being complaints among the student population (e.g. Rigg, Day & Adler, 2013; Park & Strung, 2013). However, previous research has mostly been conducted among traditional-age students (e.g. Butler, 2007; van Steenbergen, Ybema & Lappiere, 2018). Mature-age students form a distinctive group within the student population with a considerable number of mature-age students worldwide (Berker, Horn & Carroll, 2003; Ramsay, Jones & Barker, 2007). This research defines mature-age students as individuals over the age of 25 (e.g. Andrade & Matias, 2017; Trautner, 2015), who study in higher education. For mature-age students, reasons to enter higher education lie in both personal development as well as a need for updated knowledge and skills in their careers (Edwards, 2002; Mercer, 2007).

Mature-age students attribute more importance to roles in work, study, and home than traditional students. Compared to traditional students, mature-age students are more likely to be married, have dependents, and attribute more importance to work (Berker, et al., 2003; de Vos, Dikkers & de Hauw, 2009). The level of importance that individuals attribute to roles in various life domains is called role salience (Super, 1990). In other words, mature-age students have higher role salience on work, study, and home.

Unsurprisingly, the greatest barrier mature-age students face the pressure to balance their roles in work, school, and home life (Milheim, 2005). Combining multiple roles creates stress, which negatively impacts an individual's well-being and physical health (de Longis, Folkman & Lazarus, 1988; Servage, 2007). Because of juggling multiple roles, mature-age students with jobs and children are more likely to drop out of higher education during their first year of study (Venegas-Muggli, 2019). Despite these significant problems faced by mature-age students, the process of combining education with work and home roles has not been sufficiently researched (Andrade & Matias, 2017).

## **2. Theoretical background**

### **2.1 Well-being**

In occupational psychology, well-being is mainly measured with burnout complaints and work engagement (Bakker, 2014). Based on a national survey on working conditions in the Netherlands have risen to the point that 16,4% of male and 18,1% of female employees have reported burnout complaints (Hoofman et al., 2019). Detrimental effects of burnout complaints, for instance sick leave (Hoofman et al., 2019), give individuals, organizations

and educational institutions reason to focus on burnout reduction and prevention. Currently, based on a meta-analysis of longitudinal evidence, work engagement and burnout are proposed as distinct, but negatively correlated, well-being forms, which might co-occur (Maricuțoiu, Sulea, & Iancu, 2017).

Emotional exhaustion (i.e., the depletion or draining of mental energy caused by interpersonal demands) is considered to be the core dimension of burnout (Maslach, Leiter, & Schaufeli, 2008), which subscale is used in multiple dairy studies (e.g. Simbula, 2020). This research takes a broader perspective on well-being in all areas in life; therefore, the more general term 'engagement' is used. Engagement can be defined as a positive motivational state, characterized by vigor, dedication, and absorption (Bakker & Demerouti, 2008).

## 2.2 Difficulties measuring well-being among mature-age students

Previous well-being research has focused primarily on an individual's well-being at work (Robertson & Cooper, 2010) and the interface with family or home (e.g. Frone, 2003; Greenhaus & Beutell, 1985; Kopelman, Greenhaus & Connolly, 1983). Using a life cycle approach, individuals have different influences and/or priorities in life according to their life stage (Sullivan & Mainiero, 2008). As a result, role salience likely differs throughout their life. To understand well-being, it is important to investigate multiple high salience roles according to the individual's phase in life (Mainiero & Sullivan, 2006). Little is known about other life roles that may contribute to well-being (Frone, 2003; Hall, Kossek, Briscoe, Pichler & Lee, 2013). For example, the study role is salient for mature-age students (e.g. Adebayo, 2006; Park & Sprung, 2013), but has not been thoroughly investigated, and often not in combination with other roles.

Three possible ways to measure role salient domains are presented in occupational psychological literature. One way of measuring role salience is by investigating the specific influence of one role on another, for instance in the context of work-family conflict (e.g. Greenhaus & Beutell, 1985), family-work facilitation (e.g. Frone, 2003) or work-school conflict and facilitation (e.g. Butler, 2007). However, pairwise measurement of the influence of three roles (study, work, and home) in both directions concerning positive as well as negative influences requires investigation of twelve directions of influence and is beyond the scope of this research. Another method focusses on inter-role conflict, which is defined as the extent to which an individual experiences pressures within one role that are incompatible with the pressures that arise within another role (Kopelman, et al., 1983, p. 201). However, it is

difficult to extract the distinct influence of one role on other roles with this method. It is generally more focused on the consequences (in terms of conflict or facilitation) than on the specific sources of influence that we aim to investigate. Moreover, well-being outcomes can be influenced regardless of the conflict/facilitation's cause (for example a study exam, illness of a child, or organizing an event) (Marks & MacDermid, 1996). Therefore, this research considers a third model focusing on role overload and balance, which uses a general orientation across roles (Marks & MacDermid, 1996).

### 2.3 Role overload and balance

Time and energy devoted to a role may reflect the individual's commitment to that role, as well as their overall availability of time and energy (Marks, 1977). In that line of thought, role overload refers to a conflict that occurs when excessive demands on time and energy exceed the individual's available time and energy (Reilly, 1982). According to Marks and MacDermid (1996), role balance is both a behavioral pattern of acting across roles in a certain way and a cognitive-affective pattern of organizing one's inner life of multiple selves. Thereby, positive role balance refers to the tendency to become fully engaged in the performance of every role in one's total role system, to approach every typical role and role partner with an attitude of attentiveness and care (Marks & MacDermid, 1996).

In line with previous research, (e.g. Rothmann & Baumann, 2014; Schaufeli, Bakker, van der Heijden & Prins, 2009) it can be stated that role overload has a positive relationship with exhaustion and a negative relationship with engagement. Conversely, it is assumed that role balance has a negative relationship with exhaustion and a positive relationship with engagement on a daily level. To gain insight into the relationship between role overload and balance related to mature-age students' well-being, relevant antecedents are determined based on the Job Demands-Resources (JD-R) model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001).

### 2.4 Demands: Objective load

Demands refer to 'those physical, psychological, social, or organizational aspects that require sustained physical and/or psychological (cognitive and emotional) effort and are therefore associated with certain physiological and/or psychological costs' (Bakker, Demerouti & Verbeke, 2004). In a meta-analysis, the demand workload is hypothesized to have a positive relationship with overload (Bowling, Alarcon, Bragg & Hartman, 2015;  $k=336$ ,  $\rho=.44$ ).

Based on diary studies (Goh, Ilies & Wilson, 2015; Ilies, et al., 2007), workload is hypothesized to be related to well-being, and is mediated by role overload. Regarding the salient roles of mature-age students, this research takes the demands workload (Schaufeli & Salanova, 2014), study load, and chores load to have positive relationships with exhaustion, and is mediated by role overload. The focus of home demands lies in home chores, such as shopping for groceries, cooking, and cleaning. The loads are operationalized with the number of hours spent, and therefore, are referred to as objective loads (Ilies, et al., 2007).

## 2.5 Resource: Support

Resources are defined as ‘those physical, psychological, social or organizational aspects that are functional in achieving goals, reduce demands and the associated physiological and psychological costs or stimulate personal growth and development’ (Bakker, et al., 2004). The social support resource of intimate partners plays an especially important role for mature-age students (Coyne & de Longis, 1986, de Longis, Capreol, Holtzman, O'Brien & Campbell, 2004; Demerouti, et al., 2001). Social support of an intimate partner helps when a mature-age student wants to return to studying (Scott, Burns & Cooney, 1998). When this social support is lacking, mature-age students are more likely to discontinue their studies (Scott, Burns & Cooney, 1996). Social support helps for successful integration of work, family and the study (Andrade & Matias, 2017; Ramsay, et al., 2007). Moreover, mature-age students can benefit from social support due to fewer time demands, less strain, and/or more flexible expectations for behavior in multiple roles (Greenhaus & Beutell, 1985).

Therefore, the support of an intimate partner is positively related to role balance, which predicts well-being (de Longis, et al., 2004) at both in general (Greenhaus & Allen, 2011; Voydanoff, 2005a) and on a daily level (Butler, Bass & Grzywacz, 2009). Mature-age students could experience more role balance, allowing them to experience a lower degree of exhaustion and a higher degree of engagement. Conversely, the higher the perceived level of social support of an intimate partner, the less likely mature-age students experience role overload.

This research focuses on the emotional and instrumental support of an intimate partner related to well-being and is mediated by role overload and balance. Emotional support can be described as involving mature-age students in discussion, asking how they feel and other constructive problem-solving methods, so that a person is esteemed and accepted (Cohen & Wills, 1985; Kuijer, Ybema, Buunk, de Jong, Thijs-Boer & Sanderman, 2000). This may

reduce stress by fulfilling a need for affliction and contact with others, by helping to distract persons from worrying about problems, or by facilitating positive affective moods (Cohen & Wills, 1985). By contrast, instrumental support is ‘the provision of financial aid, materials resources and needed services, which may help reduce stress by direct resolution of instrumental problems or by providing the recipient with increased time for activities such as relaxation or entertainment’ (Cohen & Wills, 1985, p.313)

### **3. Present study and modeling hypotheses**

In summary, this diary study aims to investigate the factors that influence mature-age students' well-being while they are juggling multiple salient roles. Specifically, this research examines on a daily level objective load (of work, study and chores), emotional and instrumental support of an intimate partner are considered well-being's predictors through role overload and balance.

Since well-being and role experiences fluctuate daily, a diary study is a viable way to examine this concept (Haar, Roche & ten Brummelhuis, 2018; Mac Ewen & Barling, 1994). It investigates more specific demands related to role experiences (Voydanoff, 2005a), explores role experiences as mediators, and examines them on a daily level (Butler, et al., 2009). Therefore, this research fills a gap, as questionnaires on role overload and balance have not yet been tested related to well-being on a daily level.

The research is two-fold: (1) On a daily level, what are the influence of objective workload, study load, and chores load, as well as the emotional and instrumental support by an intimate partner on exhaustion and engagement? (2) Do role overload and role balance mediate these processes? The research model is presented in Figure 1, accompanied by a list of the specific hypotheses.

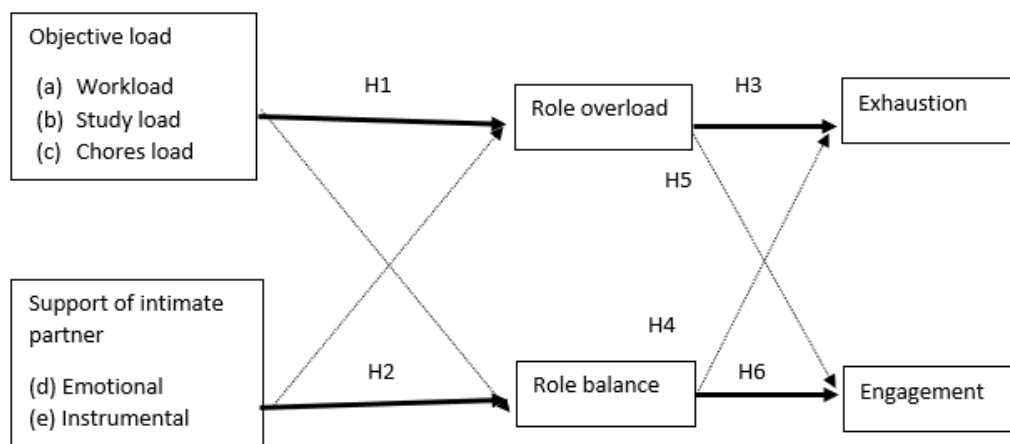


Figure 1. Model with hypotheses (H1-2) for objective load (a, b, and c) and social support (d and e) on role overload and balance. Mediation analyses of antecedents to well-being outcomes with mediation of role overload (H3 and H5) and role balance (H4 and H6).

Note. Thickness of arrow show the hypothesized direction: thick arrows correspond with a positive effect and dotted arrows with a negative effect.

*H1 (a) objective workload, (b) study load, and (c) chores load have a positive relationship with role overload. By contrast, (d) emotional and (e) instrumental support have a negative relationship with role overload.*

*H2 (a) objective workload, (b) study load, and (c) chores load have a negative relationship with role balance, while (d) emotional and (e) instrumental support have a positive relationship with role balance.*

*H3 (a) objective workload, (b) study load, and (c) chores load have a positive relationship with exhaustion, and is mediated by role overload. On the other hand, (d) emotional and (e) instrumental support have a negative relationship with exhaustion, and is mediated by role overload.*

*H4 (a) objective workload, (b) study load, and (c) chores load have a positive relationship with exhaustion, and is mediated by role balance. By contrast, (d) emotional and (e) instrumental support have a negative relationship with exhaustion, and is mediated by role balance.*

*H5 (a) objective workload, (b) study load, and (c) chores load have a negative relationship with engagement, and is mediated by role overload. On the other hand, (d) emotional and (e) instrumental support have a positive relationship with engagement, and is mediated by role overload.*

*H6 (a) objective workload, (b) study load, and (c) chores load have a negative relationship with engagement, and is mediated by role balance. By contrast, (d) emotional and (e) instrumental support have a positive relationship with engagement, and is mediated by role balance.*



## 4. Method

### 4.1 Participants

*Recruitment.* The sample consisted of mature-age students (at least 25 years old) enrolled in higher education in the Netherlands, in paid employment (at least 16 hours a week), and who are in a relationship with an intimate partner. Targeted recruitment was conducted in three broad ways. Firstly, half of the participants (54%) were recruited through educational institutions. Part-time students enrolled in Management Science at a University of Applied Sciences were motivated by an oral request from the teacher. This request was followed with the link to the baseline questionnaire in their e-mail (which consisted of their student number). Additionally, some coordinators of diverse degrees in a University were requested to put a link to the baseline questionnaire in their online internal groups. Secondly, 28% of participants were recruited through social media, by a link added to ten targeted LinkedIn and Facebook groups, such as a group for mature-age students. Thirdly, 18% of participants were recruited (in)directly via the researchers' networks: (a) by personal request; (b) by open post through the researchers' personal LinkedIn and Facebook account, and (c) through snowball sampling of participants (e.g. in their class WhatsApp group).

*Recruitment period and corona.* In February 2020, five people participated in a pretest to see how the questionnaires and the full procedure were perceived. Unclear items were modified, and their data is not used in the data analysis. Recruitment for the baseline questionnaire took place between February 21 and April 17, 2020. The daily questionnaires were filled out between February 24 and April 26, 2020. In the week of March 9-15th, 2020, no daily cohort was started due to influences from Covid-19 (corona) measures in the Netherlands. From March 16<sup>th</sup>, 2020 onwards, only online recruitment was performed. Three quarters (75%) of the participants filled out the *daily* questionnaires during the corona outbreak. For participants during the corona outbreak (36%), the *baseline* questionnaire was focused on life before the influence of corona ('what life looks like in under normal circumstances').

### 4.2 Measurements

The questionnaires were assessed in Dutch, therefore, academic English questionnaires had to be translated to Dutch for use among this sample. The daily questionnaires were modified from a general to a more time specific item (Ilies, et al., 2007). Additionally, when items contained the words 'work' or 'family/home', they were replaced by 'my activities' or 'school,

work or home'. An example of the alternations for daily engagement is: "*Today*, I was enthusiastic about my *activities*". Responses on the items were obtained on a 5-point Likert scale (1=totally disagree, 5=totally agree) unless it was stated otherwise. See Appendix A, for the Cronbach's Alpha for all variables at baseline and daily questionnaires were near or above .80, which satisfies reliability recommendations for applied research (Cho, 2020, Nunnally & Bernstein, 1994).

#### 4.2.1. Baseline questionnaire.

*Background variables.* A wide variety of items was obtained on personal characteristics, organizational and study circumstances, and partner characteristics. Personal characteristics, such as gender, year of age, marital status, years together with a partner, and the number of children (included children of partner and foster children) were measured. Organizational facts, such as contract type, years working at their employer, and in current position were assessed. To measure study circumstances the following topics were included: current education level, highest obtained education degree, current education's discipline, education form (e.g. part-time), the main reason to study (e.g. personal development), and partner's highest education level. The number of years completed was rounded to half years; the other measurements were nominal or ordinal options.

*Well-being.* The 3-item subscale emotional exhaustion of the Utrecht Burnout Scale (UBOS) was used (Schaufeli & van Dierendonck, 2000). A 9-item version of the Utrecht Work Engagement Scale (UWES-9) was used to measure engagement, with its three subscales: absorption, vitality, and dedication (Schaufeli, Bakker & Salanova, 2006). Both well-being questionnaires measure on a 7-point Likert scale (1=never, 7=always).

*Role overload and balance.* For role overload, the 6-item scale (Thiagarajan, Chakrabarty & Taylor, 2006) of the 10-item Role Overload Scale (Reilly, 1982) was used, with a 5-points scale (1=never, 5=very often). Role balance is measured with the 4-item Role Balance Scale (Marks, Huston, Johnson & MacDermid, 2001), which uses the highest factor loadings of the 8-item original version (Marks & MacDermid, 1996).

#### 4.2.2. Daily questionnaire.

The items for the daily questionnaire are mainly retrieved from the baseline questionnaire and focus on experiences from that specific day (including the influence of corona on the

participant's life). For analyses, outcomes were adjusted according to the self-measured influence corona had on participants' daily lives.

*Dependent variables and mediators.* The three items of the UBOS were all taken for the measurement of exhaustion. For engagement, an adapted version of the 3-item Utrecht Work Engagement Scale (UWES) (Schaufeli, Shimazu, Hakanen, Salanova & de Witte, 2019) was used with a single item for each subscale: vigor, dedication, and absorption. For the mediators on a daily level, three items of role overload were chosen, and the 4-item Role Balance Scale was used.

*Predictors.* Objective loads were only examined in the daily questionnaire since this retrieved information is sufficiently close to reality. The daily number of hours working, studying, or housekeeping on a given day were measured for objective workload, study load, and chores load respectively. Two items of a 5-item scale of active engagement taken from the ABO-questionnaire (Kuijer, et al., 2000) were used for the emotional support of an intimate partner (“Today my partner showed understanding for me”, “Today my partner made me feel that I was not alone”). To measure instrumental support, two self-constructed items were used (“Today my partner helped me in combining my activities”, Today my partner has taken work off my hands”).

*Additional items.* For the influence of corona was corrected, with a self-constructed item: “Today, my activities are different than normal due to (preventive) measures to combat the pandemic of the coronavirus COVID-19.”

#### 4.3. Procedure

*Questionnaires.* The questionnaires were presented online within Qualtrics. The baseline questionnaire (median: 13 minutes) was sent to the participants' email addresses or opened by a link via social media. The following week (Monday-Sunday), seven 3-minute daily questionnaires were sent to their e-mail address. The participants received an email to fill in the daily questionnaire each day at 7.30 p.m., and a reminder at 10 p.m. if the questionnaire was not yet completed. The data collection period was not to cover exam weeks, holidays, or pregnancy leave, for that does not give a representative view of a student's life. In that case, participants could receive the daily questionnaires in an alternative week. The items are about that specific day and participants were asked not to fill in answers of the previous day. To receive accurate information about the whole day, it was recommended to fill in the daily questionnaire one or two hours before going to sleep. Participants could give

remarks at the end of each questionnaire. After completing the seventh day of the research, they were thanked for participation.

*Privacy.* Participants gave consent on the basis of their participating in a diary study covering their home, work and study experiences. Participants were informed that their data would be treated confidentially. It was explicitly stated that participation was voluntary, and that participation could be terminated at any moment during the data collection phase. Two methods of data matching were used in this research. First, the email addresses were used to connect different measurements to the same individual with a pseudonym code; after data collection, these email addresses were removed from the data by an independent researcher. Second, after March 15, participants were given a unique reusable link to ensure anonymity. This code made it possible to match data from multiple measurements. In both forms, the analyses were done on the anonymized dataset with the permission of participants who confirmed consent with either e-mail address or reusable link. Participants got the opportunity for receiving a brief summary of the results of the data in general.

#### 4.4. Statistical analyses.

For this quantitative diary, study analyses are carried out in SPSS 25, R Studio, and with Monte Carlo simulations software (Selig & Preacher, 2008). The hypotheses were tested with: (1) multilevel analysis, using the Mixed Model procedure with Maximum Likelihood estimation, and (2) mediation analysis. Based on Enders & Tofighi (2007), the baseline measurements of dependent variables were grand mean centered (i.e. the overall mean was subtracted such that the average across all participants was 0) and the daily variables were person mean centered (i.e. each participant had an average score of 0 on these variables across all participated days).

In the multilevel analyses, hierarchical regressions were conducted, in which step-by-step influence of the addition of variables was tested. The first model always contained the random intercept to determine the intraclass correlation (ICC) of the day-level variable. The second model included the control variables, (a) number of days and (b) the self-reported influence of corona. Number of days was grand mean centered and was regarding linear effects over time. Prior to testing the model, explorative analyses have been carried out to get insight into the influence of the number of days squared (for quadratic effects), age, and gender. In the third model, the baseline measurement of the dependent variable was included; therefore, the unique effect on daily level could be tested when correcting that variable to the

baseline. In the fourth model, the daily variation of the predictors was entered. If applicable, the daily variations of the mediators were entered in the fifth model.

The mediation hypotheses were tested by adding role overload and role balance to the regressions of both exhaustion and engagement. Mediation was tested by examining the indirect effects (*ab*) which were the product of the direct effects of the five predictors (objective loads and supports) on the two mediators (role overload and role balance) with a correction for the mediators at baseline (*a*), and the direct effects of the mediators on the dependent variables (exhaustion or engagement) with a correction of the dependent variable on baseline (*b*) (Baron & Kenny, 1986). These indirect effects were analyzed using Monte Carlo simulations with a 95% confidence interval (CI) and covariance (*a*, *b*) of 0 (Selig & Preacher, 2008).

## 5. Results

### 5.1. Descriptives

*Sample.* The sample consisted of 81 mature-age students ( $M=38.6$ ,  $SD=10.2$ , 25-60 years of age) who filled in the baseline questionnaire and at least three daily questionnaires. In total 475 daily questionnaires were included in the analyses. The mean for participated days was 5.9 ( $SD=1.6$ ). There were more female (65%) than male (35%) participants, yet distribution of the ages was similar in both genders. More detailed descriptives and frequency statistics of participants' demographics, information about work, education, and partner situation are presented in Appendix A.

*Education.* Participants were currently enrolled in either Higher Vocational Education (32%), Post-Higher Vocational Education (39%), or in different levels of University (premaster, Bachelor, Master, Post-University degree or a Ph.D.) (28%). Although almost all participants see personal development as a motive for their studies, a broad variety of motives play a role in their current education.

*Work.* The majority of participant's have permanent (80%) and temporary (10%) employment. Generally speaking, participants work more years in their organization or own company ( $M=8.1$ ,  $SD=7.9$ ) than in their function type ( $M=5.8$ ,  $SD=6.7$ ). The general weekly working hours of participants (without influences of corona) were scattered.

*Home-situation.* Participants were together with their intimate partners between 0.5 and 38.0 years ( $M=15.0$ ,  $SD=9.6$ ). Most participants (73%) have (foster) children themselves and/or their partners have children.

## 5.2. Daily variables

*Data inspection.* After data inspection, assumptions were examined. This proved positive as assumptions of hypotheses testing have been met. Descriptive statistics for the constructs at a daily level can be seen in Table 1. It appeared that the mean of role balance was higher than the mean of role overload. Furthermore, the mean of engagement was higher than the score for exhaustion. Moreover, emotional and instrumental support both had high means. The participants had a mean of 7 hours of work, studying, or doing chores combined on a participated day (regardless of a week or weekend day and corona). Males appear to report higher hours spent working or studying, whereas females spent more hours on chores.

Table 1.  
Descriptive statistics and Pearson correlations ( $r$ ) between the daily variables on person-level ( $n = 81$ ).

| Person-level variable       | M    | SD  | Range | 1      | 2     | 3     | 4      | 5    | 6       | 7       | 8       | 9       | 10      | 11     | 12  |
|-----------------------------|------|-----|-------|--------|-------|-------|--------|------|---------|---------|---------|---------|---------|--------|-----|
| 1. Objective workload       | 4.4  | 1.6 | 0-10  | -      |       |       |        |      |         |         |         |         |         |        |     |
| 2. Objective study load     | 1.5  | 1.2 | 0-6   | -.27*  | -     |       |        |      |         |         |         |         |         |        |     |
| 3. Objective household load | 1.1  | .8  | 0-4   | -.29** | -.16  | -     |        |      |         |         |         |         |         |        |     |
| 4. Emotional support        | 4.1  | .7  | 1-5   | -.06   | -.08  | -.08  | -      |      |         |         |         |         |         |        |     |
| 5. Instrumental support     | 3.7  | .8  | 1-5   | .10    | -.26* | -.12  | .74*** | -    |         |         |         |         |         |        |     |
| 6. Role overload            | 2.4  | .8  | 1-5   | .09    | -.14  | .06   | -.09   | .04  | -       |         |         |         |         |        |     |
| 7. Role balance             | 3.8  | .6  | 1-5   | .05    | .17   | .04   | .23*   | .07  | -.73*** | -       |         |         |         |        |     |
| 8. Exhaustion               | 2.2  | .8  | 1-5   | .12    | -.22* | .03   | -.21*  | -.06 | .74***  | -.71*** | -       |         |         |        |     |
| 9. Engagement               | 3.7  | .6  | 1-5   | .09    | .14   | -.06  | .20    | .08  | -.57*** | .85***  | -.67*** | -       |         |        |     |
| 10. Hindrance appraisal     | 2.3  | .9  | 1-5   | .06    | -.26* | .07   | -.28*  | -.14 | .71***  | -.80*** | .77***  | -.71*** | -       |        |     |
| 11. Challenge appraisal     | 3.4  | .8  | 1-5   | .22*   | .12   | -.15  | .16    | .03  | -.27*** | .52***  | -.29**  | .55***  | -.43*** | -      |     |
| 12. Age                     | 38.9 | 9.9 | 25-60 | .24*   | -.02  | -.03  | <.01   | -.02 | -.11    | .16     | -.15    | .11     | -.08    | .16    | -   |
| 13. Gender                  | .7   | .5  | 0-1   | -.23*  | -.22* | .31** | .14    | .09  | -.06    | -.11    | .08     | -.15    | .06     | -.29** | .07 |

Note:  $\bar{y}p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . Gender 0= male, 1=female. Hindrance and challenge appraisal are measured exploratively (see Appendix B).

*Correlations.* In Table 1, correlations between the variables, using the mean of variables per person, are also given. As expected, role overload is highly negatively correlated with role balance and engagement, and highly positively correlated with exhaustion. This contrasts with role balance, which presents exactly opposite relationships with these variables. In line with expectation, exhaustion shows a highly negative correlation with engagement. As could be expected, when more hours are spent working during a day, significantly fewer hours could be spent on studying or doing chores. Specifically, older participants reported more working hours. Interestingly, when more hours were spent on studying, less instrumental support was perceived from their partner. Emotional and instrumental support has a high positive correlation, which shows these concepts are highly related. As expected, emotional support is positively related to role balance and negatively related to exhaustion. Objective chores load and instrumental support yield little or no significant correlations with variables listed above.

### 5.3 Multilevel regression analyses

#### 5.3.1 Role overload

Table 2 shows the multilevel regression of role overload. For role overload, the ICC indicates that 41% of the variance in role overload systematically varied between persons, leaving 59% in role overload for differences between days within participants. In Model 2, the control variables of day number and self-reported influence of corona were added, which significantly improved the fit of the model. This is attributed to the significant effect of day number, which indicates that the reported level of role overload is lower when students participated for more days. This is evident since weekend days (generally the last two measurements) were included and role overload is generally lower at weekends. In Appendix A, habits of studying and working on the weekends of the sample were presented.

In Model 3, the baseline of role overload was entered into the regression. Together with the control variables, 27% of the variance of role overload was explained. Baseline role overload was positively significant, and the influence of day number remained negative. This means that participants who experienced higher levels of role overload at baseline also scored higher on daily role overload, corrected for the linear effect of time, and the influence of corona.

In Model 4, all five predictors were added to the model. Daily variation within objective workload (*a*) and study load (*b*) added significant effect. The significant effects of day number and role overload at baseline remained in this model. In other words, the more



hours worked and studied, the more role overload participants experienced. However, objective chores load (*c*), emotional (*d*), and instrumental (*e*) support had no significant (negative) influence on the measurement of role overload. The fit of model 4 improved significantly, which resulted in an explained variance of 33%. In line with these findings, *H1a* and *H1b* are accepted and *H1c*, *H1d*, and *H1e* are rejected.

Table 2.  
*Multilevel regression of role overload.*

| <b>Predictors</b>             | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> |
|-------------------------------|----------------|----------------|----------------|----------------|
| Intercept                     | 2.38***        | 2.35***        | 2.37***        | 2.30***        |
| Day number                    |                | -.15***        | -.15***        | -.07**         |
| Corona influence              |                | .04            | .04            | .03            |
| Baseline role overload        |                |                | .73***         | .72***         |
| Objective workload            |                |                |                | .10***         |
| Objective study load          |                |                |                | .06*           |
| Objective chores load         |                |                |                | .02            |
| Emotional support             |                |                |                | -.06           |
| Instrumental support          |                |                |                | <.01           |
| <b>Fit (-2 log L)</b>         | 1342.77        | 1284.49        | 1241.94        | 1185.97        |
| Δ fit                         |                | 58.28***       | 42.55***       | 55.97***       |
| df                            |                | 2              | 1              | 5              |
| <b>Variance</b>               |                |                |                |                |
| Random intercept ( $\tau^2$ ) | .52***         | .57***         | .29***         | .29***         |
| Residual ( $\sigma^2$ )       | .75***         | .65***         | .64***         | .56***         |
| ICC                           | 0.41           |                |                |                |
| Explained variance (%)        |                | 4              | 27             | 33             |

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . Unstandardized regression weights are presented. *df* = degrees of freedom.

### 5.3.2 Role balance

Table 3 presents the multilevel regression of role balance. The ICC indicates that 36% of role balance accounted for systematic differences between persons. In Model 2, the control variables were added to the regression, day number and corona influence had both a negative relationship with role balance. As could be expected, when participants reported a higher influence of corona on their daily lives, they had less role balance. The fit of the model improved significantly, with an explained variance of 6%.

In Model 3, the baseline of role balance improved the fit of the model significantly, with an explained variance of role balance raised to 19%. Participants who experienced higher levels of role balance at baseline also scored higher on daily role balance, corrected for the significant negative effects of day number, and the influence of corona.

In Model 4, all five predictors were added to the model, which resulted in an explained variance of 21%. Objective workload (*a*) had a negative relationship and emotional support (*d*) had a positive relationship with role balance. This indicates that a lower objective workload and more emotional support from a partner leads to a better role balance. This was separate from a significant positive effect of role balance at baseline and day number, and a negative effect of the influence of corona. In other words, emotional support attributed to higher levels of role balance, whereas working more hours (instead of more hours spent on studying or chores) gave lower levels of role balance. Therefore, *H2a* and *H2d* received support and *H2b*, *H2c*, and *H2e* were rejected.

Table 3.  
*Multilevel regression of role balance.*

| <b>Predictors</b>             | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b> |
|-------------------------------|----------------|----------------|----------------|----------------|
| Intercept                     | 3.80***        | 4.04***        | 4.03***        | 4.00***        |
| Day number                    |                | -.15***        | -.10***        | .06**          |
| Corona influence              |                | -.07**         | -.07**         | -.07**         |
| Baseline role balance         |                |                | .39***         | .39***         |
| Objective workload            |                |                |                | -.04***        |
| Objective study load          |                |                |                | -.02           |
| Objective chores load         |                |                |                | <0.01          |
| Emotional support             |                |                |                | .13*           |
| Instrumental support          |                |                |                | .02            |
| <b>Fit (-2 log L)</b>         | 1154.06        | 1107.76        | 1082.45        | 1058.09        |
| $\Delta$ fit                  |                | 46.30***       | 25.31***       | 24.36***       |
| df                            |                | 2              | 1              | 5              |
| <b>Variance</b>               |                |                |                |                |
| Random intercept ( $\tau^2$ ) | ..29***        | .30***         | .20***         | .20***         |
| Residual ( $\sigma^2$ )       | .52***         | .46***         | .46***         | .44***         |
| ICC                           | .36            |                |                |                |
| Explained variance (%)        |                | 6              | 19             | 21             |

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

### 5.3.3 Exhaustion

Table 4 displays the multilevel regression of exhaustion. The ICC of exhaustion shows that 32% of the variance in exhaustion was systematical between persons, leaving two thirds for daily variation within persons. As Model 2 presents, day number had a significant negative effect on exhaustion and the influence of corona had a positive effect. The more days a person participated, the lower their exhaustion levels. By contrast, the higher their self-reported

influence of corona, the higher their exhaustion levels. This could also be attributed to measuring both the week and weekend days.

In Model 3, exhaustion at baseline was included in the regression, which had a significantly improved fit. Together with the control variables, it explained 16% of the variance in exhaustion. In other words, the influence of exhaustion at baseline predicts the daily level of exhaustion with a significant positive effect, when corrected for day number and corona influence.

In Model 4, the five predictors were added to the model, which significantly improved the fit. Adding objective workload, study load, chores load, emotional support, and instrumental support increased the explained variance of exhaustion to 25%. However, of these 5 predictors only objective workload yielded a significant and positive effect on exhaustion and is the only contributor to this increase in explained variance. No influence of the control variables (day number and corona influence) were discovered in this Model.

In Model 5, the influence of the two mediators was added into the regression, which greatly improved the fit of the model. Role overload had a positive and role balance had a negative additive effect on exhaustion. In other words, when participants experienced higher levels of role overload, they experienced higher levels of exhaustion. On the other hand, role balance had opposite effects, as could be expected. When participants experienced better role balance, they experienced lower levels of exhaustion. The explained variance of the total model on exhaustion accounted for 38%.

The positive indirect effect of objective workload on exhaustion through role overload, was significant,  $ab=.032^*$ , [.018, .046]. This shows that consistent with *H3a*, mature-age students who had more working hours experienced more role overload, which, in turn, related to higher exhaustion levels. In addition, objective study load had a positive relationship with exhaustion, and is mediated by role overload,  $ab=.021^*$ , [.004, .038]. In support of *H3b*, mature-age students experienced more role overload when they had more study hours on a given day, which increased their exhaustion level. No evidence was found for indirect effects of chores load, emotional support, and instrumental support. Therefore, *H3c-H3e* were rejected.

Furthermore, the indirect positive effect of objective workload on exhaustion through role balance was significant,  $ab=.020^*$ , [.007, .032]. This means that, in line with *H4a*, mature-age students experienced less role balance on days that they had more working hours, and this lower role balance partly explained their exhaustion on these days. The negative indirect effect of emotional support on exhaustion through role balance was significant,  $ab=-$

.063\*, [-.116, -.010]. Thus, *H4d* was supported as mature-age students who experienced more emotional support from their intimate partner had lower levels of exhaustion, based on their improved role balance. Study load, chores load, and instrumental support yielded no significant indirect results of role balance on exhaustion. As a result, *H4b*, *H4c*, and *H4e* were rejected.

Table 4.

*Multilevel regression of exhaustion.*

| <b>Predictors</b>             | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b>   | <b>Model 5</b> |
|-------------------------------|----------------|----------------|----------------|------------------|----------------|
| Intercept                     | 2.16***        | 1.94***        | 1.95***        | 2.00***          | 2.12***        |
| Day number                    |                | -.13***        | -.13***        | -.02             | .03            |
| Corona influence              |                | .07*           | .07*           | .05 <sup>x</sup> | .02            |
| Baseline exhaustion           |                |                | .40***         | .40***           | .41***         |
| Objective workload            |                |                | .              | .12***           | .06***         |
| Objective study load          |                |                |                | .04              | <.01           |
| Objective chores load         |                |                |                | <-.01            | -.01           |
| Emotional support             |                |                |                | -.07             | <.01           |
| Instrumental support          |                |                |                | -.05             | -.03           |
| Role overload                 |                |                |                |                  | .32***         |
| Role balance                  |                |                |                |                  | -.48***        |
| <b>Fit (-2 log L)</b>         | 1426.94        | 1390.93        | 1369.26        | 1300.45          | 1141.03        |
| Δ fit                         |                | 36.01***       | 21.67***       | 68.81***         | 159.42***      |
| df                            |                | 2              | 1              | 5                | 2              |
| <b>Variance</b>               |                |                |                |                  |                |
| Random intercept ( $\tau^2$ ) | .95***         | .46***         | .31***         | .33***           | .39***         |
| Residual ( $\sigma^2$ )       | .46***         | .87***         | .87***         | .73***           | .49***         |
| ICC                           | .32            |                |                |                  |                |
| Explained variance (%)        |                | 6              | 16             | 25               | 38             |

Note. <sup>x</sup>  $p < .10$  \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

### 5.3.4 Engagement

Table 5 presents the multilevel regression of engagement. The ICC of engagement indicates that 33% of the variance of engagement can be attributed to systematic differences between persons, leaving 66% for daily variance within participants over days. As Model 2 shows, day number and the self-reported influence of corona contributed significantly to engagement. Adding the control variables caused a significant improvement in the fit of the model, with a 6% explained variance. The lower the self-reported influence of corona, the higher engagement participants experienced. The more days a participant filled in the questionnaires, the higher their engagement was.

In Model 3, the baseline of engagement was included in the model. The significantly improved fit of this model shows that 17% of the variance could be explained with these three variables added to the regression of engagement. Engagement at baseline improved the predictors of daily engagement.

In Model 4, all five predictors were entered into the regression, which did not further improve the fit of the model. Combined with the control variables, the predictors still explained 17% of the variance of engagement.

In Model 5 both mediators were added, which had a large effect on the improvement of the model. Altogether, Model 5 explained 37% of the variation in daily engagement.

Table 5.

*Multilevel regression of engagement.*

| <b>Predictors</b>             | <b>Model 1</b> | <b>Model 2</b> | <b>Model 3</b> | <b>Model 4</b>    | <b>Model 5</b>   |
|-------------------------------|----------------|----------------|----------------|-------------------|------------------|
| Intercept                     | 3.68***        | 3.83***        | 3.82***        | 3.81***           | 3.69***          |
| Day number                    |                | .09***         | .09***         | .07***            | .03 <sup>x</sup> |
| Corona influence              |                | -.05*          | -.05*          | -.04 <sup>x</sup> | <-.01            |
| Baseline engagement           |                |                | .36***         | .36***            | .37***           |
| Objective workload            |                |                |                | -.01              | .02              |
| Objective study load          |                |                |                | <-.01             | .01              |
| Objective chores load         |                |                |                | .01               | .01              |
| Emotional support             |                |                |                | .09               | <-.01            |
| Instrumental support          |                |                |                | .06               | .04              |
| Role overload                 |                |                |                |                   | .01              |
| Role balance                  |                |                |                |                   | .69***           |
| <b>Fit (-2 log L)</b>         | 1181.79        | 1154.25        | 1128.86        | 1120.14           | 919.30           |
| Δ fit                         |                | 27.54***       | 25.39***       | 8.72              | 200.84***        |
| df                            |                | 2              | 1              | 5                 | 2                |
| <b>Variance</b>               |                |                |                |                   |                  |
| Random intercept ( $\tau^2$ ) | .28***         | .26***         | .17***         | .17***            | .22***           |
| Residual ( $\sigma^2$ )       | .56***         | .53***         | .53***         | .52***            | .31***           |
| ICC                           | .33            |                |                |                   |                  |
| Explained variance (%)        |                | 6              | 17             | 17                | 37               |

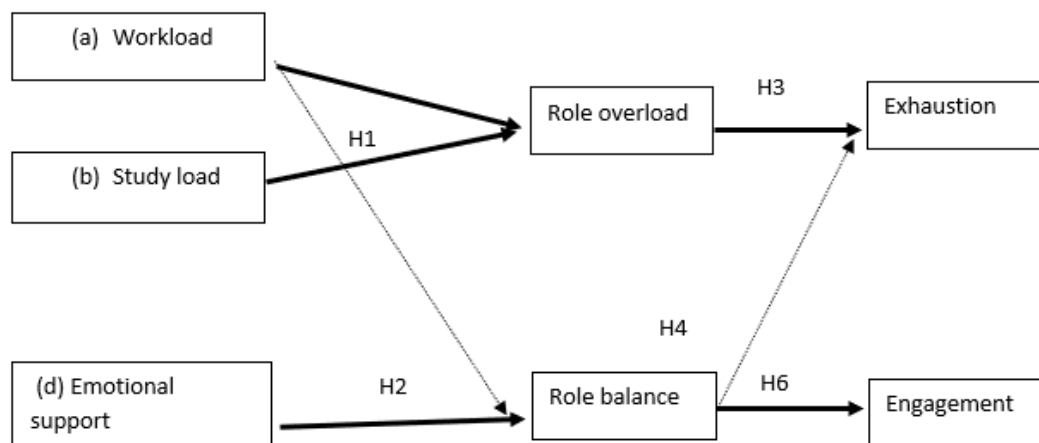
<sup>x</sup> $p < .10$  \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

No significant relationship between role overload and engagement was found. Moreover, neither the indirect effect of role overload (*H5*) from the objective loads nor from social support to engagement was significant. Based on these results *H5a-e* received no support.

Moreover, role balance has a positive relationship with engagement. This suggests that participants with a better role balance also experience higher levels of engagement.

Significant indirect results of objective workload ( $ab = -.229, [-.045, -.011]$ ) and emotional

support ( $ab=.089, [.01443, .1632]$ ) to engagement through role balance were found. Mature-age students experienced better role balance on days that they had fewer working hours. In line with *H6a*, working fewer hours was positively related to engagement through better role balance. Moreover, *H6d* was supported, as mature-age students experienced better role balance on days that they experienced more emotional support from their intimate partner, and this partly explained their higher engagement on these days. However, *H6b*, *H6c*, and *H6e* were rejected, as study load, chores load, and instrumental support yielded no indirect results on engagement through role balance. Taken altogether, the significant relationships of the hypotheses are presented in Figure 2.



*Figure 2.* A model with significant relations (H1a, H1b, H2a, H2d) with role overload and balance, mediation-analyses with exhaustion (H3a, H3b, H4a, H4d) and engagement (H6a, H6d).

*Note.* The thickness of arrows shows the hypothesized direction: thick arrows correspond with a positive effect and dotted arrows with a negative effect.

## 6. Discussion

### 6.1 Interpretation of results.

This daily diary study examined role overload and role balance related to exhaustion and engagement among mature-age students. Specifically, the influence of the objective load of work, study, and chores with emotional and instrumental support of a partner were considered as antecedents. Chiefly, exhaustion was hypothesized to be mainly influenced positively by the objective load, and is mediated by role overload. By contrast, exhaustion was negatively influenced by support, and is mediated by role balance. On the other hand, engagement was hypothesized to be mainly predicted negatively by objective load, and is mediated by role overload. Engagement was predicted positively by social support, and is mediated by role balance. Two main findings are discussed and three explanations for not supported hypotheses are presented.

Firstly, a positive effect of objective workload and of study load to role overload were found (*H1a* and *H1b*). Furthermore, objective workload and study load had both a positive relationship with exhaustion, and were mediated by role overload (*H3a* and *H3b*). When mature-age students had fewer working hours, they experienced better role balance, and more engagement through better role balance (*H6a*). These findings are in line with previous work (e.g. Brauchli, Bauer, & Hämmig, 2011; Ilies, et al., 2007), and broaden its results to objective study load. Limited daily hours can only spend once, so a focus on the hours spent on work and study are fundamental to control role overload and lower exhaustion.

Secondly, a positive relationship between emotional support and role balance (*H2d*) was found. Emotional support had a negative relationship with exhaustion, and is mediated by role balance (*H4d*). In addition, if more emotional support from their intimate partner, this explained partly their higher engagement on these days, through role balance (*H6d*). These findings of emotional support (*H2d*, *H4d*, *H6d*) are in line with findings among different ethnic samples (Chen & Li, 2012; Marks, et al., 2001). To maintain balance when juggling multiple roles, intimate partners should provide emotional support rather than with practical help, since no results for instrumental support on these variables were obtained.

No evidence was found for the prediction of role overload on engagement (*H5a-e*). For a suggested explanation with explorative data, see Appendix B.

Although the self-constructed items were reliable, no results were discovered for instrumental support (*H1-6e*) to role overload and balance or to the well-being outcomes. However, it should be taken into consideration that many situations that are instrumental in

descriptive terms are emotional in terms of meaning (Semmer, Elfering, Jacobshagen, Perrot, Beehr & Boos, 2008). Therefore, the measures of emotional support could also include the part of instrumental support.

In addition, no results were obtained for objective chores load (*H1-6c*), the hours spent on housekeeping. Objective chores load had a negative relationship with objective workload. When less hours are worked, it is more likely people spent time on doing their household.

Due to the corona measures, many people had to re-organise their activities and, in some cases, spending time on housekeeping could have felt more like a pastime than a chore. Probable through more flexibility of time for studying and housekeeping, instead of usually more fixed hours of work (Brauchli, et al., 2011), no negative relationship was found with engagement and (through) role balance (*H4b-c*, *H6b-c*).

## 6.2 Theoretical implications.

The results of current research have appeared to be reliable and valid. The outcomes contribute to the existing, yet limited, literature about role overload and balance. Specifically, the use of a diary study on these concepts and this target group of mature-age students is unique. Diary studies appear not only to be a viable way to study the concepts (Mac Ewen & Barling, 1994), it is essential, as two-third of variation in participants in the sample lay on day-level (i.e. variance within-persons), whereas nondiary studies only study between-person (i.e. with cross-sectional data). These variables appeared to vary over days, which also contributes to validating these variables within the JD-R model. In addition, this research contributes to the body of literature for mature-age students, who have hardly been studied to this date (Andrade & Matias, 2017), although they form a distinctive group of traditional students (Berker, et al., 2003).

Furthermore, theoretical relevance can be claimed that this research could be a turning point in the measurement of multiple life domains, with the general orientation across roles in role overload and balance (Marks & MacDermid, 1996). This is explicitly in contrast with (a) the specific influence of one role on another, with for instance work-family conflict (e.g. Greenhaus & Beutell, 1985), family-work facilitation (e.g. Frone, 2003; Voydanoff, 2005b) or work-school conflict and facilitation (e.g. Butler, 2007), and (b) the incompatibility of pressures of one role that arise within another role, in inter-role conflict (Kopelman, et al., 1983). These methods focus on the cause of conflict or facilitation and the specific influence of a role on another role. However, this used perspective of role overload and balance focuses



on the combination of roles regardless of the cause, specific influence, or the number of roles. Therefore, especially this role general approach has broad possibilities for future research for multiple salient roles.

Additionally, in this sample, more mature-age students viewed personal development as a reason to (re)enter into higher education (Mercer, 2007), rather than a need for updated knowledge and skills in their careers (Edwards, 2002).

### 6.3 Strengths and limitations.

*Strengths.* Strength is the diary design, in which participants filled out a baseline questionnaire and a weeklong daily questionnaire. This creates the opportunity to examine daily variation in objective load, support, role overload, and balance and well-being outcomes. Moreover, with a high mean of (5.9) participated days daily variation per participant is adequate, which considers an accurate within-person variation. Furthermore, the focused target group, and not for instance students in general, gives relatable information to generalize on the specific population of mature-age students.

*Strengths during corona.* Moreover, data collection was in the unique period of corona. The role of corona on day level is measured, with most daily questionnaires at the beginning of the corona outbreak in the Netherlands. Since the nature of combining work, study and home roles, this research could not only be continued, but also revealed valuable unique information about participants switching to digital education of themselves (and their children), and in most cases also the switch to working at home. Communication and possible support of fellow students fell away or had to be designed differently; whereas, the support of an intimate partner was still of the same person, only possible more or different. Another life-changing restriction was that work had to be done mostly at home, but the hours are a more objective measurement (and for the influence of corona was corrected). In the public space and with visit 1.5 meters had to be considered, but no main analyses regarding this information. This research added quickly questions about corona influence.

*Limitations.* Several limitations can be observed. Firstly, this research included a limited amount of 81 participants, making difficulties to generalize data to the whole population of mature-age students. Guidelines for multilevel designs prescribe that increasing the sample size on person level has a greater effect on increasing the power than increasing the sample size on daily level (e.g. Scherbaum & Ferrerter, 2009). In other words, it could have more influence on the power to have more than 81 participants, in comparison to

increasing the 475 daily measurements. In addition, for results to be generalizable, at least 100 participants are desired (Ohly, Sonnentag, Niessen & Zapf, 2010). Therefore, to generalize obtained results, this study should be replicated with more than 100 included participants.

Secondly, this sample has overrepresentation of particular groups. Due to the targeted recruitment at a (post)-Higher Vocational Education at the discipline of Business Studies explains the higher percentage of these categories. The underrepresentation of University Bachelor students could (partly) be explained through its long time in study years for finishing a degree, which is a prerequisite for further education in University. Besides, more females than males participated, and underrepresentation of specific study directions occurred, namely technology, natural and computer sciences, agriculture or personal services, and transport.

Thirdly, this dairy study leans exclusively on self-reported data (Schaufeli & Bakker, 2004). This can result in data affected by common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Particularly, the use of an external measurement of corona influence could be helpful for the daily influence of corona. It could be that participants have less insight into how much influence of corona they experience (in comparison to other participants), and answers could be with self-pity or socially desirable.

Fourthly, the effects of day number were revealed for role overload, exhaustion, and engagement, although that for day number has been corrected. Variance in outcomes could be associated with dropout based on the time investment of a dairy study and social support above the possible effect of repeated measurements. However, it is more plausible that these effects are found since both week and weekend days were included in the research.

Lastly, it is necessary to mention that in current research limited causal relationships can be determined. The direction of found relationships is hard to pinpoint with absolute clarity (Tims et al., 2012; Schaufeli & Bakker 2004), for this research did no longitudinal analyses over the days (the lagged effect of day 1 on day 2, et cetera).

#### 6.4 Future research

Other study designs could be used to broaden the theory development. Longitudinal study design should be used to further examine the insights obtained from this research and determine causal relationships. Future research can then examine how mature-age students deal with short-term and long-term role overload (Lang & Markowitz, 1986; mac Ewen, Barlin & Kelloway, 1992).

This research focused on the role salient domains for mature-age students, namely study, work, and household. However, shopping groceries should have been added to hours doing household to approach a more realistic load of tasks in the home domain. This research exploratively measured other roles in the questionnaire, like sports, volunteer work, and informal care. However, for this target group, a small number of participants were integrating such tasks into their lives. However, eventually, more knowledge about daily role overload and balance could also benefit other populations with multiple salient roles in a specific life stage (Sullivan & Mainiero, 2008), for instance, informal caregiving (Hansen & Slagsvold, 2015), religion (Greenfield & Marks, 2007), volunteer work (Mojza, Sonnentag & Bornemann, 2011), sports (Yamada, Mizuno, Ebara & Hirose, 2011), and community (Voydanoff, 2005b).

In addition, burn-out would have been an interesting factor in corona times (Kompanje, 2018; Rothlin & Weder, 2008). Taking this factor of demotivation, which focuses on the lack of existential significance and professional performance, into account in future research could maximize results on a broader spectrum of well-being.

## 6.5 Practical implications.

For practical relevance schools and organizations can look at the different life domains where a possible student can experience workload and benefit from social support to experience lower role overload, better well-being, and possibly fewer dropouts (Venegas-Muggli, 2019). The fact that workload, social support, and role overload can vary daily, implicates that it can be altered through life and organizational interventions and training. Three possible directions are suggested.

Firstly, the used baseline and daily questionnaires could be used by educational institutions for mentoring mature-age students. Students' well-being comes to the fore more at educational institutions. Filling in these questionnaires regularly (e.g. each study semester, but especially in first study year) could give insight for students themselves and a reflection conversation or report with a tutor or study advisor.

Secondly, interventions should target facilitating partners to support their partner who is juggling with multiple roles. As emotional support yields a positive effect on the well-being of mature-age students, partner interventions should focus on emotional support, rather than (only) helping their partner out in a practical way.

Thirdly, the number of hours spent on working and studying should be discussed with relevant parties more often. The conversation about working hours between employee and their working organization (e.g. HR-department or team leader) should be regularly. The number of working hours besides their studies could then be made more flexible or lowered for a specific amount of time to maintain better well-being for the mature-age student. As this study measured exploratively, some organizations offer time for studying or finances to pay (partly) for the education expenses. Furthermore, the duration (and study load) of their study could be discussed with the educational institute, especially with information before starting a degree as a mature-age student. Moreover, expectations about hours working and studying could be checked with their intimate partner, to find a better role balance on more days.

## 6.6 In conclusion.

This research examining role overload and balance among mature-age students contributed to the academic empirical research on well-being in occupational psychology. This daily diary study shows that hours spent on work and on study influence role overload and balance. Hours spent on work and on study also had effect on exhaustion through role overload and balance. Fewer hours spent on work had a beneficial effect on role balance and on more engagement through role balance. Besides major findings on emotional support from an intimate partner were found. The more emotional support a mature-age student perceived, the better their role balance. This form of support had effect on well-being outcomes, higher engagement and lower exhaustion, through role balance. The results surrounding emotional social support from an intimate partner suggest interventions should focus on the emotional support rather than practical assistance. This could be valuable for students, educational institutions, and organizations. It gives a promising future where lifelong learning life can empower mature-age students to combine work, study, and home life.

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## Appendix A. Additive tables for reliability and descriptives

Table 6.

*Cronbach's Alpha for variables with multiple items.*

| <b>Variable</b>      | <b>Baseline questionnaire</b> | <b>Daily questionnaires</b> |
|----------------------|-------------------------------|-----------------------------|
| Role overload        | .87                           | .80                         |
| Role balance         | .78                           | .85                         |
| Emotional exhaustion | .89                           | .90                         |
| Engagement           | .91                           | .82                         |
| Emotional support    | .91                           | .85                         |
| Instrumental support | .89                           | .87                         |

*Note:* Emotional and instrumental support were only analyzed at a daily level.

Table 7.

*Descriptive statistics of the number of days participated, age, contractual working hours, and hours worked on a working day, displayed in means (M), standard deviations (SD), median, and reach with n=81.*

| <b>Variable</b>                                   | <b>M</b> | <b>SD</b> | <b>Median</b> | <b>Reach</b> |
|---|----------|-----------|---------------|--------------|
| Number of days participated                       | 5.9      | 1.6       | 6.0           | 3-11         |
| Age in years                                      | 38.6     | 10.2      | 38.0          | 25-60        |
| <i>Age in years for male (n=28)</i>               | 37.5     | 9.9       |               | 26-60        |
| <i>Age in years for female (n=53)</i>             | 39.2     | 10.4      |               | 25-58        |
| Baseline hours working generally factual per week | 32.3     | 7.1       | 32.0          | 18-50        |
| Years together with intimate partner              | 15.0     | 9.6       | 13.0          | 0.5-38       |
| Years at the current organization                 | 8.1      | 7.9       | 5.0           | 0-35         |
| Years at current function                         | 5.8      | 6.7       | 3.0           | 0-37         |
| Experienced daily life changes corona             | 2.8      | 2.0       | 4.0           | 0-5          |

Table 8.

*Frequency statistics of the number of days participated, gender, age categories, recruitment form, and habits of work and study (n=81).*

|   | Frequency (n) | Percent (%) |
|---|---------------|-------------|
| <b>Number of days participated</b>                        |               |             |
| 3 days  | 8             | 10          |
| 4 days  | 10            | 12          |
| 5 days  | 9             | 11          |
| 6 days  | 20            | 25          |
| 7 days  | 32            | 40          |
| 11 days   | 2             | 2           |
| <b>Age categories</b>                                     |               |             |
| 25-34 years   | 36            | 45          |
| 35-44 years   | 22            | 27          |
| 45-54 years   | 17            | 21          |
| 55-64 years   | 6             | 7           |
| <b>Marital status</b>                                     |               |             |
| Married   | 55            | 70          |
| Living together   | 22            | 27          |
| Relationship. not living together                         | 4             | 5           |
| <b>Recruitment form</b>                                   |               |             |
| Recruitment talk in a lecture                             | 29            | 36          |
| General social media groups                               | 12            | 15          |
| Social media post   | 11            | 14          |
| Contact of someone in the personal network researcher     | 10            | 12          |
| Digital surrounding educational system                    | 9             | 11          |
| Other recruitment (e-mail educational institution)        | 6             | 7           |
| Personal network researcher                               | 5             | 6           |
| <b>Baseline working hours per week</b>                    |               |             |
| 16-24 hours   | 15            | 19          |
| 25-34 hours   | 32            | 40          |
| 33-40 hours   | 27            | 33          |
| 41-50 hours   | 6             | 7           |
| Missing   | 1             | 1           |
| <b>Type work contract</b>                                 |               |             |
| Salaried, permanent                                       | 65            | 80          |
| Salaried, temporary                                       | 8             | 10          |
| Self-employed   | 5             | 6           |
| Posted ('Dutch: <i>gedetacheerd</i> ')                    | 1             | 1           |
| Other   | 2             | 3           |
| <b>Habits - separate items</b>                            |               |             |
| Studying on the weekends - often or (almost) always       | 60            | 74          |
| Bring work to home – several times a month till every day | 53            | 66          |
| Working in the weekend – almost never                     | 35            | 43          |
| Working in the weekends – more than several times a month | 26            | 32          |

Table 9.

*Frequency statistics of education level, highest education level, educational discipline, motives for current education, and if partners obtained a higher educational degree (n=81).*

|  | Frequency (n) | Percent (%) |
|--|---------------|-------------|
| <b>Education level enrolled</b>  |               |             |
| Higher vocational education (HBO)  | 26            | 32          |
| Post-higher vocational education (Post-HBO)  | 32            | 40          |
| University Premaster   | 6             | 7           |
| University Bachelor  | 1             | 1           |
| University Master  | 11            | 14          |
| Post-University  | 1             | 1           |
| PhD  | 4             | 5           |
| <b>Highest education level obtained</b>  |               |             |
| HAVO/MBO   | 23            | 28          |
| VWO  | 3             | 4           |
| HBO  | 31            | 38          |
| Post-HBO   | 4             | 5           |
| University Premaster   | 6             | 7           |
| University Bachelor  | 4             | 5           |
| University Master/PhD  | 10            | 12          |
| <b>Educational form</b>  |               |             |
| Part-time  | 65            | 80          |
| Dual   | 7             | 9           |
| Full-time  | 3             | 4           |
| Other educational forms  | 6             | 7           |
| <b>Educational discipline</b>  |               |             |
| Economic studies, business administration  | 38            | 47          |
| Education  | 14            | 17          |
| Healthcare, well-being   | 11            | 14          |
| Social sciences  | 6             | 7           |
| Law, Linguistics, history, art   | 6             | 7           |
| Religious studies  | 4             | 5           |
| Technology, industry, construction   | 1             | 1           |
| Double study ( <i>religious and social sciences</i> )  | 1             | 1           |
| Natural/computer sciences; Agriculture, veterinary<br>medicine; Personal services, transport | 0             | 0           |
| <b>Motives for current education – multiple answers possible</b>                             |               |             |
| Personal development   | 72            | 89          |
| Retraining to another function out of personal wishes  | 29            | 36          |
| Offer from work for (partial) finance education  | 24            | 30          |
| Necessary update for knowledge/skills for current work                                       | 17            | 21          |
| Changed life phase with partner and/or children  | 11            | 14          |
| Retraining to another function from work   | 9             | 11          |
| Sufficient personal finance for studying   | 8             | 10          |
| Offer from work for study time   | 7             | 9           |
| Expected future finance  | 6             | 7           |
| Other motives  | 6             | 7           |
| <b>Partners finished a higher educational degree</b>   |               |             |
| Finished a higher educational degree   | 53            | 65          |
| Partners did not study or were studying now  | 28            | 35          |

Table 10.

Comparisons before and during corona outbreak (n=475).

| Corona comparisons                    | Before     |            | During     |            | Total      |            |
|---------------------------------------|------------|------------|------------|------------|------------|------------|
|                                       |            | %          |            | %          |            | %          |
| <b>Reported role on a day</b>         |            |            |            |            |            |            |
| Partner                               | 88         | 76         | 268        | 75         | 365        | 75         |
| Doing household                       | 72         | 62         | 255        | 71         | 327        | 69         |
| Paid work                             | 75         | 65         | 242        | 67         | 317        | 67         |
| Studies                               | 57         | 49         | 194        | 54         | 251        | 53         |
| Children                              | 64         | 55         | 210        | 59         | 274        | 58         |
| Other spare time                      | 26         | 22         | 101        | 28         | 127        | 17         |
| Groceries/buying outside of the house | 15         | 13         | 110        | 31         | 125        | 16         |
| Travel time paid work and/or studies  | 56         | 48         | 63         | 18         | 119        | 25         |
| Family not living on the same address | 29         | 25         | 70         | 20         | 99         | 21         |
| Friends                               | 23         | 20         | 56         | 16         | 79         | 17         |
| Sports                                | 16         | 14         | 61         | 17         | 77         | 16         |
| Other activities                      | 25         | 22         | 25         | 7          | 25         | 5          |
| Volunteer work                        | 10         | 9          | 12         | 3          | 22         | 5          |
| Informal care                         | 2          | 2          | 3          | 1          | 5          | 1          |
| <i>Total</i>                          | <i>116</i> |            | <i>359</i> |            | <i>475</i> |            |
| <b>Experienced daily life change</b>  |            |            |            |            |            |            |
| Before corona                         | <i>117</i> | 100        |            |            |            | 25         |
| Totally disagree                      |            |            | 48         | 13         |            | 10         |
| Disagree                              |            |            | 32         | 9          |            | 7          |
| Neutral                               |            |            | 17         | 5          |            | 3          |
| Agree                                 |            |            | 125        | 35         |            | 26         |
| Totally agree                         |            |            | 136        | 38         |            | 29         |
| <i>Total</i>                          | <i>117</i> | <i>100</i> | <i>358</i> | <i>100</i> | <i>475</i> | <i>100</i> |

## **Appendix B: Explorative analyses on appraisal of demands**

*Theoretical background.* Exploratively, the appraisal of demands as challenges or hindrances is considered. When individuals experience personal growth and goal attainment in addition to the demand's pressure, it is referred to as a challenging demand. In contrast, a hindering demand is perceived as unnecessarily thwarting to personal growth and goal attainment (Bakker & Sanz-Vergel, 2013). The demand's appraisal has a unique effect on well-being outcomes. For example, a challenging demand correlates to engagement, whereas a hindering demand is related to burnout (Bakker & Demerouti, 2008; Schaufeli & Salanova, 2014). Based on a diary study (Butler, et al., 2009), hindering demands have a negative relationship with role balance. Specifically, the demand workload is seen as a challenge (le Pine, Podsakoff, & le Pine 2005).

*Measurement.* For appraisal of demands the following self-constructed items were asked in either form: "Today, I perceived my activities as a hindrance/challenge".

*Data-inspection.* Participants tend to see the combination of roles as more of a challenge than as a hindrance. The influence of challenge and hindrance appraisal have been included in Table 1 in an explorative nature. As expected, hindrance appraisal shows a positive relationship with exhaustion and role overload. On the other hand, hindrance appraisal shows a negative relationship with role balance, engagement, and emotional support. Interestingly, the more objective study load was experienced, the less their combination of roles was a hindrance. On the other hand, challenge appraisal has positive relationships with engagement and role balance, but negative relationships with hindrance appraisal, exhaustion, and role overload. Generally speaking, the younger the participant, the higher their challenge appraisal.

*A suggestion for unexpected results.* No evidence was found for the prediction of role overload on engagement (*H5a-e*). The relationship between role overload and engagement is debated in the literature. Role overload is both seen as a hindrance in a meta-analysis (Crawford, le Pine & Rich, 2010) and as a challenge (le Pine, et al., 2005). Exploratively in this research, role overload had both significant positive results with hindrance appraisal and negative results with challenge appraisal. This could be an explanation that role overload had no (negative) relationship with engagement.

*Future research.* Future research can then examine if mature-age students perceive their roles as either hindrances or challenges (Crawford, et al., 2010; le Pine, et al., 2005).

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