

**“The Self-Determination Theory and Work Engagement: The Role of Extraversion at
the Workplace”**

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Abstract

The current study provides insight in the personal and organizational antecedents of work engagement, a form of well-being at work. Consequently, the relationships between basic needs satisfaction, extraversion and work engagement are analyzed. 129 participants were included in the analyses after they filled in several questionnaires and their answers are analyzed via hierarchical regression analyses. The findings corroborated the expectation of positive relationships between work-related basic needs satisfaction and work engagement, and extraversion and work engagement. In contrast with the need for autonomy and relatedness, the need for competence was not positively related to work engagement. Furthermore, the extraversion personality trait did not significantly moderate the relationship between work-related basic needs satisfaction and work engagement. It is concluded that work engagement could be improved by facilitation of basic needs satisfaction in terms of the need for autonomy and the need for relatedness. Moreover, the findings indicated that an extraverted individual could experience more engagement with one's work. Contrary to the hypotheses, extraversion did not moderate the relationship between basic needs satisfaction and work engagement. As the current study was performed during a global pandemic, it contributes to the knowledge of well-being at work during a crisis. This allows for more in-depth knowledge regarding the concepts aforementioned within organizations in harder times.

Key words: Work Engagement, Self-Determination Theory, Extraversion, Pandemic

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“Enhancing Work Engagement: The Role of Organizational and Personal Antecedents”

A mere 14% of the Dutch employees is considered as engaged with their work (Schaufeli, 2015). As work engagement is seen as a form of well-being at the workplace, it is pivotal to improve it (Ariani, 2019). Work engagement is defined as “a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2006, p.702). People who show high levels of vigor are energized and determined regarding their work goals. When obstacles occur, they have lower levels of perceived distress and loss of control. Dedication is defined as feelings of coherence with the workplace and its tasks. Employees who possess high levels of dedication will often feel personally attached to their jobs and feel congruent with their occupational roles (Bakker & Oerlemans, 2016; Kahn, 1990; Schaufeli et al., 2002). The definition of absorption includes the state of focus on work goals and feeling more authentic when pursuing them which results in more experiences of flow (Chua & Ayoko, 2019). Because people work for a large part of their lives, it is of great importance to facilitate high levels of work engagement, and thus well-being, among employees (Andreassen et al., 2010). Therefore, the current study strives to gain insight on how work engagement among employees could be improved during a global pandemic, by basic needs satisfaction and the relationships with personality traits.

The Self-Determination Theory

The concept of basic needs satisfaction helps understanding how the improvement of work engagement can be facilitated (Baard et al., 2014; Babenko, 2018). The Self-Determination Theory addresses the importance of basic needs satisfaction and has recently received more attention in the field of positive, motivational and organizational psychology (Luthans, 2002; Seligman & Csikszentmihalyi, 2000; Van den Broeck et al., 2008). Deci and Ryan (1985; 1991) propose that there are three basic needs that need to be fulfilled: autonomy, competence, and relatedness. They define these needs as essential nutrients to the

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personal growth, integrity, and well-being of human beings (Church et al., 2012). The need for autonomy is seen as the core contributor of self-determination (Cresswell & Eklund, 2005), and is defined as the need for experiencing authenticity of one's own behavior, acting as a result of one's own choices and freewill (Deci & Ryan, 2000; Van den Broeck, et al., 2008). The need for competence refers to feelings that include desires of (perceived) mastery of the environment, and being capable of managing challenges and acting with desirable outcomes as a consequence (Deci & Ryan, 2000; Van den Broeck et al., 2008). The need for relatedness is defined as acting with the goal of pursuing affiliative relationships and a feeling of belongingness with people in one's environment (Deci & Ryan, 2000; Van den Broeck et al., 2008). Even though some people are most comfortable (working) on their own, the concept of relatedness contributes significantly to feeling self-determined and motivated (Ariani, 2019).

Basic Needs Satisfaction and Work Engagement

To understand the relationship between basic needs satisfaction and work engagement, it is important to understand how motivational mechanisms work as posited by the Self-Determination Theory (Deci & Ryan 1985; 1991). The Self-Determination Theory distinguishes two forms of motivational regulation: controlled and autonomous. Controlled motivational regulation is defined as less personal and under the influence of external factors, such as job demands or financial benefits. In contrast, autonomous motivational regulation is defined as an intrinsic and volitional form of regulation which includes a high level of identification with one's tasks (Meyer & Gagné, 2008; Ryan & Deci, 2000). When comparing controlled motivational regulation with its autonomous counterpart, the latter will generally lead to more positive outcomes including general well-being and work engagement among employees (Gagné & Vansteenkiste, 2013). Higher levels of autonomous motivational

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regulation can be predicted through higher levels of basic needs satisfaction (Weman-Josefsson et al., 2015). Additionally, the definitions of autonomy, competence, and relatedness indicate a close connection between the basic needs and autonomous motivational regulation (Ryan & Deci, 2000).

Previous literature has already pointed out the overlap between autonomous motivational regulation and work engagement. It is proposed that autonomous motivational regulation could lead to a higher feeling of work engagement (Beek et al., 2011; 2012; Malinowska et al., 2018). Considering the fact that satisfaction of the basic needs is key to achieve autonomous motivation within employees, this could point to a positive relationship between basic needs satisfaction and work engagement (Macey & Schneider, 2008; Schreurs, 2014; Wehman-Josefsson et al., 2015). In line with this idea, previous studies have found that basic needs satisfaction could be an antecedent of work engagement (Ariani, 2019; Rasskazova et al., 2016). According to Van den Broeck et al. (2008) satisfaction of the basic needs had a positive relationship with vigor, an element of work engagement. Additionally, all three basic needs related to higher levels of work engagement among academic workers (Silman, 2014). Altogether, this points to the importance of improving basic needs satisfaction, which leads to autonomous motivation within individuals that is needed in order to feel engaged with their work.

Extraversion and Work Engagement

The differences in work engagement are not only caused by differences in basic needs satisfaction. Individual differences such as personality traits could help differentiate lower and higher engaged individuals in the workplace (Langelaan et al., 2006). Personality traits can indicate how someone acts and feels and how one is motivated to fulfill tasks (Alsuwailem & Elnaga, 2016). Differences within these traits could lead to different levels of experienced work engagement (Janssens et al., 2019). Previous literature shows that

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openness, conscientiousness, agreeableness and extraversion are positively linked to work engagement, whereas neuroticism is negatively linked to work engagement (Mhlanga et al., 2019). For the extraversion, conscientiousness and openness traits the same relationships were found in another study by Gulamali (2017). It seems clear that differences in work engagement could be predicted by Big-Five personality traits (Andreassen et al., 2010).

Comparing all the Big Five personality traits, extraversion seems to be the strongest predictor of work engagement (Langelaan et al., 2006; Yadav & Katyar, 2017). Determining levels of extraversion within employees is useful to research different levels of work engagement, since extraversion has been proposed to increase work engagement (Langelaan et al., 2006). Therefore, it seems plausible that higher levels of work engagement are experienced when employees are more extravert within the study sample. This conclusion might be obvious, regarding the fact that (work) engagement is often defined as a feeling of being energized and proactive (Inceoglu & Warr, 2011). This corresponds with the core of the extraversion personality trait as defined in the Big Five model: being socially active, cheerful, and high in energy (Costa & McCrae, 1980; Digman, 1990; Goldberg, 1993). This overlap points to the importance of connecting extraversion with work engagement when studying contributing variables of work engagement.

Extraversion as a Moderator

Drawing on the proposed positive relationships regarding basic needs satisfaction and extraversion with work engagement, it is interesting to look at these three construct together. It seems that extraverted individuals react more positively to situations where personal growth is possible and favored (Bipp, 2010). This leads to the question whether extraversion moderates the relationship between basic needs

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satisfaction and work engagement. An explanation for this could be the fact that extraverted individuals flourish more in workplaces where a sense of autonomy is present – they feel competent to improve at their jobs and feel comfortable in giving and receiving feedback from their peers, in comparison with introverted people (Furnham et al., 1999). With regard to their introverted counterparts, it could be the case that extraverted individuals could experience a greater positive impact of the fulfillment of the basic needs. Additionally, when resources to fulfill one's basic needs are present within an organization, extraverted individuals could show a better use of these resources in comparison with their introverted peers, which in turn leads to a higher feeling of work engagement (Broaden-and-Build-theory; Fredrickson, 2004). This points to the possibility that the positive outcomes on work engagement of the satisfaction of the basic needs are more profoundly present when the individual concerned is extravert. Previous literature has addressed the predictive value of basic needs satisfaction and extraversion on work engagement, however it seems that extraversion has not been analyzed as a moderating variable between the other two constructs before. Interventions aimed at improving basic needs satisfaction could be more individualized if the role of personality traits, such as extraversion, are analyzed more. These individualized interventions could, in turn, could lead to a better fulfillment of the basic needs of employees within organizations (Proyer, 2015), resulting in higher levels of work engagement (Silman, 2014). Therefore, it seems insightful to analyze the possible moderating role of extraversion in the relationship between basic needs satisfaction and work engagement (Inceoglu & Warr, 2011).

The Present Study

Altogether, a lot of knowledge is already known regarding the relationships between basic needs satisfaction and work engagement. However, more research is needed to provide in-depth information on how to enhance work engagement in the future, and which factors

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influence positive relationships like the one between basic needs satisfaction and work engagement. Moreover, it is important to perform this research at this moment in time, taken into account the current Covid-19 pandemic. According to Habersaat et al. (2020) it is of great importance to understand the possible influence of Covid-19 variables on people's everyday lives, including their motivation and engagement to work.

Therefore, conducting studies in times like these, might provide new insights on work engagement. Experiencing stressors at work due to the global pandemic is predicted to have negative impacts on employees' health, well-being and engagement (Rudolph et al., 2020). Therefore, when the relationship between basic needs satisfaction, extraversion and work engagement is studied in times like these, valuable information is gained to improve interventions that sustain well-being at the workplace in challenging times (Janssens et al., 2019). This in turn, could improve organizational resilience to prepare for similar situations in the future (Salanova, 2019). Furthermore, this study provides new ways of assessing the relationship between basic needs satisfaction and work engagement. According to van den Broeck et al. (2008) the three basic needs have been grouped before to analyze its relationship with work engagement. Others studies have analyzed the three basic needs separately with regard to work engagement (Ariani, 2019). As far as known, no studies have performed both ways of analyzing basic needs satisfaction together. Therefore, to extensively analyze work engagement and its antecedents, the current study assessed basic needs satisfaction in both ways.

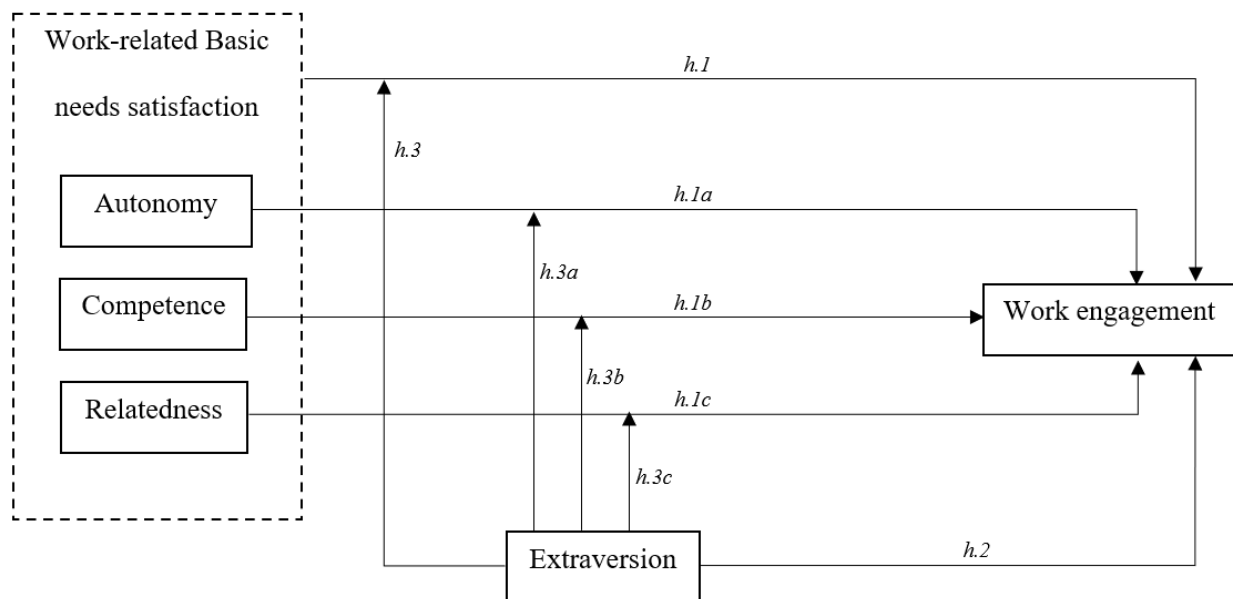
In conclusion, this study strives to provide a more detailed answer on the following question: How do the relationships look like between work-related basic needs satisfaction, extraversion and work engagement in times of a global pandemic? Based on previous literature, it is expected to find the following results. First of all, it

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is assumed that work-related basic needs satisfaction is positively related to work engagement. The sub scales autonomy, competence, and relatedness separately, are hypothesized as being positively related to work engagement as well. Second, it is assumed that extraversion is also positively related to work engagement. Thirdly, it is expected that the positive relationship between work-related basic needs satisfaction and work engagement is moderated by extraversion. It is hypothesized that extraversion reinforces the relationship between basic needs satisfaction and work engagement. The same expectation is hypothesized when analyzing the sub scales autonomy, competence, and relatedness separately. The conceptual framework for the hypotheses is shown in Figure 1.

Figure 1

Proposed model for this study



Note. Each hypothesis is noted as *h.x*.

Method

Procedure

This study entailed the Gradlife project. In this project the developments of young professionals in the transition from student life to work life were researched. Several

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platforms such as the Digital Learning Platform and the Social Media of Tilburg University were used to promote project Gradlife and therefore to recruit participants. Master students from other universities were recruited via Facebook, Career Services and university papers. Master students of Tilburg University also received emails about project Gradlife which included an invitation for participation. All Dutch-speaking master students who expected to graduate between April and December could participate. Of all four waves of the project, only wave two was included in this analysis. Participation was completely voluntary and the participants could stop their participation with project Gradlife at any time without giving a valid reason. Participants were asked to fill out an online questionnaire via Qualtrics. This would take them about 40 minutes to complete. Participants received €7 as a reward for their participation. Permission for this study was obtained via the Ethical Exam Committee of Tilburg University. Every participant obtained a participation code so that data was processed and saved confidentially. All participants consented with the study.

Participants

The 310 participants included in project Gradlife, studied different master programs during wave one. As this study concerns the antecedents of work engagement, a selection of the study sample was made of all participants for wave two. Hence, only participants who had a job at that time were included. As a result, 170 participants remained. After deleting missing values only 129 participants were included in the analyses, aged between 21 and 40 ($M = 24$, $SD = 2.205$). 106 of them were female, and 23 of them were male. The selected sample differed from the not selected sample in terms of extraversion. The participants included in the analysis were significantly more extraverted than the participants who were not working at that time. Table 1 presents the sociodemographic characteristics of the sample. 47 participants included in the sample were looking for more or other work at the time they

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filled in the questionnaires. Furthermore, 59 participants did not experience a good match between their educational background and their current job (based on a median split of 8 on a scale from 1 to 10).

Measurements

Work-Related Basic Need Satisfaction

Participants were asked to fill out the Work-Related Basic Need Satisfaction scale (W-BNS) (Van den Broeck et al., 2010). The W-BNS consists of 18 items divided into three subscales: Autonomy, Competence, and Relatedness. These 18 items assessed satisfaction in each of the three domains on a 5-point Likert scale that ranged from 1 (*disagree*) to 5 (*totally agree*). Items were for example: ‘I feel like I can be myself at my job’ (autonomy), ‘I have the feeling that I can accomplish the most difficult tasks at work’ (competence), and ‘At work, I feel part of a group’ (relatedness). To assess work-related basic needs satisfaction as a whole construct, the average of all items was calculated. For the separate analyses of the three subscales a mean score was calculated per subscale. The discriminant, criterion and predictive validity of the W-BNS were good (Van den Broeck et al., 2010). In this study, the Cronbach’s Alpha of the whole scale of W-BNS is .88. The autonomy, competence, and relatedness subscale had a Cronbach’s Alpha of .81, .84, and .89 respectively.

Work Engagement

Participants were also asked to fill out the Utrecht Work Engagement Scale (UWES-9). This scale is shortened after revision and consists of nine items (Schaufeli et al., 2006). These items were divided into three subscales: Vigor, Dedication, and Absorption. The UWES-9 assessed the frequency of which the participants experienced the feelings stated in the items. Examples of the items are ‘At my work, I feel bursting with energy’, and ‘I am immersed in my work’. The response format of this questionnaire contained a 7-point Likert scale ranging from 0 (*never*) to 6 (*always/ every day*). Mean scores were calculated for work

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engagement as a whole, which could range from 0 to 6. The factorial validity of the UWES-9 was tested across 10 countries and appeared to be good. The Cronbach's Alpha ranged from .60 to .88 (median = .77) (Schaufeli et al., 2006). The Cronbach's Alpha of the scale in the current study was .95.

Extraversion

To assess extraversion, participants were asked to fill out the Big Five Inventory – 2 Short (BFI-2S). The BFI-2S assesses the Big Five Personality traits by using five subscales (Denissen et al., 2019; Soto & John, 2017). For this study only the subscale extraversion was used, which consisted of six items. Participants scored their answers on a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Item examples were: 'Tends to be quiet' (reversed), and 'Is full of energy'. A mean score was calculated for the extraversion subscale, which could range from 1 to 5. The predictive and discriminant validity of the BFI-2S were shown to be good (Denissen et al., 2019). The Cronbach's Alpha of the scale was shown to be .86. In the study sample of the current study the Cronbach's Alpha of the extraversion subscale was .81.

Statistical Analyses

To assess the hypotheses, IBM SPSS Statistics Version 27 was used. First, the descriptive statistics were calculated and the assumptions were checked. This was done by checking a scatterplot for homoscedasticity, and performing a Durbin-Watson test to check for not correlating and normally distributed residuals. As preliminary analysis, a sensitivity power analysis was performed and Pearson's correlations were calculated. Second, a hierarchical multiple regression analysis was performed to analyze the relationship between work-related basic needs satisfaction and work engagement, moderated by extraversion. Therefore, the independent and moderator variable, work-related basic needs satisfaction and extraversion respectively, were centered. To analyze the moderation, a new variable was

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computed to represent the interaction effect between the two predictors: work-related basic needs satisfaction and extraversion. For control variables, gender and age were entered as independent variables in Step one of the regression analysis. In Step two, work-related basic needs satisfaction and extraversion were entered. The interaction variable for work-related basic needs satisfaction and extraversion was entered in Step three.

As aforementioned, the analyses of the three basic needs separately were performed as well. This was done using the same steps as aforementioned. For these additional analyses, extraversion functioned as a moderator as well.

Results

According to the sensitivity power analysis calculated via G*Power, the possible effect size of the analyses was small to medium ($\rho = .21$), based on a desired power of .80 (Faul et al., 2007). None of the assumptions were violated.

The correlations of all relevant variables can be found in Table 2. According to the Pearson's correlations the composite score of work-related basic needs satisfaction had a significant positive relationship with work engagement. This relationship was found to be medium. Furthermore, results showed that the need for autonomy and the need for relatedness related significantly positive to work engagement. Both these relationships were found to be medium. In contrary, no significant relation was found between the need for competence and work engagement. Lastly, results showed that extraversion had a significantly positive related to work engagement in our sample. This relationship appeared to be rather small.

Results of the hierarchical regression analyses are displayed in Table 3, 4, 5 and 6. Results from all hierarchical regression analyses showed that age was a significant predictor for work engagement. This means that younger participants could feel more engaged with their work. Gender was not a significant predictor for work engagement. The hierarchical

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regression analysis including the composite score of work-related basic needs satisfaction showed that Step one, based on age and gender, significantly predicted 8.8% of the differences in work engagement. Step two, based on work-related basic needs satisfaction and extraversion, significantly predicted 27.4% of the variance in work engagement, controlling for age and gender. Work-related basic needs satisfaction significantly predicted differences in work engagement. This means that more engagement towards work is experienced if the three basic needs of the participants are more satisfied. However, extraversion was not a significant predictor of work engagement. Step three appeared to be significant, but did not explain the differences in work engagement better than the previous one. Furthermore, Step three revealed no significant moderation effect of extraversion on the relation between work-related basic needs satisfaction and work engagement.

Results from the hierarchical regression analysis including autonomy showed that Step two significantly predicted 30.4% of the variances in work engagement, after controlling for age and gender. The need for autonomy was a significant predictor of work engagement whereas extraversion was not. Step three significantly predicted differences in work engagement, however it did not explain the differences in work engagement better than Step two. The moderation effect of extraversion was not significant meaning that extraversion did not interact with the need for autonomy.

Results from the hierarchical regression analysis including competence showed that Step one including age and gender, significantly explained 8.8% of the differences in work engagement. After controlling for age and gender, Step two did not explain the differences in work engagement significantly better. Results showed that competence was not a significant predictor of work engagement. However,

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extraversion significantly predicted work engagement in the sample. Step three showed to be not significant as well as the moderation effect of extraversion.

Lastly, the relationship between the need for relatedness, extraversion, and work engagement was analyzed. After controlling for age and gender, results revealed that Step two significantly predicted 28.6% of the differences in work engagement. The need for relatedness was a significant predictor of work engagement. Extraversion however was not a significant predictor of work engagement. Step three, including the moderation effect of extraversion, did not predict differences in work engagement significantly better while controlling for the variables from Step two.

Post hoc exploratory analyses

The variables match between education and work and currently looking for other or more work were used to create a complete image of the study sample. Significant differences within these variables could help understand the findings of this study. First, a median split was performed for the variable match between education and work to create groups.

Participants who scored lower than the median (8), were ranked as low, whereas participants who scored higher or equal to the median were ranked as high. Then, t-tests were performed in order to see if the groups differed on work-related basic needs satisfaction, autonomy, competence, relatedness, extraversion, and work engagement. Additionally, groups were created based on if participants were looking for other or more work. Again, t-tests were performed in order to see if the groups differed on work-related basic needs satisfaction, autonomy, competence, relatedness, extraversion, and work engagement. The results of these analyses can be found in Table 7 and 8.

Post hoc t-tests including one's experienced match between education and work as division variable, showed that participants that experience a less match between their educational background and their current job significantly feel less autonomy, less related

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and less work engagement. Furthermore, these participants experience a better satisfaction of the need for competence. The lower and higher group did not significantly differ in terms of the composite score for work-related basic needs satisfaction or extraversion.

Furthermore, post hoc t-tests showed that participants that are currently looking for other or more work significantly feel less satisfied in their work-related basic needs in general, less satisfied in their need for autonomy and relatedness, are less extravert, and feel less engaged with one's work. Only the need for competence did not seem to differ significantly between the two groups.

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Table 1*Sociodemographic Characteristics*

Variable	<i>n</i>	%
Gender		
Female	106	82.2
Male	23	17.8
Educational Area		
Economics & Management	18	14
Law	14	10.9
Social Sciences	59	45.7
Humanities & Digital Sciences	24	18.6
Mathematics & Physics Sciences	4	3.1
Medical & Health Sciences	5	3.9
Technical Sciences	5	3.9
Nationality		
Dutch	128	99.2
Other	1	0.8
Relationship		
Yes	76	58.9
No	53	41.1
Residence		
With parents/caregivers	36	27.9
With others (not partner)	42	32.6
Together with partner, without children	25	19.4
Together with partner, with children	1	0.8
Alone	22	17.1
Other	3	2.3

Note. $N = 129$. Participants were on average 24.4 years old ($SD = 2.205$)

Table 2*Correlation Matrix*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Gender ^a	1.81	0.41								
2. Age	24.37	2.21	-.067							

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3. WBNS	3.59	0.52	-.030	.030					
4. Autonomy	3.60	0.67	-.030	.030	.802**				
5. Competence	3.71	0.57	-.030	.030	.598**	.228**			
6. Relatedness	3.48	0.79	-.030	.030	.846**	.558**	.255**		
7. Extraversion	3.45	0.65	-.085	.090	.209**	.163	.226**	.267**	
8. Work	4.08	1.43	-.038	-.013	.581**	.606**	.058	.583**	.194*

Engagement

Notes. WBNS = Work-related basic needs satisfaction.

^a 1 = male, 2 = female

* $p < .05$. ** $p < .01$

Table 3

Hierarchical Regression Analysis: Work-Related Basic Needs Satisfaction

Variable	$R^2/\Delta R^2$	β
<hr/>		
<i>Step 1</i>	.088*	
Age		-.216*
Gender		.323
<i>Step 2</i>	.362**/.274**	
Age		-.113
Gender		.090
Work-related basic needs satisfaction		.527**
Extraversion		.043
<i>Step 3</i>	.362**/ <.001	
Age		-.114
Gender		.091
Work-related basic needs satisfaction		.529**
Extraversion		.043
Work-related basic needs satisfaction*Extraversion		-.018

* $p < .05$. ** $p < .01$

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Table 4*Hierarchical Regression Analysis: The Need for Autonomy*

Variable	$R^2/\Delta R^2$	β
<i>Step 1</i>	.088*	
Age		-.216*
Gender		.323
<i>Step 2</i>	.392**/.304**	
Age		-.064
Gender		.099
Autonomy		.552**
Extraversion		.106
<i>Step 3</i>	.393**/.001	
Age		-.064
Gender		.100
Autonomy		.551**
Extraversion		.105
Autonomy*Extraversion		.026

* $p < .05$. ** $p < .01$ **Table 5***Hierarchical Regression Analysis: The Need for Competence*

Variable	$R^2/\Delta R^2$	β
<i>Step 1</i>	.088*	
Age		-.216*
Gender		.323
<i>Step 2</i>	.127*/.0.39	
Age		-.213*
Gender		.171*
Competence		-.001
Extraversion		.197*
<i>Step 3</i>	.127*/.001	
Age		-.210*
Gender		.171*
Competence		-.002
Extraversion		.198*
Competence*Extraversion		.023

* $p < .05$. ** $p < .01$

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Table 6*Hierarchical Regression Analysis: The Need for Relatedness*

Variables	$R^2/\Delta R^2$	β
<i>Step 1</i>	.088*	
Age		-.216*
Gender		.323
<i>Step 2</i>	.374**/.286**	
Age		-.140
Gender		.094
Relatedness		.529**
Extraversion		.054
<i>Step 3</i>	.375**/.001	
Age		-.141
Gender		.098
Relatedness		.533**
Extraversion		.057
Relatedness*Extraversion		-.038

* $p < .05$. ** $p < .01$ **Table 7***T-tests: Groups Based on Match Between Education and Work*

Variable	Low Match		High Match		$t(129)$	p	Cohen's d
	Education-Work (70)		Education-Work (59)				
	M	SD	M	SD			
WBNS	3.50	0.55	3.67	0.48	1.955	.053	.512
Autonomy	3.36	0.69	3.78	0.60	3.817**	<.001	.639
Competence	3.82	0.60	3.62	0.54	-1.996**	<.001	.566
Relatedness	3.31	0.86	3.61	0.70	2.170*	.032	.778
Extraversion	3.40	0.62	3.50	0.67	0.878	.382	.646
Work Engagement	3.59	1.53	4.49	1.21	3.631**	<.001	1.366

Note. WBNS = Work-related basic needs satisfaction* $p < .05$. ** $p < .01$

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Table 8*T-tests: Groups Based on Currently Looking for Other or More Work*

Variable	Currently looking for other or more work				<i>t</i> (129)	<i>p</i>	Cohen's <i>d</i>
	Yes (47)		No (82)				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
WBNS	3.42	0.62	3.69	0.42	-2.722*	.008	0.501
Autonomy	3.26	0.71	3.79	0.56	-4.686**	<.001	0.623
Competence	3.82	0.63	3.64	0.53	1.735	.085	0.568
Relatedness	3.17	0.99	3.65	0.59	-3.007*	.004	0.758
Extraversion	3.28	0.58	3.54	0.66	-2.310*	.023	0.635
Work Engagement	3.10	1.61	4.64	0.95	-5.985**	<.001	1.229

Note. WBNS = Work-related basic needs satisfaction* $p < .05$. ** $p < .01$ **Discussion**

The current study researched the relationships between basic needs satisfaction, extraversion and work engagement, and whether extraversion moderates the relationship between work-related basic needs satisfaction and work engagement within graduates during a global pandemic. This way, the current study aimed to gain more insight in the antecedents of work engagement during a global pandemic. As expected, the findings indicated that work-related basic needs satisfaction, the need for autonomy and relatedness, and extraversion positively correlated with work engagement. In contrast with the expectations, the need for competence did not correlate significantly with work engagement. Furthermore, results revealed no moderating role of extraversion in the relationship between work-related basic needs satisfaction and work engagement. When the needs were analyzed separately, extraversion did not function as a moderating variable either.

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Basic needs satisfaction and Work Engagement

As expected, the findings revealed positive relationships between overall work-related basic needs satisfaction and work engagement. When individuals experienced more satisfaction of the three basic needs they felt more engaged with their jobs. When examining the three needs separately, the need for autonomy and the need for relatedness both positively related to higher levels of work engagement. These findings are in line with the idea that basic needs satisfaction and work engagement are positively linked with the same motivational concept: autonomous motivational regulation (Van Beek et al., 2011). The Self-Determination Theory explains being autonomously motivated as having regulation that is both identified and integrated. Identified motivational regulation is defined as identifying your own behavior's value and worth. Integrated motivational regulation on the other hand is defined as experiencing the underlying value and worth of your own behavior as consistent with other behaviors (Ryan & Deci, 2000). Basic need satisfaction seems essential for the identification and integration of external and internal motivation (autonomous motivational regulation) (Vansteenkiste et al., 2007). Furthermore, previous literature has shown that being autonomously motivated, could lead to a higher sense of commitment to the organization one works at and engagement to the job one fulfills (Van Beek et al. 2011; Gagné & Deci, 2005).

Contrary to our expectation, the need for competence was not significantly related to work engagement. The results interestingly revealed that individuals who felt a better satisfaction of the need for competence, felt less engaged with one's work. This is in contrast with previous researches stating that the satisfaction of all three needs have unique and positive associations with work engagement resulting from their independent characteristics (Deci & Ryan, 1995; Gagné & Deci, 2005; Van den

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Broeck et al., 2016). In line with this idea, research of Prokesova et al. (2019) found the need for competence to be significantly related to higher levels of work engagement. However, the seemingly reversed effect of competence is not surprising regarding the meta-analysis of van den Broeck et al. (2016). The Self-Determination Theory defines the need for competence as “inherent to our natural tendency to explore and manipulate the environment, as well as in the search for optimal challenges” (Van den Broeck et al., (2016), pp. 1198-1199). This definition could give way for a better explanation of the found results. A possible explanation of this unexpected finding is the possibility that competent individuals might perceive their skills and knowledge of high value. Therefore, when more organizations show interest in their high valued skills, those individuals could become less engaged with organizations as their possibilities of work might be enlarged in comparison with less competent individuals (Fugate et al., 2004; Van den Broeck et al., 2016). The explorative and manipulative tendency connects well with this speculative behavior, and could therefore be the reason that more competent individuals experience less engagement with their jobs.

Interestingly, the need for competence did not predict differences in work engagement, whereas extraversion did. This seems surprising regarding the article of Sulea et al. (2015), stating that the satisfaction of the three needs has a more pivotal role within the enhancement of work engagement in comparison with personality traits, such as extraversion. This was found in the analyses for the overall score of work-related basic needs satisfaction, and the need for autonomy and relatedness separately. Here the element of the Self-Determination Theory leads to higher levels of work engagement and possibly contributed more to the variance in work engagement than extraversion did. This might be due to the fact that basic needs satisfaction is characterized as a more proximal and changeable concept, in comparison with personality traits such as extraversion (Sulea et al., 2015). However, we have found no significant relationship between the need for competence and work

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engagement. Therefore, it is not surprising that in this analysis extraversion was not overshadowed by the effect of competence, hence explained differences in work engagement significantly.

To explore the absence of a positive association between the need for competence and work engagement more in-depth, post hoc analyses were performed. These analyses revealed that individuals who experienced a lesser match between their educational background and their current work felt more competent. This seems plausible with the previous mentioned possibility that individuals who feel competent could be more motivated to perform tasks in which their skills are required and asked for specifically, instead of performing tasks they highly enjoy. Furthermore, this could explain why more competent individuals could use these skills in a greater variety of organizations. Moreover, considering the fact that the study sample consisted of recent graduates, it might be that some of the participants work in places that do not match their educational background because of a possible struggle to find a job within their desired field of work. In turn, this could lead to an individual to be looking for other or more work and could explain a less engaged feeling towards one's job (Pattie et al., 2006). This might explain why the expected positive relationship between the need for competence and work engagement is absent in this study.

The Role of Extraversion in the Workplace

Additionally, the findings revealed that extravert individuals seem to experience higher levels of work engagement than their introverted counterparts. These findings correspond with the idea proposed by Ingledew et al. (2004). This idea explains that extraverted employees tend to be more identified and intrinsic motivationally regulated. Therefore, it could be possible that extraverted employees are more autonomously motivated and in turn experience higher levels of work engagement (Van Beek et al. 2011; Gagné & Deci, 2005). Furthermore, extraversion

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did not function as a moderating variable in all analyses. Although previous literature has proposed a possible moderation, results revealed that extraverted individuals do not react differently on the satisfaction of the basic needs. A possible explanation could be that the elements of the Self-Determination Theory are proposed to be universal. Research conducted in various countries have shown that basic needs satisfaction is positively related to well-being in all cultures (Deci & Ryan, 2008). Furthermore, the theory explains that the core of the basic needs are unique and therefore not interchangeable. Based on the universal character of the basic needs, personalized interventions that strive to enhance basic needs satisfaction (and therefore work engagement) are expected to be no better than generic ones (Deci & Ryan, 2000; 2008; Vansteenkiste et al., 2007). A second explanation could be that the relationship between personality traits, basic needs satisfaction and work engagement is not characterized by a moderation model. Even though it is suggested in previous literature that personality traits as extraversion could interact with basic needs satisfaction, a mediation model might be fitting as well (Bipp, 2010; Sulea et al., 2015). Extraverted employees tend to characterize as energized and proactive, while being social and admissible (Costa & McCrae, 1980; Digman, 1990; Goldberg, 1993). This could lead to an easier fulfilling their basic needs for autonomy, competence, and relatedness for extraverted employees, in comparison with their introverted counterparts (Ingledew et al., 2004; Sulea et al., 2015). Using different models with the used variables might therefore gain more insight in the joint effects of organizational and personal concepts on work engagement.

Strengths and Limitations

The current research contributes to the literature regarding work engagement and its possible antecedents. The study contributes to insights regarding work engagement and well-being during a global pandemic. The corroboration of the idea that work-related basic needs satisfaction and personality traits such as extraversion are important factors at work, could

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make way for more in-depth research to improve work engagement interventions. Moreover, Salanova (2020), Habersaat et al., (2020) and the current study show the importance of these positive psychological concepts and relevant interventions during a global pandemic. For example, to create resilience for similar situations in the future. Secondly, the integration of both organizational and personal antecedents of work engagement could be seen as a major strength of the current study. Although the findings indicate that the need for autonomy, the need for relatedness and extraversion are important, it shows that the facilitation of the need for autonomy and relatedness seem to be more pivotal in enhancing work engagement than being extravert. This could suggest that despite personal differences, employees could benefit from basic needs satisfaction in a universal way.

Although this study contributes to the knowledge regarding the antecedents of work engagement, a number of limitations are present within the current research. First, this study sample differed concerning the need for competence and the extraversion personality trait. When analyzing the study sample with regard to match with educational background and current work, results indicated that participants that experienced a lesser match felt more competent. However, this study did not focus on a possible effect of this match between educational background and current work on work engagement. Future research could therefore include this, and might gain a clearer view of the basic needs satisfaction among employees when researching work engagement enhancement. Furthermore when analyzing the sample with regard to their current status of looking for other work or not, individuals that are looking for other or more work were less extravert. This could lead to different results when the study sample only consisted of individuals who were not currently looking for another job. Thirdly, this study only includes the extraversion personality trait. The argument

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stating the importance of personal antecedents of work engagement might be more foundational when looking into all five traits together of the Big-Five Model (Sulea et al., 2015; Zhou, 2015). Lastly, this study concerns cross-sectional research. Determining predictive values of our concepts could therefore be misleading (Bowen & Wiersema, 1999; Taris et al., 2021). Moreover this could lead to wrong interpretations of associations between the variables (Taris et al., 2021). Future research should therefore choose to research the antecedents of work engagement within a longitudinal study. As the study sample consisted of graduates, it might be interesting to look into differences of organizational and personal antecedents of work engagement before and after graduating.

Conclusion

The findings of this study indicate that both basic needs satisfaction and personality traits are pivotal when researching ways to enhance work engagement. However, the results revealed no support of the theory that extraversion moderates the relationship between the concept of the Self-Determination Theory and work engagement. The combination of organizational and personal concepts and the facilitation of their improvement, could make way for better underlying theories to improve work engagement in the future.

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