

An integrated model of work engagement: how the satisfaction of basic psychological needs explains the relationship between personality and work engagement

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This paper aims to broaden the understanding of work engagement antecedents. It focuses on impact of personality characteristics – positive affectivity, proactive personality, and conscientiousness on work engagement, and examines whether personality influence can be explained by self-determination theory, i.e., the satisfaction of needs for competence, autonomy, and relatedness. An online questionnaire on a sample of 783 Czech workers provided our data. Structured equation modelling showed the influence of positive affectivity and conscientiousness on engagement can be partly explained by the satisfaction of the need for competence. The relationship between proactive personality and engagement cannot be explained by the satisfaction of any of the basic psychological needs. More specifically, positive affectivity predicts the satisfaction of all three needs, conscientiousness predicts only the satisfaction of the need for competence, and proactive personality does not predict the satisfaction of any need. Interestingly, engagement is predicted only by the satisfaction of the need for competence.

Key words: Work Engagement, Positive Affectivity, Proactive Personality, Conscientiousness, Self-Determination Theory

Highlights:

- Predictive power of Positive Affectivity, Proactive Personality, Conscientiousness, and satisfaction of basic psychological needs (i.e., Autonomy, Relatedness, and Competence) on Work Engagement was tested.
- Engagement was predicted only by the satisfaction of the Need for Competence.
- Positive Affectivity predicted the satisfaction of all three needs, Conscientiousness predicted only the satisfaction of the Need for Competence, and Proactive Personality did not predict the satisfaction of any need.

- The influence of Positive Affectivity and Conscientiousness on Engagement can be partly explained by the satisfaction of the Need for Competence.
- The relationship between Proactive Personality and Engagement cannot be explained by the satisfaction of any of the basic psychological needs

Hot (Saks, 2006), *popular* (Newman & Harrison, 2008), *buzzword* (Richman, 2006), *enormously appealing* (Kahn, 2010) – this is just a selection of the titles given to work engagement, one of the most popular topics in both theoretical and applied occupational psychology and management. This is not so surprising given the many claims that employee engagement is a key factor for an organization's success and competitive advantage (Macey et al., 2009; Rich et al., 2010).

The beneficial impact on both employees' health and well-being and organizations' profits has been reported repeatedly, e.g., engagement has been found to be positively related to health (Cole et al., 2012; Shimazu & Schaufeli, 2009), positive job attitudes (Hakanen et al., 2006; Saks, 2006), both task and contextual performance and organizational citizenship behaviour (Bakker & Bal, 2010; Christian et al., 2011; Rich et al., 2010; Saks, 2006), and negatively related to turnover intentions (Saks, 2006; Schaufeli & Bakker, 2004). However, according to Gallup's state of the global workplace report (2017), the percentage of adults who work full time for an employer and are engaged at work is just 15 %. A logical consequence of these findings on work engagement is the desire to promote work engagement, and hence the need to understand what drives it.

Theory and research have provided some assumptions about the antecedents of work engagement on the part of organizations (e.g., Bakker & Demerouti, 2007), as well as on the part of the individual (e.g., Macey & Schneider, 2008; Saks, 2006). However, research focusing on the integration of organizational and individual antecedents is still needed (Albrecht et al., 2015).

Therefore, this paper aims to examine an integrated model of work engagement antecedents, including organizational characteristics as well as personality characteristics. These findings will contribute to the improvement of HR practices, as they can be used for the effective recruitment and retention of engaged employees.

Work Engagement Antecedents

Schaufeli et al. (2002) defined engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption” (p. 74). *Vigour* involves high levels of energy and mental resilience while working; *dedication* refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge; and *absorption*

refers to being fully concentrated and engrossed in one's work (Schaufeli, 2006). This definition of work engagement is accepted for the purpose of this study, and the measure of engagement used is based on this operationalization.

The fundamental assumption underlying this research is that work engagement is determined by the interaction of individual predispositions of the worker and work characteristics, manifested in the perceived satisfaction of basic psychological needs at work. Macey and Schneider's (2008) tri-dimensional model of work engagement (namely trait engagement) is used as the theoretical background to investigate the personality antecedents of work engagement. Self-determination theory (SDT; Deci & Ryan, 2008) is used as the theoretical background to investigate organizational antecedents of work engagement.

Personality Antecedents of Work Engagement

Previous research on work engagement antecedents has primarily addressed work characteristics as organizational antecedents (Langelaan et al., 2006). This organizational approach raised voices calling to focus on the relationship between inter-individual differences and engagement (Gubman, 2004; Christian & Slaughter, 2007; Langelaan et al., 2006; Wildermuth, 2010). Later studies addressed the personality antecedents of work engagement (e.g., Akhtar, Boustani, Tsivrikos, & Chamorro-Premuzic, 2015; Bakker, Tims, & Derks, 2012; Wildermuth, 2010). Macey and Schneider (2008) have proposed four essential personality characteristics to experience and retain engagement, namely *positive affectivity*, *proactive personality*, *conscientiousness*, and *autotelic personality*¹. Although the article *The Meaning of Employee Engagement* (2008) has been broadly cited, we did not find any studies examining this model empirically. Hirschfeld and Thomas (2008) explain that these constructs are relevant to work engagement because they all embody differences among individuals in their propensity to exercise human agency. They describe the ability of people to exercise control over their own thoughts and intentions, which enables them to actively shape their present circumstances and facilitate the attainment of desired outcomes.

Positive Affectivity. In this study, the definition of positive affectivity as "an individual's disposition to be happy across time and situations" (Somech & Oplatka, 2014, p. 90) is used. At work, positive affectivity serves as a predisposition to frame organizational experiences and determine how individual reacts to those experiences. People experiencing positive affectivity set high goals and expect that engaging in a task yields positive outcomes (Ilies & Judge,

2 Autotelic personality was measured in the original study as well, but since the scale (3-item Flow Questionnaire (adapted from Csikszentmihalyi et al., 1993, in Asakawa, 2009) was not internally consistent and data could not be analysed properly, we decided not to describe it in this article.

2005). Positive affect also plays an important role for initiating goal-directed action, a precondition for work engagement (Kazén et al., 2008). A relationship between affectivity and work engagement has been repeatedly reported (Bosman et al., 2005; Thian et al., 2015). On the basis of Macey and Schneider's (2008) proposition, we expect positive affectivity to be in a positive relationship with work engagement.

Proactive Personality. Proactive personality is a “relatively stable tendency to effect environmental change” (Bateman & Crant, 1993, p. 103). Longitudinal data confirmed that proactive personality is in a positive relationship with work engagement, especially when employees perceive high social support (Dikkers, Jansen, Lange, Vinkenburgh, & Kooij, 2010).

Bakker et al. (2012) explained that people who tend to change their environment are able to adjust their work demands and mobilize their job resources, which in turn facilitate work. More in detail, they reported that employees with a proactive personality increased their job resources (asked for feedback and support, increased their opportunities for development) and their job challenges (looked for new tasks, volunteered for projects). This job crafting, in turn, led to higher levels of engagement. Therefore, we expect to find a positive relationship between proactive personality and engagement.

Conscientiousness. A conscientious person can be described as “responsible, dependable, planful, organized, persistent, and achievement oriented” (Barrick et al., 1993, p. 715). In line with this definition, Rich (2006, in Wildermuth, 2010) reported a significant positive moderate correlation ($r = .59$) between conscientiousness and engagement. Kim, Shin and Swanger then reported a positive weaker correlation ($r = .37$) and Wildermuth (2008, in Wildermuth, 2010) then confirmed a positive weak correlation ($r = .16$). In line with Macey and Schneider's (2008) proposition, we expect the trait of conscientiousness to predict work engagement.

Organizational Antecedents of Work Engagement

SDT (1985, as cited in Deci & Ryan, 2008) was originally developed as a general theory of motivation, and is frequently used as a framework to investigate and explain work motivation (Gagné & Deci, 2005). Scholars have expressed the explicit ambition to build an explanation of work engagement on its basis (Meyer et al., 2010; Meyer & Gagné, 2008).

SDT is based on the belief that people have an innate growth tendency and that they also have three basic innate psychological needs that are the basis for self-motivation and personality integration. The *need for autonomy* is satisfied when individuals believe that what they are doing is freely chosen and consistent with their core values. The *need for competence* is satisfied when people believe they have the capability and resources needed to accomplish their tasks and achieve their objectives. Finally, the *need for relatedness* is satisfied when they feel valued and appreciated by others (Meyer et al., 2010).

SDT suggests that the work climates which allow for the satisfaction of these needs facilitate both work engagement and psychological well-being (Deci et al., 2001). Research by Van den Broeck et al. (2008) confirmed that the satisfaction of needs fully accounted for the relationship between job resources and exhaustion. Similarly, research by Fernet et al. (2013) shows that the satisfaction of basic psychological needs mediated the relationship between job demands/resources and burnout. As the engagement dimensions of vigour and dedication are considered to be the opposites of the burnout dimensions of exhaustion and cynicism, we applied these findings to work engagement. Most recently, Goodboy, Martin, and Bolkan (2017) showed that when employees are denied their basic psychological needs, they are less intrinsically motivated to work and become less engaged in their work.

The work environment and its characteristics either promote or prevent the satisfaction of these needs (Gagné & Deci, 2005; Stone et al., 2009). Therefore, we can consider the satisfaction of these basic psychological needs as an organizational antecedent of work engagement.

The fundamental assumption underlying this research can be summarized as follows: work engagement is determined by interaction of individual predispositions of the worker and work characteristics, manifested in the perceived satisfaction of basic psychological needs at work. The objective of this study is to empirically examine this newly proposed integrated model.

- H1. We expect work engagement to be positively predicted by selected personality characteristics: positive affectivity, proactive personality, and conscientiousness;
- H2. We expect work engagement to be positively predicted by the perceived satisfaction of the basic psychological needs at work, namely the need for autonomy, competence, and relatedness;
- H3. We expect that the perceived satisfaction of the basic psychological needs at work mediates the relationship between the selected personality characteristics and work engagement.

Method

Participants and Design

783 employed persons completed an online survey. The participants' average age was 37 ($SD = 11.42$, $Min = 19$, $Max = 65$) and the majority were women (65 %), which reflects the general trend in higher response rates from women compared to men (Sax et al., 2008; Underwoods, Kim, & Matier, 2000). The sample can be defined as university or high-school educated individuals, working mainly in senior or specialist positions, partly as clerks, with a small proportion of service and retail workers or entrepreneurs.

Procedure

The participants were recruited through various online ways (i.e., invitation to join a Facebook event, invitation posted on LinkedIn, advertisement in the university information system, invitation on a general discussion server Nyx, etc.). The advantage of the convenience

sampling procedure is the acquisition of a sample of considerable size ($N = 783$). As a requirement of this study, participants had to have worked in their current position for at least 3 months and for a minimum of 20 hours per week, because we wanted respondents to have had sufficient time to develop work engagement. Participants were asked to complete an online questionnaire concerning their perception of working conditions. Participation in the study was voluntary. Participants were informed about their rights and were guaranteed that their data would remain confidential at all times during and after the research project. The study was conducted in accordance with the American Psychological Association's ethical principles and code of conduct (2010).

Measures

The survey included measures of Work Engagement, Positive Affectivity, Proactive Personality, Conscientiousness, and the satisfaction of the Need for Competence, Autonomy and Relatedness at work, as well as several demographic variables needed for the description of the sample (Gender, Age, Education, Occupation, Average Weekly Working Hours, Organizational Tenure, and Position Tenure).

All these measures were self-report scales, scored on a 5-point scale, ranging from 1 – *strongly disagree* to 5 – *strongly agree*. The items were divided into three blocks: (1) *work block* – comprised of an engagement questionnaire (UWES-9) and the Basic Need Satisfaction at Work; (2) *personality block* – compound of the Positive Affectivity Scale adapted from the Multidimensional Personality Questionnaire, the Proactive Personality Scale, the Conscientiousness dimension of NEO-FFI, and the Flow Questionnaire. All the items within these two blocks were randomly sorted; (3) *socio-demographic data* were collected.

All of these measures except for the Conscientiousness scale were translated from English into Czech according to the method of back-translation (Beaton et al., 2000). A pilot study was conducted in order to evaluate the appropriateness of the Czech version of the scales. Five participants with different socio-demographic characteristics were asked to answer the questions, focus on the comprehensibility of the translation, estimate the time they needed to fill out the questionnaire, and find any issues to improve. Their suggestions were used for the final wording of the items, and the estimated time was used in the instructions for the real participants.

Work Engagement. Work engagement was measured by the 9-item Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006). The reliability of this method was verified on a sample of 10 different European countries ($N = 14,521$, $\alpha = .85-.92$) by Schaufeli et al. (2006). UWES-9 was made as a three-dimensional measure, but recently De Bruin and Henn (2013) provided evidence supporting the convergent validity of the three subscales (Vigor, Dedication, and Absorption), thus pointing toward the presence of a general factor. The findings demonstrate that, despite the multidimensionality, the interpretation of a total score is justified and preferable (De Bruin & Henn, 2013). Therefore, one joint nine-item score was used as an indicator of the overall level of work engagement in our study.

Positive Affectivity. Positive affectivity was measured by the 11-item Positive Affectivity Scale adapted from the Multidimensional Personality Questionnaire (as cited in Agho et al., 1992). Watson et al. (1988) documented satisfactory reliability ($\alpha = .80$), stability (12-week retest $r = .77$), and validity of the scale.

Proactive Personality. Proactive personality was measured by the 17-item Proactive Personality Scale developed by Bateman and Crant (1993). The scale has proven satisfactory reliability ($\alpha = .89$), stability (12-week retest $r = .72$), convergent, discriminant, and predictive validity (Bateman & Crant, 1993), and is frequently used in research (Crant, 2000).

Conscientiousness. Conscientiousness was measured by the 12-item Conscientious Scale from the NEO-Five Factor Inventory (NEO-FFI, Hřebíčková & Urbánek, 2001). This measure was translated into Czech and also standardized on a Czech population ($N = 1101$), and has very good reliability ($\alpha = .91$) and the validity of the Czech version was documented by McCrae et al. (2004).

Basic Psychological Need Satisfaction at Work. Basic psychological need satisfaction at work was measured by a scale of the same name (Basic Psychological Needs Scale, n.d.). Altogether the scale contains 21 items, i.e., 6 items for competence, 8 items for relatedness, and 7 items for autonomy, to which participants respond on a 5-point Likert-type scale. The reliability of this scale was verified on a Bulgarian ($N = 431$) and a US ($N = 128$) sample. Cronbach's alpha for the total need-satisfaction scale in the Bulgarian sample was .83 (.81, .57, and .62 for competence, relatedness, and autonomy) and in the US sample .89 (.73, .84, and .79, respectively) (Deci et al., 2001). Baard et al. (2004) confirmed the positive relationship of the basic need satisfaction with work performance ratings and with psychological adjustment, which contributes to the establishment of the validity of this scale.

Concerning the development of this scale, these authors reported that the three needs emerged from a principal component analysis with varimax rotation. They suggested using this scale either as three indexes indicating the level of satisfaction of the three separate needs, or as one complete index to indicate the level of the overall perceived satisfaction of basic psychological needs at work. This is in line with the assumption of SDT that these three needs are mutually related, and the satisfaction of one of these needs affects the satisfaction of the others. For the purpose of this study, we chose to analyse the satisfaction of the three needs separately.

Results

Preliminary Analyses

The assumptions for our analysis were that the Positive Affectivity, Proactive Personality, and Conscientiousness scales are unidimensional, that there are three factors in the chosen subscale of the Basic Psychological Needs Scales, and that it is possible to use the UWES to measure the single factor of Engagement. We needed to find support for these assumptions to be able to form parcels for the abovementioned variables. We used the confirmatory factor analysis in MPLUS 6.1 (Muthén & Muthén, 1998/2011) with an MLR estimator (Maximum Likelihood estimation with Robust standard errors) to assess the questionnaires. We focused mainly on the Comparative Fit Index (CFI) to evaluate the fit of the model. The traditionally used χ^2 test and Root Mean Square Error of Approximation (RMSEA) are not reliable for our analysis because of the large sample and the small degrees of freedom (df). The models with small df have often higher RMSEA which wrongly indicates the poor fit of the model (see Kenny et al., 2015). The χ^2 test is sensitive to sample size and tends to reject models when a large sample is used (Hooper et al., 2008). We examined the standardized factor loadings (λ) of all the items and assessed the internal consistency of the unidimensional scales by Cronbach's alpha and McDonald's (1999) omega.

All 9 items of UWES loaded strongly on one factor – Engagement (all $\lambda > .43$). Items that belong to particular subscales of UWES tended to have correlated residuals. When we opened correlations between items within each element of engagement, the model had a good fit ($\chi^2(18) = 89.083$, $p < .001$, CFI = .975, TLI = .950, RMSEA = .070, 90% CI [.056, .085], SRMR = .031). The 9-item scale of engagement also had high internal consistency (Cronbach's $\alpha = .883$; McDonald's $\omega = .889$).

Correlated residuals were the only problem of the Conscientiousness subscale from the NEO-FFI questionnaire. Items 4 + 12, 5 + 7, 8 + 9, and 7 + 12 had a small but significant amount of shared variance that could not be explained by the common factor, but could be meaningfully explained by the similarity of items. When we opened correlations between these items, the model had a satisfactory fit ($\chi^2(50) = 192.613$, $p < .001$, CFI = .932; TLI = .910, RMSEA = .060, 90% CI [.051, .069], SRMR = .040) and all of the items loaded strongly ($\lambda > .46$) on a common factor. The 12-item scale of Conscientiousness also had high internal consistency (Cronbach's $\alpha = .851$; McDonald's $\omega = .853$).

We found two problematic items in the Positive Affectivity Scale. Item 2 shared a large amount of variance with item 7, which was not explained by a common factor because both items were almost identical. Item 8 tended to have correlated residuals with items 3 and 10 because of their similarity. When we excluded items 2 and 8, the model had a good fit ($\chi^2(27) = 116.140$, $p < .001$, CFI = .951; TLI = .934, RMSEA = .065, 90% CI [.053, .077], SRMR = .034) and all the items loaded strongly on a single factor ($\lambda > .45$). The 9-item scale of Positive Affectivity also had high internal consistency (Cronbach's $\alpha = .859$; McDonald's $\omega = .862$).

The scale of Proactive Personality also had 2 items with almost the same content which tended to have correlated residuals (items 10 and 16). When we excluded item 10 and opened correlations between other items which tended to have correlated residuals (items 1 + 11, 5 + 6, 7 + 17 and 8 + 12), the one-factor model had a good fit ($\chi^2(50) = 214.687$, $p < .001$, CFI = .960, TLI = .952, RMSEA = .038, 90% CI [.031, .045], SRMR = .033) and all items loaded on a single factor ($\lambda > .30$). The 16-item scale of Proactive Personality also had good internal consistency (Cronbach's $\alpha = .871$; McDonald's $\omega = .875$).

The Basic Need Satisfaction at Work questionnaire was shown to have the anticipated 3-factor structure. According to the modification indices, the fit of the model was lower mainly because residuals of the first and the last item of the autonomy subscale tended to correlate. This was because the last item was the opposite of the first one. When we excluded the first item and allowed the residuals of the other overlapping items to correlate (i.e., autonomy4 + autonomy7, competence1 + competence6), the model had a satisfactory fit and all the items loaded significantly on their factor (Autonomy: $\lambda > .33$; Competence: $\lambda > .29$; Relatedness: $\lambda > .33$). The Autonomy and Relatedness sub-scales were internally consistent (Autonomy: Cronbach's $\alpha = .765$; McDonald's $\omega = .775$; Relatedness: Cronbach's $\alpha = .857$; McDonald's $\omega = .867$). The internal consistency of the Competence sub-scale was slightly below the traditional .7 cut-off value (Cronbach's $\alpha = .631$; McDonald's $\omega = .639$). However, the exclusion of any item would not increase the internal consistency of the whole scale.

We used items from all other scales to form parcels within each variable (see e.g., Little et al., 2002). This approach reduced the number of variables in the model and increased the reliability of the indicators (Graham et al., 2000). The lower number of variables allowed us to test more complex models with the same sample size and to reduce the problem with correlated residuals that were present in almost all scales. To be able to form parcels with an equal number of

items in every parcel, we excluded the most problematic items from Positive Affectivity (items 2 and 8), Proactive Personality (item 10), and Autonomy scales (item 1). Excluded items had significant content overlap with other items in the same scale (see the preliminary analyses above). Thus, the exclusion of items did not decrease the content validity of scales.

We created four parcels for Conscientiousness (Items 1 + 5 + 9, 2 + 6 + 10, 3 + 7 + 11, and 4 + 8 + 12), three parcels for Positive Affectivity (Items 1 + 5 + 9, 3 + 6 + 10, and 4 + 7 + 11), four parcels for Proactive Personality (Items 1 + 5 + 9 + 14, 2 + 6 + 11 + 15, 3 + 7 + 12 + 16, and 4 + 8 + 13 + 17), three parcels for the Need for Autonomy Satisfaction (2 + 5, 3 + 6, and 4 + 7), three parcels for the Need for Competence Satisfaction (1 + 4, 2 + 5, and 3 + 6), and four parcels for the Need for Relatedness Satisfaction (1 + 5, 2 + 6, 3 + 7, and 4 + 8). Based on the recommendation of Graham et al. (2000), we created parcels of Engagement which were representative of all the subdomains within Engagement (i.e., the domain-representative approach). We grouped the first, second, and third items from every subscale together to create three parcels (items 1 + 3 + 6; 2 + 4 + 8; and 5 + 7 + 9). See the descriptive statistics of all the parcels in Table 1. See also the descriptive statistics for the latent variables in Table 2. As can be seen from Table 2, all personality characteristics and psychological needs correlate with each other. All variables also correlate with Engagement.

Table 1
Descriptive statistics of parcels and measurement part of the model (std. factor loadings)

	<i>M</i>	<i>SD</i>	λ	<i>SE</i>
Conscientiousness	3.57	.78	.82	.02
	3.73	.76	.76	.02
	3.71	.77	.79	.02
	4.05	.65	.66	.03
Positive Affectivity	4.04	.63	.74	.02
	3.43	.87	.87	.01
	3.45	.80	.83	.02
Proactive Personality	3.60	.68	.80	.02
	3.67	.68	.82	.02
	3.37	.65	.81	.02
	3.54	.62	.77	.02
Need for Autonomy Satisfaction	3.13	.92	.65	.03
	3.74	.86	.84	.02
	3.42	.95	.63	.03
Need for Competence Satisfaction	3.53	.76	.67	.03
	3.77	.78	.61	.03
	4.13	.69	.69	.03
Need for Relatedness Satisfaction	3.68	.81	.85	.02
	3.82	.88	.85	.02
	3.69	.75	.59	.03
	3.87	.82	.85	.02
Engagement	3.47	.80	.87	.01
	3.27	.82	.86	.01
	3.51	.89	.90	.01

Table 2

Descriptive statistics for latent variables and their correlations

	<i>SD</i>	<i>C</i>	<i>Pos</i>	<i>Pro</i>	<i>Aut</i>	<i>Comp</i>	<i>Rel</i>	<i>E</i>
C: Conscientiousness	.634	(.57)						
Pos: Positive Affectivity	.46	.24	(.88)					
Pro: Proactive Personality	.54	.45	.64	(.88)				
Aut: N. for Autonomy Sat.	.60	.17	.42	.25	(.80)			
Comp: N. for Competence Sat.	.51	.45	.49	.43	.81	(.64)		
Rel: N. for Relatedness Sat.	.69	.15	.42	.20	.65	.58	(.87)	
E: Engagement	.69	.29	.47	.43	.82	.82	.53	(.89)

Note. All correlations are significant at $p < .001$, only the correlation between conscientiousness and the need for relatedness satisfaction is significant at lower significance level with $p = .002$. Reliability indicator McDonald's ω is presented in parentheses on the diagonal.

Model Testing

To test hypotheses, we estimated the structural equation model (SEM) with an MLR estimator using Mplus 6.1 (Muthén & Muthén, 1998/2011). The measurement part of the model contained four parcels loaded on Conscientiousness, three parcels loaded on Positive Affectivity, four parcels loaded on Proactive Personality, three parcels loaded on the Need for Autonomy Satisfaction, three parcels loaded on the Need for Competence Satisfaction, four parcels loaded on the Need for Relatedness Satisfaction and three parcels loaded on Engagement. The measurement part of the model is described in Table 1 (see the standardized loadings and their standard errors).

The structural part of the model contained the assumed relationships between latent variables. We modelled the relationship between personality characteristics (i.e., Positive Affectivity, Proactive Personality, Conscientiousness) and Engagement as mediated by the basic psychological needs (i.e., Need for Autonomy, Competence, and Relatedness) satisfaction. As all the paths between latent variables remained open, the model we tested has the same fit as the measurement model. The fit indices indicated a good fit ($\chi^2(231) = 727.222$, CFI = .945, Tucker-Lewis Index (TLI) = .934, SRMR = .043, RMSEA = .052, 90% CI [.048, .057]) according to Hu and Bentler (1999). The model explained 70.3% of the variance in Engagement, 18.6% of the variance in the Need for Autonomy Satisfaction, 35.5% of the variance in the Need for Competence Satisfaction, and 19.7% of the variance in the Need for Relatedness Satisfaction. See the structural part of the model in Figure 1.

This figure also shows the multi-collinearity of personality predictors, i.e., significant relationships can be observed between individual personality traits. As displayed in Table 2, all of personality characteristics correlated with the level of satisfaction of all three basic psychological needs. In the structural model, the satisfaction of all of the three needs was only predicted by Positive Affectivity. Conscientiousness predicted only the Need for Competence Satisfaction, and Proactive Personality did not predict the satisfaction of any basic psychological need. Furthermore, the basic psychological needs satisfaction was probably partly predicted by the shared-variance of personality characteristics. The statistical

program attributed this influence to Positive Affectivity, which was the most important predictor of the satisfaction of all of the three basic psychological needs, compared to the other personality characteristics.

Multi-collinearity was also evident in the level of individual needs satisfaction, which correlated from strongly to very strongly. As already mentioned above, this was in line with an assumption of SDT that these three needs were mutually related and the satisfaction of one of the needs affected the satisfaction of the others. Putting all of the three needs into one model led to the loss of the relationship between Needs for Autonomy and Relatedness with Engagement (compare Table 3 with Figure 1), i.e., the statistical program attributed the impact of the shared variance of basic psychological needs satisfaction on engagement only to the Need for Competence satisfaction, which was the best predictor of engagement, compared to the other two satisfaction needs. Therefore, the Need for Autonomy and the Need for Relatedness Satisfaction did not improve the prediction of Engagement based only on the Need for Competence Satisfaction.

The insertion of the basic psychological needs satisfaction into the model led to the attenuation of the relationship between personality characteristics and Engagement. The influence of Proactive Personality on Engagement was very weak, the influence of Positive Affectivity completely disappeared, and Conscientiousness predicted Engagement negatively in the model. This suggests that the Need for Competence Satisfaction mediated the positive influence of Conscientiousness on Engagement while suppressing the negative relationship between Conscientiousness and Engagement. This means that conscientious people experience a feeling of high competence and are, therefore, more engaged at work compared to their less conscientious colleagues. However, another mechanism lowering the engagement of conscientious employees seems to exist concurrently.

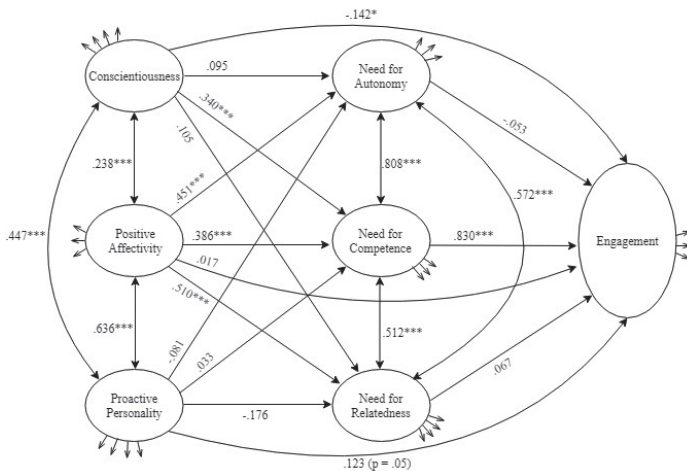


Figure 1. Structural part of the model MLR estimator

Note. Standardized coefficient are listed; $*p < .05$, $***p < .001$; Std. factor loadings $> .530$; $\chi^2(231) = 727.222$, $p < .0001$, CFI = .945, TLI = .934, RMSEA = .052, 90% CI [.048 .057], SRMR = .043

Table 3

The structural equation model with direct and indirect effects

	<i>B</i>	<i>SE</i>	<i>p</i>
Need for Autonomy Satisfaction on:			
Conscientiousness	.09	.04	.04
Positive Affectivity	.58	.08	.00
Proactive Personality	-.09	.07	.22
Need for Competence Satisfaction on:			
Conscientiousness	.27	.04	.00
Positive Affectivity	.43	.07	.00
Proactive Personality	.03	.06	.63
Need for Relatedness Satisfaction on:			
Conscientiousness	.11	.05	.03
Positive Affectivity	.76	.09	.00
Proactive Personality	-.22	.08	.01
Indirect effects			
Consc. → NFA satisfaction → Eng.	-.01	.01	.68
Consc. → NFC satisfaction → Eng.	.31	.07	.00
Consc. → NFR satisfaction → Eng.	.01	.01	.30
Positive Affectivity → NFA satisfaction → Eng.	-.04	.08	.67
Positive Affectivity → NFC satisfaction → Eng.	.48	.12	.00
Positive Affectivity → NFR satisfaction → Eng.	.05	.04	.24
Proact. Pers. → NFA satisfaction → Eng.	.01	.01	.68
Proact. Pers. → NFC satisfaction → Eng.	.04	.07	.63
Proact. Pers. → NFR satisfaction → Eng.	-.02	.01	.27

Note. Unstandardized regression coefficients are listed.

Mediation analyses were performed afterwards. The indirect effect of Conscientiousness on Engagement through the Need for Competence Satisfaction was weak, but significant (std. est. = .238, $p < .001$). We also found a significant moderate indirect effect of Positive Affectivity on Engagement through the Need for Competence (std. est. = .321, $p < .001$). However, assumptions for other possible mediations were not met, i.e., relationships between predictor and mediator and between mediator and dependent variable were not found. Therefore, we found partial support for our hypothesis that the relationship between individual antecedents and work engagement can be explained by the satisfaction of basic psychological needs.

Discussion

The objective of this study was to examine the impact of personality characteristics proposed by Macey and Schneider (2008), i.e., positive affectivity, proactive personality, and conscientiousness on work engagement. We tested whether the influence of these individual characteristics on work engagement can be explained according to self-determination theory (Deci &

Ryan, 1985), i.e., whether the relationship between the individual characteristics and engagement is mediated by the satisfaction of basic psychological needs for competence, autonomy, and relatedness.

All the observed personality characteristics predicted Engagement significantly. The results of SEM showed that Positive Affectivity predicts the satisfaction of all of the three needs, Conscientiousness predicts only the Satisfaction of the Need for Competence, and Proactive Personality does not predict the satisfaction of any of the needs. Moreover, we discovered that the Satisfaction of the Need for Competence partly explains the relationship between Positive Affectivity and Engagement, and between Conscientiousness and Engagement. Interestingly, Engagement is predicated only by the Satisfaction of the Need for Competence, and the needs for autonomy and relatedness do not improve this prediction if added to the model.

Theoretical Implications and Future Research

Our findings contribute to the current personnel psychology literature by broadening the theoretical understanding of work engagement, primarily concerning personality antecedents. Positive affectivity was shown to be the most important personality predictor. This reflects the implicit connection between the two concepts, based on the definition of engagement as a positive work-related psychological state (Kahn, 1990; Macey & Schneider, 2008). The aspect of affectivity is a differentiating aspect of work engagement compared to related constructs such as organizational commitment (Inceoglu & Fleck, 2010; Macey & Schneider, 2008). At the same time, the findings should be interpreted cautiously. The effect of positive affectivity on the satisfaction of basic psychological needs may not only be understood as the influence of personality on the needs satisfaction per se, but also as an influence of personality on the perception and evaluation of the needs satisfaction. In other words, we should not conclude that people with higher positive affectivity work in organizational settings with a higher potential for basic psychological needs satisfaction, but more accurately we propose that people with higher positive affectivity evaluate the organizational settings they work in as more satisfying compared to their colleagues with lower positive affectivity.

Proactive personality was also found to predict work engagement significantly. This finding is in accordance with previous research findings (Bakker et al., 2012; Dikkers et al., 2010; Salanova & Schaufeli, 2008; Sonnentag, 2003) and also with Macey and Schneider's assertion (2008). The relationship between proactive personality and engagement was not found to be mediated by the satisfaction of any of the basic psychological needs. Given the fact that proactive personality indicates a relatively stable tendency to effect environmental change, we would expect proactive workers to influence their work environment in a way which achieves basic psychological needs satisfaction, and to be more engaged compared to their less proactive colleagues. Further investigation into the relationship between proactive personality, needs

satisfaction, and engagement is recommended. We cannot exclude the possibility that the relationship between proactive personality, the basic psychological needs satisfaction and engagement was underestimated in our research. Weak to strong correlations between personality traits, and strong correlations between the three needs satisfaction, resulted in multi-collinearity. As a consequence, the statistical program attributed the effect of the common variance to one of the variables and thus the influence of other variables could have been underestimated.

Conscientiousness was also found to predict work engagement significantly, even though only weakly. The relationship between conscientiousness and engagement could be partly explained by the need for competence satisfaction. Surprisingly, when needs satisfaction was added to the estimated model, the direct effect of Conscientiousness on Work Engagement was found to be weakly negative, i.e., more conscientious workers were found to be slightly less engaged compared to their less conscientious peers if the basic psychological needs satisfaction was controlled. Understanding the mechanism which lowers the engagement of conscientious employees needs further investigation. Conscientious individuals are generally well-organized, careful, thorough, goal-oriented and hard working. We can hypothesize that these people may experience exhaustion and adopt cynicism when they are not able to achieve their goals or when they do not approve of the work of their colleagues who do not exert the same effort or pay less attention to detail.

The relationship between conscientiousness and engagement might be moderated by the social skills of the workers. Witt and Ferris (2003) conducted four studies examining the relationship between conscientiousness and job performance and found that conscientiousness was positively related to performance in workers with high social skills. On the contrary, among workers with low social skills, the relationship between conscientiousness and performance was insignificant in study 2 and negative in the other 3 studies. We could, therefore, hypothesize that conscientious people who lack the ability to communicate and cooperate with their co-workers (have low social skills) must invest considerable energy to cope with colleagues, which results in a decline in engagement. Further research focusing on the relationship between conscientiousness and engagement is recommended.

In addition, we added a new piece of evidence supporting the usefulness of the self-determination theory in explaining the mechanisms of work engagement. The satisfaction of the need for autonomy, competence, and relatedness was shown to be the strongest predictor of work engagement. Furthermore, the need for competence partly explained the relationship between positive affectivity and engagement, and between conscientiousness and engagement. Hence, we propose that workers with positive affectivity and conscientious workers tend to work in environments which satisfy their need for competence, which in turn leads to the enhanced engagement of these workers. Further research investigating the relationship between positive affectivity, conscientiousness, and the need for competence satisfaction is recommended in order to understand whether these workers tend to choose different organizations compared to their less positive

and less conscientious peers, or if they tend to influence the environment, or if the working conditions are comparable but the subjective perception of them is different.

Practical Implications

In practice, the findings of this study can be utilized in managing engagement in terms of which personality characteristics to seek when recruiting employees or what to improve at the workplace in order to develop engagement. According to our study, people with positive affectivity and a high level of conscientiousness are more likely to feel engaged when working. Their tendency to be engaged in their job can be partly explained by the fact that these people have a higher capacity to satisfy the basic psychological need for competence in their job. It is recommended to aim to create a working environment which facilitates the satisfaction of all three basic psychological needs, i.e., the need for autonomy, relatedness, and competence in particular.

Limitations

The main limitation in our study was that autotelic personality, one of the four personality traits predicting work engagement according to Macey and Schneider (2008), could not be included in the model. This was due to the low internal consistency of the scale we used. This scale proved to be problematic even though we simplified the wording of items after some respondents reported that they did not properly understand the meaning of items in the pilot testing.

Although self-reports seem appropriate for measuring personal characteristics, as well as basic psychological needs satisfaction and engagement, single-source bias and common method bias are a methodological threat. One argument against the common method bias is that relationships investigated varied in their strength, e.g., the Need for Competence Satisfaction was found to mediate the relationship between personal characteristics and Engagement, while the Needs for Autonomy and Relatedness were not, and some of relationships between variables were found to be weak. Nevertheless, future research should address more sources of information to confirm the validity of our results. For example, instead of exclusively using self-report questionnaires, peer-rating of supervisors, co-workers, and/or partners could also be employed to assess work engagement. Such peer ratings could be based on behaviourally anchored rating scales, since, to our knowledge, no measure assessing work engagement by others has been validated so far.

Scales we used were one-dimensional, but a problem with correlated residuals of some items was identified. All items for each scale measured the same construct, but the fact that some items measured the same part repeatedly may have biased our findings. To deal with this problem, we decided to remove the most problematic items and to create parcels. Nevertheless, further improvement of these scales is recommended in future research.

The fact that respondents were recruited via social networks and advertisements could have biased results through self-selection bias and the sample's non-representativeness. In comparison to the Czech working population, our sample was more educated, slightly younger and with a higher proportion of women. However, the aim of our research was not to describe the distribution of variables in the population, but to research the relationships between them. We have no reason to assume that socio-demographic variables substantially influenced relationships we researched. One advantage of our sample was its diversity in covering various professions. As with the Czech working population, people employed in tertiary sector were in the majority.

Conclusion

Overall, this study shows the important role played by positive affectivity and conscientiousness in workers' engagement. The importance of the work environment for providing the opportunity to satisfy the need for competence was also documented in our study. The need for competence satisfaction as a mediator plays a role in explaining the relationship between the individual characteristics, namely positive affectivity and proactive personality, and work engagement. This study, therefore, contributes to the understanding of both individual and situational work engagement antecedents.

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Integrirani model angažovanosti na poslu: kako se zadovoljenjem bazičnih psiholoških potreba može objasniti veza između ličnosti i stepena angažovanosti na poslu

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Cilj ovog rada je da proširi razumevanje antecedenata stepena angažovanosti na poslu. Fokus je na efektu koji karakteristike ličnosti – Pozitivni afektivitet, Proaktivna ličnost i Savesnost imaju na stepen angažovanosti na poslu, kao i na ispitivanju da li se uticaj ličnosti može objasniti pomoću teorije samoodređenja, tj. pomoću zadovoljenja potreba za kompetentnošću, autonomijom i povezanošću. Onlajn istraživanje je sprovedeno na 763 zaposlenih u Češkoj. Strukturnim modelovanjem je utvrđeno da se uticaj Pozitivnog afektiviteta i Savesnosti na stepen angažovanosti na poslu može delimično objasniti zadovoljenjem potrebe za kompetencijom. Povezanost Proaktivne ličnosti i stepena angažovanosti na poslu ne može biti objašnjena zadovoljenjem bilo koje (od tri ispitivane, prim. prev.) bazične psihološke potrebe. Preciznije, na osnovu Pozitivnog afektiviteta se može predvideti zadovoljenje sve tri potrebe, Savesnost predviđa samo zadovoljenje potrebe za kompetencijom, a Proaktivna ličnost ne predviđa zadovoljenje bilo koje potrebe (od tri ispitivane, prim. prev.). Interesantno je da jedino zadovoljenje potrebe za kompetentnošću predviđa stepen angažovanosti na poslu.

Ključne reči: stepen angažovanosti na poslu, Pozitivni afektivitet, Proaktivna ličnost, Savesnost, teorija samoodređenja.

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