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**PSYCHOMETRIC EVALUATION OF A QUESTIONNAIRE ON SUBJECTIVE
WELL-BEING AT WORK**

Master's thesis

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Psychometric evaluation of a questionnaire on subjective well-being at work

Psihometrijska evaluacija upitnika subjektivne dobrobiti na poslu
Dajana Bileta

ABSTRACT

Subjective well-being (SWB) is a concept associated with numerous positive outcomes in various domains of life, including work. Hence, it is an important subject of study in organizational psychology. The current study was conducted on a sample of 327 employees working for an international company whose field of work is development of high-tech solutions in traffic. It was a web-based questionnaire emailed by Human Resource professionals to the employees working in their local business units. The questionnaire was constructed as a self-report based on the PERMA framework, originating from positive psychology. PERMA posits that SWB is represented by five components: positive emotions, engagement, relationships, meaning and achievement. The goal of the survey was to measure the overall SWB at the organizational level and to compare the SWB of different business units, countries and genders. The goal of our study was to explore the factor structure of the instrument and to evaluate its psychometric characteristics. The results of exploratory factor analysis have shown that the proposed factor structure was confirmed with an additional factor named positive regard appearing. The factor analysis suggested the existence of a general factor in the background of the scale. Factor analysis explained 59.02 % of variance. Furthermore, we have explored connection of these six factors with four work outcomes. We failed to confirm our hypotheses of its relationship. However, we showed that higher levels of positive emotions, engagement and positive regard are related to higher levels of self-rated job performance. Positive regard was positively connected with the employee metaperception of their job performance. Also, high levels of positive emotions, meaning, achievement and positive regard were related to higher job satisfaction. Issues impacting construct validity and methodological issues are addressed here as well as a suggestion on how to improve them. A version with improved psychometric properties is proposed.

Key words: *subjective well-being, work, PERMA framework, work outcomes, psychometric evaluation*

SAŽETAK

Subjektivna dobrobit povezana je s brojnim pozitivnim ishodima u raznolikim područjima života, uključujući rad. Stoga je vrlo je važan predmet proučavanja organizacijske psihologije. Naše je istraživanje provedeno na uzorku od 327 zaposlenika međunarodne organizacije čije je primarno područje djelatnosti razvoj visoko tehnoloških rješenja u prometu. S obzirom da tvrtka prolazi kroz razdoblje restrukturiranja i brojnih drugih promjena, uprava je odlučila usmjeriti fokus na subjektivnu dobrobit njihovih zaposlenika. Stoga je uprava organizacije odlučila zaposliti konzultantsku tvrtku koja je izradila upitnik te pomogla pri prikupljanju i analizi rezultata. Ispitivanje je provedeno putem online samoprocjene. Djelatnici

ljudskih resursa poslali su pozivnicu zajedno sa poveznicom na upitnik zaposlenicima u njihovim lokalnim radnim jedinicama. Skale korištene u instrumentu temeljene su na modelu PERMA koji polazi iz pristupa pozitivne psihologije. Prema PERMA modelu subjektivna dobrobit je predstavljena s pet faktora: pozitivne emocije, radna angažiranost, odnosi, smislenost posla i postignuće. Svrha ispitivanja bila je izmjeriti opću subjektivnu dobrobit zaposlenika na razini organizacije te usporediti razinu dobrobiti s obzirom na zemlje, radne jedinice zaposlenika te s obzirom na njihov rod. Cilj je našeg istraživanja bio istražiti faktorsku strukturu korištenog instrumenta te evaluirati njegove psihometrijske karakteristike. Rezultati eksploratorne faktorske analize uglavnom su potvrdili pretpostavljenu faktorsku strukturu. Izdvojen je dodatan faktor kojeg smo nazvali pozitivan stav kolega prema zaposleniku. Provedena faktorska analiza sugerira postojanje generalnog faktora u pozadini upitnika te je faktorskom analizom objašnjeno 59.02 % varijance. Nadalje, istražili smo povezanost šest navedenih faktora sa četiri radna ishoda: trajanje bolovanja, radna uspješnost, metapercepcija radne uspješnosti i zadovoljstvo poslom. Nismo potvrdili postavljene hipoteze, no dokazali smo da su viši nivoi pozitivnih emocija, radne angažiranosti i pozitivnog stava od strane kolega povezani sa višom razinom radne uspješnosti. Pozitivan stav kolega pozitivno je povezan sa metapercepcijom zaposlenika o procjeni njihove radne uspješnosti od strane nadređenih. Više razine pozitivnih emocija, smislenosti posla, postignuća i pozitivnog stava povezane su sa višim razinama zadovoljstva poslom. Osim samih rezultata, navedeni su čimbenici koji su potencijalno narušili konstruktnu valjanost. Naposljetku, predložena je verzija upitnika s kvalitetnijim psihometrijskim svojstvima.

Ključne riječi: *subjektivna dobrobit, posao, model PERMA, radni ishodi, psihometrijska evaluacija*

INTRODUCTION

DEFINING SUBJECTIVE WELL-BEING

The pursuit of happiness has been a subject of human interest and study since the era of Greek philosophers. In the West it is considered an integral part of the good life even today. The discussion about achieving happiness has always been followed by attempts to define it. However, until the development of social sciences there were difficulties in empirically questioning numerous theories and concepts coming from various disciplines such as religion, philosophy, sociology, personality and social and cognitive psychology (Diener, Oishi & Lucas, 2003, Lyubomirsky, Sheldon & Schkade, 2005, Tadić, 2008). Since the common definition of happiness as the frequent experience of positive emotions is considered faulty, as being too narrow and excluding (Seligman, 2011), the term widely accepted in the contemporary scientific community is "subjective well-being" (SWB).

However, the term is still often used interchangeably with terms such as happiness, quality of life, life satisfaction, flourishing and thriving (Diener, Scollon & Lucas, 2003, Huppert, 2013, Ryff, 1989). Yet, the listed terms are considered too narrow and in some of the SWB models they represent merely a component of SWB. The most widely accepted model of subjective well-being is the one proposed by Diener (1984). The *tripartite* model states that a high level of SWB is characterized by frequent positive emotions, rare occurrence of negative emotions and greater life satisfaction (Lyubomirsky, King & Diener, 2005). In this, emotions represent the affective component of well-being. The affective component is guided by emotions and moods which are of temporary nature while the cognitive component refers to one's general life satisfaction regarding individuals' values and unique sets of criteria (Diener et al., 2009, Lyubomirsky et al., 2005, Veenhoven, 1996). Despite this model being widely acknowledged, there are still many overlapping conceptual and measurement models of well-being. Thus, in order to gain a more complete picture of SWB, one should define it as a general area of scientific study instead of trying to define it as a specific concept.

HEDONIC AND EUDAIMONIC APPROACH TO SUBJECTIVE WELL-BEING

The tradition of well-being research arises from two main theoretical frameworks: hedonic and eudaimonic approach.

Hedonia is a concept originating from Greek philosopher Aristippus (Huppert, 2014, Sheldon, Corcoran & Prentice, 2018). It represents a classic understanding of happiness: people strive towards frequent experiences of pleasure and minimizing unpleasant experiences. In this case, experience of pleasure also refers to attainment of goals, aspirations and values that help facilitate and maintain positive emotions and moods (Huta & Waterman, 2014, Ryan & Deci, 2001, Seligman, 2004, Sheldon et al., 2018).

Critics of the hedonic approach point out that SWB defined exclusively in terms of happiness and positive emotions is incomplete because positive emotions arising from pleasures are transient. Also, Lyubomirsky et al. (2005) suggest that when frequently experienced, pleasures seem to lose their impact on SWB levels. Also, we can witness cases of people who despite experiencing a frequent positive affect are dissatisfied with their life and vice versa. One of the causes could be the influence on SWB of hereditary traits such as one's personality and resilience (Lykken & Tellegen, 1996, Lyubomirsky et al., 2005, Lyubomirsky, 2013).

These issues can successfully be overcome by using the eudaimonic approach to happiness. The term *eudaimonia* can be traced back to Aristotle, who proposed that accomplishing one's true potential (*lat. daimon*) is the ultimate life goal (Ryff, 1989). The contemporary scientific community mostly agrees on describing eudaimonic SWB as positive outcomes of engaging in the activities that help develop and fulfill one's potentials, give life meaning and contribute to the greater good (Adler & Seligman, 2016, Deci & Ryan, 2008, Huta & Waterman, 2014).

Since then, various models of SWB have been proposed. Nowadays, researchers mostly agree on the concept of SWB integrating both hedonic well-being (feeling good) and eudaimonic well-being (functioning well) (Adler & Seligman, 2016, Huppert & So, 2013, Huppert, 2014). Moreover, empirical findings show that, although those are two

different factors, they are interconnected and their connections are more complex than once thought (Giuntoli, Ceccarini, Sica & Caudek, 2017, Ryan & Deci, 2006, Huta & Waterman, 2014, Linely et al., 2009, Lyubomirsky et al., 2005).

MEASURING SUBJECTIVE WELL-BEING BY SELF REPORTS

Although interest in measuring SWB has been present for a long time, the possibility to empirically measure it emerged only after the cognitive revolution that took place during the second part of the 20th century (Huppert, 2014, Veenhoven, 1996). Considering that SWB is a subjective perception of one's own emotions and satisfaction with life, the most widely used measures of SWB are self-reports (Kun, Balogh & Krasz, 2017). Despite self-reports being the most commonly used methods in assessing SWB, there are some general issues related to self-report usage. Respondents may distort their responses, either on purpose or because of a lack of self-awareness. Also, their responses can be influenced by their current moods, situational factors or just differences in reference points of comparison (Veenhoven, 2007). However, self-reports remain the longest-and most frequently used measures of well-being, just as they are in this study. Namely, an individual should be capable of assessing their own perception of happiness (Tadić, 2008).

Single-item measures

Measures using a single-item to assess SWB are mostly based on a classical understanding of SWB as a singular unitary entity, life-satisfaction. Huppert (2014) posited several issues with life-satisfaction as a single-item measure, some of them being comprehensibility, complexity and congruence. The problem with comprehensibility means that the difference in respondents' answers reflects their differences in understanding what good life and bad life are, not differences in the actual levels of their SWB. Furthermore, the complexity of life is too great to be covered by one question. Finally, the correlation between life satisfaction and measures of other factors important to people is low. Nowadays, single-item measures are used only when a general measure of SWB is necessary (Diener, Inglehart & Tay, 2013, Harter, Schmidt & Keyes, 2002).

Multidimensional measures

Despite there being little or no consensus in modern scientific community on how SWB should be measured (Cooke, Melchert & Connor, 2016), it is clear nowadays that it cannot be captured by a single affective state. Therefore, most of the contemporary SWB self-reports are based on a definition of SWB as a multidimensional concept, which is why the instruments measuring it contain multiple scales (Huppert, 2014). The number of instruments developed to measure different aspects of SWB is growing and the measures are being applied in various fields for various purposes. Constructs defining SWB such as positive emotions, life satisfaction, and meaningfulness have been assessed by a variety of instruments.

THE IMPORTANCE OF SUBJECTIVE WELL-BEING AT WORK

During the last twenty years, humanity has experienced rapid economic and social progress (World Bank, 2018, Porter, Stern & Green, 2017). Amidst globalization and technological advancement, companies need to adapt to ever-changing market conditions faster than ever and maintain a high level of quality of work at the same time. Sadly, attempts to keep work productivity high can have harmful consequences, both for the employee and the employer. Namely, major cross-sectoral studies have shown a discouraging fact that 15-25 % of employees working in the European Union are experiencing medium to extreme degrees of burnout (Eurofound, 2018). Burnout is related to negative work outcomes such as lower job engagement, job satisfaction and job performance. Also, it is connected to higher rates of sick leave (Eurofound, 2018, Taris & Schaufeli, 2015, Schaufeli, Taris & Rhenner, 2008).

In parallel, studies consistently show that highly satisfied employees have more developed negotiation skills, show higher levels of persistence and more often succeed at difficult tasks. They also have a higher sense of self-efficacy and show higher levels of creativity and curiosity. Moreover, not only do high levels of SWB have a positive impact on work outcomes, they are also connected to decreased levels of turnover decisions, lower frequency of counterproductive workplace behavior and lower chance of job burnout (Lyubomirsky et al., 2005). Additionally, it positively influences

company profitability through promoting employee productivity (Harter et al., 2002). People experiencing higher well-being show higher levels of psychological (Diener & Seligman, 2004) and physical health (Danna & Griffin, 1999, Diener et al., 2017). Thus, employers that promote employee well-being may decrease their healthcare and disability costs.

And despite a growing body of research on workplace motivation, concepts such as job satisfaction, job engagement and organizational commitment, these findings show us that the topic of well-being in the workplace is a very important issue and should be a much more prominent object of interest of organizational psychology (Bakker & Oerlemans, 2011, Laloux, 2017, Mellam, Subba Rao & Mellam, 2015).

THE CONTEXT OF THE CURRENT STUDY

This study was conducted in an international company that employs approximately 1700 people, with headquarters located in the Netherlands. Its main field of organizational work is development and implementation of advanced technology solutions in traffic. The company operates in three domains related to traffic: mobility, energy and parking. The organization has been going through restructuring for the past three years and numerous organizational changes have been made. Organizational change is associated with lower levels of well-being and increased anxiety (Bryson, Barth & Dale-Olsen, 2013). Thus, the purpose of conducting a Job happiness survey, as the board of managers declared, was mainly "to provide a robust measure of the level of employees' work-related well-being". Also, the goal was to compare work-related well-being scores across countries, business units and genders. Lastly, one of the goals was to observe the difference in the organization between the level of well-being at the first and second measurement points. It was expected that the first assessment will pinpoint the areas for employee SWB improvement. Hence, the task of line managers and HR professionals was to conduct interventions which will support employees in reaching higher levels of well-being. Therefore, they expected that SWB levels will be increased in second measurement comparison to the first measurement point.

In order to question the employee well-being at work, the Group board has decided to use services of an outsourced consultancy firm, which offers turnkey assistance. Shortly, it refers for contractor to undertaking the complete responsibility for the service they deliver to their clients. In this case it relates to the process of improving the employee subjective well-being at work by proposing the plan of its assessment, creating an instrument for that purpose, analyzing the collected data and recommending specific steps indicated by the data that will help improving subjective well-being in the organization.

In order to explore multidimensionality of well-being at work, the consultancy firm has decided to create a questionnaire based on Seligman's (2011) PERMA framework of well-being, originating from perspective of positive psychology, a movement in psychology founded by M. Seligman and Csikszentmihályi (2000). Positive psychology started as a reaction to psychology shifting its empirical focus on to studying psychopathology after World War II. Instead, they envisioned Positive Psychology as a new branch of psychology focusing on people's virtues and thriving, well-being being one of its most important subjects.

Well-being and the PERMA framework

Martin Seligman, the aforementioned founder of positive psychology is also the creator of Authentic Happiness (Seligman, 2004), which he later elaborated in his Well-Being Theory (Seligman, 2011). According to this theory, well-being arises from five factors: positive emotions, engagement, relationships, meaning and achievement. Hence, in brief, the PERMA framework. It is important to note that when developing the questionnaire, the authors have relied on diverse instruments with different theoretical backgrounds and purposes. This was the first attempt to measure PERMA with those questionnaires combined. The questionnaire was named the Job happiness questionnaire.

Positive emotions

Although the PERMA well-being framework emphasizes the importance of each factor in explaining SWB, positive emotions such as joy, interest, serenity and hope remain the hallmark of well-being (Seligman, 2011). The broaden-and-build theory

(Fredrickson, 2003) posits that positive emotions widen repertoires of momentary thinking and behavior. Consequently, our automatic responses are replaced with more flexible and creative ones. In turn, it enables us to develop useful and favorable behavior, skills and personal resources. Moreover, positive emotions create an upward spiral that further accelerates the improvement of well-being (Fredrickson, 2003). Thus, it is not surprising that positive affect is constantly associated with multiple benefits. Being an antecedent, as well as a consequence of creative thought (Amabile, Barsade, Mueller & Staw, 2005), positive emotions also facilitate recovery from negative emotions (Tugade & Fredrickson, 2004) and facilitate transfer from riskier to less risky behavior (Gallage, Heath & Tynian, 2017). Also, they are related to a longer life span (Danner, Snowdon & Friesen, 2001). All of the stated can indirectly have a positive influence on work outcomes.

In a broad study of literature on cross-sectional, longitudinal and experimental research, Walsh, Boehm & Lyubomirsky (2018) demonstrated that the positive emotions component of SWB precedes and leads to numerous positive outcomes at work: job autonomy, job satisfaction, job performance, pro-social behavior, social support, popularity and income. Studies show that employees who experience a higher level of positive emotions show greater achievement and support from their peers and supervisors (Staw, Sutton & Pelled, 1994).

Engagement

There are numerous definitions and conceptualizations of engagement, occurring across diverse domains. However, in his theories of Authentic Happiness and Well-Being Theory, Seligman (2004, 2011) has described engagement in terms of flow. Although scientific approach to the concept of flow has existed since the 1900s, it was officially introduced by Csikszentmihályi (Csikszentmihályi, 1975). Flow represents a state of utter immersion in the activity a person is performing. By actively using our skills we completely focus on the activity we are performing, to the degree that our self-consciousness, including thoughts and emotions, completely disappears (Csikszentmihályi, 2008). It also causes time distortion, resulting in the subjective perception that time passes faster than usual. Csikszentmihályi (2008) has proved that flow is the result of the alignment of a person's skills and task challenge. The perceived

compatibility of both motivates a person towards investing effort and reaching a higher level of consciousness. Salanova, Bakker & Llorens (2006) confirmed that experience of flow is positively correlated with perceived self-efficacy at work. Burke & Matthiesen (2004) showed that employees who experience higher levels of flow at work also have higher levels of positive work behaviors and attitudes such as work enjoyment and professional efficacy. Also, employees high on conscientiousness who experience flow regularly display better job performance, including both in-role and extra-role performance (Demerouti, 2006).

Relationships

One of people's basic needs is a need to feel connected. Social networks such as marriage, civic engagement, family, friends and neighbors, workplace relationships, are both individually and collectively strongly linked to subjective well-being (Helliwell & Putnam, 2004). Social relationships and networks do not only bring comfort to the individual in times of crisis, but help people to thrive by helping us to identify a chance for personal growth, and providing constant support while planning and developing the necessary skills while reaching our goals (Feeney & Collins, 2015). Work-wise, positive social relationships are related to positive organizational outcomes such as job satisfaction, organizational commitment and reduced intention to leave the organization (Lopes Morrisson, 2005, Madsen, Miller & John, 2005). Positive emotions, attitudes and perception addressed towards colleagues may even make people more flexible and ready while going through organizational change (Madsen et al., 2005). Shared goals, knowledge and mutual respect towards one's co-workers create a surrounding in which people can feel safe to seek new information, express an honest opinion about the perceived issues and problems and engage in improving ongoing processes without fearing the consequences. That in turn facilitates learning at work and improvement of organizational processes (Carmeli & Gittell, 2009, Carmeli, Brueller & Dutton, 2009).

Meaning

Although humankind has always pursued meaning, it wasn't until Viktor Frankl introduced the quest for meaning as man's primary motivation in life (1959) that it received significant attention in the form of scientific research. Seligman (2004) considers having meaning in life as pursuing activities that contribute to the greater

good, and experiencing feelings of transcendence. Despite numerous theoretical approaches and challenges in defining meaning, it is possible to describe it as one's *comprehension* of life experiences, having a sense of *purpose* to their action, and feeling that their life and actions *matter* (George & Park, 2016). Experiencing meaning in life has numerous advantages: being a protective factor against mortality in adulthood (Hill & Turiano, 2014), promoting life satisfaction among patients suffering from chronic illness (Dezutter et al., 2013). Also, it helps recovery from negative events (Schaefer et al. 2013) while the absence of meaning in life presents a significant risk for developing depression (Jim et al., 2006, Wood & Joseph, 2010).

Work-wise, Hackman & Oldham's (1975) Job Characteristics model was one of the first to claim that experienced meaningfulness of work is one of the critical psychological states that are the prerequisites for employees' experience of high work motivation, job satisfaction and performance levels. This idea has received consistent empirical support. Namely, meaningful work is a significant predictor of work engagement (Fairlie, 2011, Geldenhuys, Laba & Venter, 2014, Schwartz & Porath, 2014) and organizational commitment (Geldenhuys, et al., 2014). Also, having meaning in work reduces levels of absenteeism (Steger, Dik & Duffy, 2012, Schwartz & Porath, 2014).

Achievement

Achievement, also called achievement, is considered as to be the well-being factor that best embodies the features of the proposed indicators. Namely, one of the indicators of well-being is one's perception of one's actions as successful. People can pursue achievement regardless of its meaning, emotions it may cause or the way it influences their relationships (Seligman, 2011). In addition, achievement has a strong subjective component. Therefore, it can refer to objective indicators such as earnings, performance, and prestige, but the key feature is the feeling of working towards one's goals, reaching mastery in overcoming challenges and completing tasks. Because the subjective experience of goal achievement can boost self-efficacy (Bandura, 1994) and reinforce investment of additional effort in the activities (Locke, Cartledge & Kneer, 1970, Miron-Spektor & Beneen, 2015, Pekrun, 2006), we can also look at it from the

perspective of the goal setting theory (Elliot & Harackiewicz, 1996, Pintrich, 2000), as performance-approach and mastery-approach orientation. People who acquire one of these two goal orientations are inclined towards achieving excellence. Some of the possible positive outcomes of these orientations is being motivated to overcome challenging environments, which creates excitement, boosts cognitive functioning and improves focus levels. All of the following drives people to success and facilitates intrinsic motivation which can lead to fruitful outcomes in the work setting (Elliot & Harackiewicz, 1996, Maehr & Zusho, 2009, Ryan & Deci, 2001).

The studies show that one of the factors influencing career success and achievement is challenges faced at work (Preenen, 2010). Moreover, challenging job tasks are beneficial for career advancement (De Pater, Van Vianen, Bechtoldt & Klehe, 2009), and lower the possibility of voluntary turnover by motivating employees to invest more cognitive and emotional effort in order to master challenging work tasks (Preenen, De Pater, Van Vianen & Keijzer, 2011). Furthermore, successful accomplishment of a challenge fulfills an individual's need for competence, which further drives self-determined behavior towards skill utilization and mastery (Preenen, Dorenbosch, Plantinga & Dhondt, 2016, Ryan & Deci, 2001). Moreover, if balanced well with experience in the field and employees' tenure, challenging tasks can improve in-role job performance (Carette, Anseel & Lievens, 2013).

It is important to emphasize that each of the factors contributes to well-being independently of the others and that people pursue them for their own sake (Seligman, 2004, 2011). Also, the theory posits that the elements are not determinants of well-being, but solely its indicators. There is no single measure that can completely encompass the concept of well-being.

RESEARCH PURPOSE AND GOALS

There were two main issues we focused in our study. First, the instrument used in the study of the employees' SWB is newly developed, and there is no official record on its psychometric properties, nor it is psychometrically validated. Also, the response rate was pretty low (19%). For both of the reasons, the primary goal of this thesis was a psychometric analysis of the Job happiness questionnaire, with emphasis on its

construct validation. Second goal was to optimize it by proposing a shorter, psychometrically improved version of the instrument that takes up less time to complete. In short, the goal was to test whether the five well-being dimensions measured with the instrument can be distinguished empirically as well as theoretically. This way, it is possible to propose its psychometrically improved version that will measure the same concepts with fewer question items. That enables further discussion on future directions regarding measuring subjective well-being in an organization.

According to the PERMA framework, we expect that there are five factors independently contributing to well-being. However, depending on the theoretical background and operationalization of the concepts, studies show the various ways these factors are interconnected. For example, Fredrickson (2004) posits that positive emotions are positively related to engagement, meaning and relationships. Also, Csikszentmihályi (1997) considers challenge to be one of the most important situational (work) conditions of flow. Therefore, theoretically we should expect that the factors will be interdependent, at least to some degree. Also, we wanted to question how are the extracted factors associated to work outcomes such as job performance and job satisfaction.

Therefore, the research problems, together with their corresponding hypothesis were:

1. To explore the factor structure of the new job related Subjective Well-Being questionnaire based on the PERMA framework and to question descriptive statistics and psychometrical characteristics of the items and questionnaire; sensitivity, discriminative index of items and internal consistency of the questionnaire results.
2. To question the association between the subjective well-being factors (positive emotions, engagement, positive relationships, meaning, achievement) with work outcomes (frequency of sick leave, self-rated job performance, job performance-employee metaperception, and job satisfaction).

H1: We expect positive emotions and meaning to be significantly negatively correlated with the frequency of sick leave.

H2: We expect SWB components (positive emotions, engagement, positive relationships, meaning and achievement) to be significantly positively correlated with both self-rated job performance and employee metaperception of their job performance supervisor rating.

H3: We expect SWB components (positive emotions, engagement, positive relationships, meaning and achievement) to be significantly positively correlated with job satisfaction.

METHOD

MEASURES

The Job happiness questionnaire is a 58-item instrument. Measurement of subjective well-being at work is based on the theoretical concept of Seligman's PERMA framework (2011). It is a 45-item questionnaire, comprising five already existing measures, which have been adapted to measure each facet of the SWB respectively.¹ Also, it contains two scales constructed for the purpose of the study, representing work outcomes: job performance and job satisfaction. The survey collects the following demographic information: organization, business unit and country in which the employee works, as well as their gender, tenure in the organization expressed in months, and sick leave in the past year expressed in days. All of the used items are shown in the table (Appendix A).²

Positive emotions

To assess employees' positive emotions, the consultant firm adopted a six-item *Scale of Positive emotions* ($\alpha=.87$), originating from the twelve-item *Scale of Positive*

¹ ***General Job Satisfaction Scale***

To assess employees' level of general job satisfaction, authors have originally used a single-item scale. Originally, it is the *Fordyce Emotion Questionnaire* (1988). The item consists of two parts. Firstly, the respondent needs to indicate level of his/her happiness on a scale from 0= "Extremely unhappy" to 10= "Extremely happy". The second part refers to estimation of time percentage he/she feels happy, unhappy and neutral at work. The time frame was wider in comparison with the original scale (two weeks). Score is calculated firstly by adding up the value of the percentage one feels happy at work to level of one's happiness at work multiplied by number 10. The amount is then divided by two. However, we decided not to use the scale since it correlates highly with five other items questioning positive emotions at work.

² The items proposed for the final questionnaire version are bolded.

and Negative Emotions (Diener & Biswas-Diener, 2009). The participants' task was to indicate the extent of positive emotions they had been experiencing for the past four weeks. The emotions respondents were required to assess were: positive, good, pleasant, happy, joyful, contented. The items were all anchored on a five-point scale ranging from 1= almost never to 5= very often.

Engagement

To estimate employees' engagement at work, consultant firm adopted the four-item *Absorption scale* ($\alpha=.80$) from *The Work Related Flow Inventory* (Bakker, 2008). The employees' task was to indicate the extent of absorption in work they had been experiencing for the past four weeks, with a typical item “*I get carried away when I am working*”. The time frame was wider in comparison with the original scale (two weeks). The respondents indicated to what extent they experience absorption in their work on a 7-point Likert scale, 1 = never to 7= always (Bakker, 2008).

Relationships

The quality of relationships in the workplace was assessed using the 14-item *High Quality Connections Scale* adapted by Carmeli (2009). The original scale consists of five factors and 23 items. Scales that represent capacity for relationships are: *Emotional Carrying Capacity*, *Tensility*, and *Openness-based Connectivity*. Furthermore, *Sense of positive regard* and *Feelings of mutuality* refer to subjective experience of interpersonal connections.

Emotional Carrying Capacity ($\alpha=.75$) refers to the possibility of displaying a wide spectrum of emotions to one's colleagues. It is measured by four items in the original scale, but in the current study we used three items (e.g. „*My co-workers and I do not have any difficulty expressing our feelings to one another*”).

The *Tensility* ($\alpha=.83$) factor refers to the team's capacity to face the conflicts and endure stressful situations arising from interpersonal connections. Originally, the factor is measured by six items. In current study, we have used three items, with a typical item “*My co-workers and I cope well with the conflicts we experience at work*”.

Openness-based Connectivity ($\alpha=.71$) stands for the degree in which co-workers exchange information, and are open to accepting ideas from various sources, including

their colleagues. The original scale measures *Openness-based Connectivity* with four items. In the current survey, we have measured it with three items, specifying the term “we” as “my team”, so it could be easier for the participants to understand to who exactly the item refers to. The typical item was: “*My team is always open to listen to the new ideas of co-workers*”.

A Sense of Positive Regard ($\alpha=.90$) refers to the sense of acceptance and affection from the colleagues. Originally, it is measured by five items, but in this case, by three items (e.g. “*I feel admired in my workplace*”).

Mutuality ($\alpha=.89$) refers to people having a sense of shared activity, interests and goals. It was originally measured by four items. In this case two items were used (e.g. “*My co-workers and I are committed to one another at work*”). Participants were asked to assess the degree of truthfulness of statements regarding relationships with their colleagues on a Likert scale ranging from 1= absolutely untrue to 7= absolutely true, while the response range of items belonging to the original instrument was from 1 to 5.

Meaning

The scale referring to *Meaning* was nine-item scale adopted from the *Work as Meaning Inventory* (WAMI) (Steger & Duffy, 2012). The original *Work as Meaning Inventory* consists of ten items measured on three scales: *Positive Meaning*, *Meaning Making through work* and *Greater Good Motivations*.

Positive meaning ($\alpha=.89$) refers to an individual’s perception of the meaning of his work tasks. Positive meaning is assessed by four items (e.g. “*I have found a meaningful career*”).

Meaning making through work ($\alpha=.82$) refers to extent to which a person thinks work contributes to their life meaning. It is assessed by three items (e.g.: “*I view my work as contributing to my personal growth*”).

Greater good motivations ($\alpha=.83$) refer to the perception of employees' and the company's usefulness and contribution to the common good. It is assessed by three items, one of which is reverse-scored. In the current study, two items were used (e.g. “*The work I do serves a greater purpose*”). The respondents were asked to indicate the

extent of statement truthfulness ranging from: 1= absolutely untrue to 7= absolutely true, while in the original instrument items were assessed on a scale ranging from 1 to 5.

Achievement

Achievement was defined as challenge measured with the 11-item *Perceived Job Challenge Measure* (Preenen, 2010). The original measure consists of 17 items and three factors: *Positive Stimulation*, *Competence testing* and *Uncertainty*. In the current study, we have used two subscales, the ones referring to *Competence testing* and *Uncertainty*. All the items from the two original subscales were used, but were somewhat differently formulated.

Competence testing ($\alpha=.89$) refers to employees' perception of the extent to which their skills and abilities are tested in everyday work tasks. It is measured by six items (e.g. “*I carry out tasks: Where I am tested*”).

Uncertainty ($\alpha=.80$) refers to the employees' perception of work tasks as being difficult and possibly not attainable. It is measured by five items, referring to employees' perception of their performance of tasks, with a typical item: “*I carry out tasks: That are hard*”. Answers ranged from 1= disagree completely to 7= agree completely.

Also, there was an additional single item designed for this survey: “*Please indicate to what extent you are satisfied with your achievements at work*”. Possible choices ranged from 1= very dissatisfied to 5= very satisfied, with a possibility of 0= no answer.

Work Outcomes

Work Outcomes measured in this survey were frequency of sick leave, self-rated job performance, job performance: employee metaperception and job satisfaction. Participants were asked to estimate for how many days they spent on sick leave over the last 12 months. Brief measures of job performance and job satisfaction were created for the purposes of the study. Job performance was measured on a 10-point Likert scale from 1=very bad to 10=very good. It was measured by two items: “*How do you rate your own performance?*”, and “*How do you think your boss rates your performance?*”. The Cronbach's α for the Job Performance scale was .57, which is quite low. Therefore,

we decided to treat these two items as two separate work outcomes. First one refers to self-rating of ones' job performance, therefore it is named Self-rated job Performance. Second one refers to metaperception the employee has on supervisor rating of his job performance. Hence, we named it Job performance: employee metaperception.

Job satisfaction was measured by three items (e.g. *"I am satisfied with my current job"*), on a 7-point Likert scale meaning 1=strongly disagree to 7=strongly agree. There was also a no answer option. The Cronbach's α for the Job Satisfaction scale was .94.

PARTICIPANTS

The questionnaire was sent to all of the staff, disregarding their work position. Therefore, both employees working in business units and holding could participate. Three main business units' employ both white collar (e.g. IT professionals, product owners, project managers, engineers, administrators) and blue collar (e.g. installers) workers. Employees working in holding are white-collar and mostly work in innovation, marketing & communication, finance, human resources, legal, and ICT operations departments, as well as the secretary of the group. The survey sample consisted of 327 respondents (19 % response rate). There were 12.5 % ($N=41$) female respondents and 82.7 % ($N=270$) males. The rest of the respondents decided not to declare their gender ($N=16$). Participants' average age was ($M=42.6$, $SD=10.79$) years. The average tenure in the organization was ($M=9.5$, $SD=9.97$) years. The sample was made up of 199 Dutch, 46 Finnish, 25 Croatian, 22 Belgian, 14 Polish, 10 Danish, 8 Swedish employees, 1 employee from Brazil and 1 employee from the UK & Ireland.

Regarding business units, 67% ($N=219$) of respondents work in mobility, 12.2 % ($N=40$) work in energy, 7.3% ($N=24$) in parking. Employees working in the company holding were referred to as others (13.5% ($N=44$)). Since no data was collected on employee education, it was impossible to categorize employees by the level of their education.

METHOD OF DATA COLLECTION

The employees' task was to complete a self-administered web questionnaire. An email containing a link to the web-survey was sent out by local Human Resources professionals to the employees in each business unit. Also, a link to the survey web-site was posted on the corporate Intranet.

The content of the message following the questionnaire link was in Dutch for Dutch employees and in English for the employees working in all the other business units. It contained a brief explanation of the theoretical framework on which the instrument was based and suggestion on how to fill out the questionnaire.

The time needed to complete the questionnaire was approximately 15 to 20 minutes. Also, respondents had the option to change the language of the questionnaire to English/Dutch in any given moment. The content of the questionnaire was distributed over 8 pages. While completing the questionnaire, it wasn't possible to return to questions answered on previous pages. If the respondent decided to exit the questionnaire, it was not possible to save the responses and later continue completing it. Before submitting the answers, employees were asked to type in their name, surname and email address in order to receive the individual report on their email address.

The deadline for filling out the questionnaire was two months after it was sent to the employees. Every two weeks, the employees were sent a reminder to complete the questionnaire by their local HR professionals. There was no formalized content of the reminders, each HR employee had a choice to customize its content.

RESULTS

Data was analyzed using the statistical tool IBM SPSS Statistics for Windows, version 20.0. The basic descriptive statistics, together with the response range, K-S test results and its significance are shown in Table 3 (Appendix A).

Descriptive statistics show the results for each subscale and item on an overall sample of employees. Every item is represented by the average value (*M*) and measure

of dispersion (SD). The response range is also shown, to serve as a reference framework. We have conducted the Kolmogorov-Smirnov test, which showed that all the scales, except Achievement deviate from the normal distribution to a degree that is statistically significant. All of the asymmetrical items and scales (except frequency of sick leave) showed negatively skewed distribution.

We have conducted item-analysis and decided to remove items with poorer psychometric properties compared to the rest of items; having lower item sensitivity, reducing scale reliability. Additionally, we considered that items from Positive Emotions scale could cause content validity issues. Namely, an average person cannot differ positive emotions in such a precise way, especially if he/she is not a native speaker. Henceforth, we decided to remove three items from the Positive Emotions scale: *"I feel Good"*, *"I feel Pleasant"* and *"I feel Joyful"*. We consider this items are similar in content to the other items comprising the scale and at the same time show lower item sensitivity ($SD < .89$). Namely, these items highly correlate to each other and they do not each uniquely contribute to the measurement in the construct they are intended to measure, so they should not both be included in the scale. Also, we decided to remove the item belonging to Engagement scale: *"If I'm at work, I think of nothing else"*, because it reduces scale reliability. Furthermore, we have removed the item: *"Please indicate to what extent you are satisfied with your achievements at work"* from the Achievement scale, because it showed low discrimination index ($r_{iu}=.24$) and reduced the scale reliability.

The dimensionality of the instrument

The goal of the current study was to test the construct validity of the questionnaire for the first time. We decided to do it by performing an explorative factor analysis on the collected results. To explore the factor structure of the instrument, factor analysis using Principal Axis Factoring (PAF) with oblimin rotation was performed. Before conducting PAF, we have inspected the correlation matrix of 40 items. The range of the inter-item correlation was $-.07$ to $.84$, from which one high inter-item correlation ($r > .80$, $p < .01$) emerged. The determinant of the correlation matrix for the data in the current study is $1.375E-13$, which is smaller than $.00001$, indicating the problem of

multi-collinearity. Therefore, before conducting the analysis we have decided to exclude one item with high bivariate correlation score. Based on its content validity, we have decided to remove one item "*I carry out tasks: That are really hard*" which showed high correlation ($r=.84, p<.01$) with the item "*I carry out tasks: That are hard*".

Factor analysis was conducted on 39 items with Oblique rotation (oblimin). The Kaiser–Meyer–Olkin measure verified the sampling adequacy ($KMO=.932$), because it was above the commonly recommended value of .6. Also, Bartlett's test of sphericity $\chi^2(741) = 8767.76, p<.001$ indicated that correlations between items were sufficiently large for PAF. Finally, the communalities of all 39 items were above .3. Given these overall indicators, it was possible to perform factor analysis. An initial analysis was run to obtain eigenvalues for each component in the data. Six of the seven extracted factors were interpretable, which explained 59.36 % of the variance.

In addition, a total of five items were eliminated because they did not contribute to a simple factor structure. The item: "*I view my work as contributing to my personal growth*", loaded higher than 0.3 both on factor 1 and 7. The item: "*I carry out tasks: Where I have to prove myself*" had factor loadings higher than .4 on both factor 2 and factor 7. The items: "*My co-workers and I are committed to one another at work*", "*There is a sense of empathy among my co-workers and myself*", and "*I carry out tasks: Where my skills are tested*" had similar factor loadings both on factor 3 and 7. Hence, we have excluded all of the listed items.

Therefore, for the final stage, we conducted a principal axis factoring of the remaining 34 items, using oblimin rotation, with factors explaining 59.02 % of the variance.

Factor analysis of the questionnaire used in the current study revealed that six factors were sufficient to explain the underlying structure of subjective well-being at work. The scree plot (Appendix C) also suggested keeping six factors. The pattern matrix in Table 1, revealed factor one to consist of eight items. This factor, explaining most of the variance (34.69 %) with eigenvalue of 12.19, referring to one's perception of their work as meaningful, contributing to a greater purpose and their own purpose, was labeled *meaning* and demonstrated a high internal consistency ($\alpha=.92$). The second factor, explaining 8.74 % of the variance with eigenvalue of 3.42, consisted of eight

items referring to experience of challenges at work such as dealing with novelty, having to develop mastery and being exposed to risks. This factor was identified as *achievement* and reflected a high internal consistency ($\alpha=.89$). Factor three explained 6.48 % of the variance, with eigenvalue of 2.62 and contained nine items, relating to quality of relationships at work, and showed a high internal consistency. It was labeled *positive relationships* ($\alpha=.90$). The fourth factor explained 3.71% of the variance, eigenvalue 1.64. It consisted of three items and referred to having high levels of focus and absorption in one's work and was identified as *engagement*. The internal consistency of this factor was also high ($\alpha=.84$). The fifth factor explained 2.88 % of the variance, eigenvalue 1.32, contained three items, and was highly reliable ($\alpha=.86$). The items were all related to positive emotions experienced at work, hence it was called *positive emotions*. The sixth factor explained 2.51 % of the variance, eigenvalue 1.21. It consisted of three items, related to employees' assessment of their co-workers' attitude towards them and was identified as *positive regard*. The scale reflected a high internal consistency ($\alpha=.81$). In summary, the six extracted factors were similar to expected ones: *positive emotions*, *engagement*, *positive relationships*, *meaning*, and *achievement* with addition of *positive regard*. Descriptive statistics of the final questionnaire subscales, together with the response range and K-S test results were shown in Table 6 (Appendix E).

Table 1
Psychometric properties of the final questionnaire

Scale Items	Factor loadings					
	1	2	3	4	5	6
POSITIVE EMOTIONS						
5 Positive					-.674	
8 Happy					-.825	
10 Contented					-.701	
ENGAGEMENT						
12 I am immersed in my work.				.751		
13 When I am working, I forget everything else around me.				.725		
14 I get carried away when I am working.				.690		
POSITIVE RELATIONSHIPS						
15 My co-workers and I do not have any difficulty expressing our feelings to each other.			.569			
16 My co-workers and I are not afraid to express our unpleasant feelings at work.			.564			
17 Whenever anyone at work expresses an unpleasant feeling, he/she always does so in a constructive manner.			.532			
18 My co-workers and I cope well with the conflicts we experience at			.671			

work.						
19 Even when we are very busy and under pressure at work, my co-workers and I maintain good relationships.	.705					
20 After my co-workers and I overcome major crises and periods of tension together, our relationships are stronger, not weaker.	.655					
21 My team is always open to listen to the new ideas of co-workers.	.707					
22 My team knows how to accept people who are different.	.658					
23 My team is attentive to new opportunities that can make our system more efficient and effective.	.753					
POSITIVE REGARD						
24 I feel like my co-workers like me.						.522
25 I feel like my co-workers love me.						.833
26 I feel admired in my workplace.						.615
MEANING						
29 I have found a meaningful career.	.493					
31 I understand how my work contributes to my life's meaning.	.677					
32 I have a good sense of what makes my job meaningful.	.657					
33 I know my work makes a positive difference in the world.	.836					
34 My work helps me better understand myself.	.727					
35 I have discovered work that has a satisfying purpose.	.652					
36 My work helps me make sense of the world around me.	.842					
37 The work I do serves a greater purpose.	.706					
ACHIEVEMENT						
39 Where I have to conquer myself.	.630					
41 Where I am tested.	.604					
42 Where I have to take a step further than normal.	.674					
43 Where I have to give a lot of myself.	.517					
44 Where I am not always sure I can do it.	.805					
45 Where I risk failure.	.740					
46 That are hard.	.643					
48 Where I have to deal with tasks that are new to me.	.711					
Eigenvalues	12.19	3.42	2.62	1.64	1.32	1.21
Total variance explained	34.69	8.74	6.48	3.71	2.88	2.51

As demonstrated in Table 7 (Appendix F), the factors have shown a considerable degree of correlation between them. There were no correlations higher than .7 between the components, therefore we can interpret them as six separate factors. However, the correlations among the factors are moderate to high (average $r=.44$), which indicates probable existence of the second-order factor. The proposed final version of the questionnaire composed of 34 items, is represented in the Table 1.

Work outcomes

To test the hypothesis that SWB facets (positive emotions, engagement, positive relationships, meaning, and achievement) are connected to work outcomes (sick leave, self-rated employee job performance, employee metaperception of job performance, and job satisfaction), a two-step hierarchical multiple regression analysis was performed for

each of criteria. For every criterion, demographic variables were the first one entered, to control for their influence. They were followed by SWB facets. Correlation matrix of the variables used in regression analysis is shown in Table 4 (Appendix B). The results of regression analysis are shown in Table 2.

Table 2

The results of hierarchical regression analysis for work outcomes (sick leave frequency, job performance: employee self-rating, job performance: employee metaperception and job satisfaction) for demographic data and subjective wellbeing facets as predictors

	Sick leave		Job performance: Self-rating		Job performance: Employee metaperception		Job satisfaction	
	1st step β	2nd step β	1st step β	2nd step β	1st step β	2nd step β	1st step β	2nd step β
Gender	-.024	-.021	-.011	-.018	.023	.035	.136*	.106**
Age	-.071	-.076	.060	-.015	-.022	-.115	.150*	.013
Organizational tenure	.111	.117	.014	.073	-.042	.026	-.109	.041
Positive emotions		.081		.174*		.113		.462**
Engagement		.127		.172**		-.050		.075
Positive Relationships		-.019		-.004		.109		.013
Meaning		-.222*		-.013		.083		.230**
Achievement		-.064		-.054		-.041		.115**
Positive Regard		.126		.146*		.300**		.108*
R ²	.012	.052	.005	.116	.004	.221	.042	.637
ΔR^2	.012	.040	.005	.111	.004	.217	.042	.595

* $p < .05$, ** $p < .01$.; gender (0=male, 1=female)

Results of the conducted analysis showed that by the consisting set of predictor variables it is not possible to significantly explain variance of sick leave frequency. Therefore, results failed to confirm the first research hypothesis.

Results of the conducted analysis showed that by the consisting set of predictor variables it is possible to explain 11.1% of self-rated employee job performance ($F(6,293) = 6.13, p < .01$). The strength and direction of regression coefficient showed that people with higher level of positive emotions, engagement and perception that their colleagues respect them, rate their own job performance higher.

Furthermore, results show that it is possible to explain 21.7% of the employee metaperception of their job performance by the consisting set of predictor variables ($F(6,287) = 13.32, p < .05$). Employees perceiving that their co-workers have higher positive regard towards them scored high on the metaperception of their supervisor job performance rating. Since the results of the conducted analysis showed that not all of the SWB components contribute significantly to self-rated job performance and employee metapereception of job performance, these results failed to confirm the second research hypothesis.

Lastly, the results showed that SWB facets explain 59.5 % of job satisfaction ($F(6,292) = 79.72, p < .01$). Employees that frequently experience positive emotions, attribute meaning to their work, feel accomplished and valued from their colleagues, show higher levels of job satisfaction. Since the results of the conducted analysis showed that not all of the SWB components contribute significantly to job satisfaction, these results failed to confirm the third research hypothesis.

DISCUSSION

The results have confirmed that the development of a new questionnaire based on the PERMA model can give us an insight into overall well-being at work. We have proved the value of the PERMA framework in questioning the wellbeing, with five expected and one additional factor appearing. These six separate components are moderately to highly correlated with one another which indicates existence of a second-order factor representing a concept of subjective well-being at work. At this level, SWB reflects a general evaluation of a person's well-being, whilst six specific components at the lower level of the hierarchy: positive emotions, engagement (flow), positive relationships, meaning, achievement (challenge), and positive regard provide a more unique information about the ones' SWB at work.

Furthermore, we have managed to propose a psychometrically improved questionnaire version containing 34 items designed to measure the SWB.

The results of regression analysis have not confirmed our hypothesis about factors predicting sick leave. Namely, the regression model didn't show as significantly

important in explaining the variance of sick leave as it was expected. In general, the studies on sick leave and its correlates emphasize that study results directly depend on operationalization of sick absence. Therefore, overly generalized operationalization of sick absence could have had influenced the results and we recommend to define sick leave in a more precise way (dividing it regarding its length and regarding the frequency of the sick leave periods).

When it comes to job performance, we failed to confirm posed hypotheses. Yet, some of the SWB components showed correlation with both self-rated job performance and the metacognition of supervisory ratings. Namely, it seems that positive emotions, engagement and positive regard are the predictors contributing to job performance. Our results are in line with the “happy productive worker” hypothesis which states that employees which frequently experience positive affect are more productive than the unhappy ones. Cropanzano & Wright (2001) propose that the positive affect provides employees with more cognitive and emotional capacity, hence they are more sensitive to new opportunities and positive events. Also, these people show greater flexibility when it comes to changes and have more positive interactions with other people. All of the mentioned could influence improving their performance. One of the possible underlying mechanisms are affective states providing people with positive information about immediate psychological situation and enabling simple, novel and creative but also analytical information processing strategies, which in turn improves productiveness (Côté, 1999, Graziotin, Wang & Abrahamsson, 2014). However, after sixty years of testing the hypothesis, results of studies are still pretty ambiguous, so it’s necessary to further explore the relationship. Engagement, represented by the items from Absorption scale of the WOLF inventory was positively tied to the job performance (Bakker, 2008). Absorption in work could facilitate focus and dedication to the work activities, indirectly improving performance. Positive regard also showed connection to the job performance. Namely, organizations provide a rich social context that can enable people with support and boost their self-esteem. It seems that when co-workers recognize one’s own personal contribution to the organization, he/she feels more eager and energized, which in turn results enhancing his/her job performance (Shefer, Carmeli & Cohen-Meitarl, 2017).

However, it is interesting to observe that when it comes to the employee metaperception, the only factor which influences the connection is Positive regard. That goes in line with previous research on the topic which shows that there is a big discrepancy of the actual employee performance and their metaperspective of the supervisory ratings on their job performance (Hu, Kaplan, Wei & Vega, 2014). Therefore, when it comes to performance evaluation, supervisors should have in mind that sense of acceptance from co-workers could distort employee expectation from the job performance evaluation and the actual evaluation. This finding could help to prevent many misunderstandings in communication between the supervisor and subordinate.

Furthermore, positive affect, meaning, accomplishment and positive regard have also showed significant independent contribution to a general sense of job satisfaction.

Affective Events Theory (Weiss & Cropanzano, 1996) states that all of the emotions at work are immediate reactions to the work environment events. Current emotions, along with history of emotions related to the event influence job satisfaction. Since emotions fluctuate over time and directly depend on recent events, job satisfaction is also ever-changing and it is necessary to constantly measure it (Fisher, 2000). Therefore, continuous investment in the products and experiences that induce pleasant feelings to the employees should raise the general level of job satisfaction in the company. However, when it comes to prolonging high levels of job satisfaction, it is worth mentioning meaningfulness that people ascribe to work. Meaning integrates the sense of the past and the future and is stable in time, while positive emotions are rooted in the present and ever-changing (Huta & Ryan, 2010). Hence, it is possible to prolong short-term effect of positive affect on job satisfaction by providing employees with sense of purpose, belonging and contribution to common good.

Accomplishment, represented by the items from the challenge scale also showed positive correlation with job satisfaction. Namely, previous studies have already showed that the experience of challenging working environment is of a key importance in explaining job satisfaction (Kirk-Brown & Wallace, 2004). Challenging jobs demand from the employee to develop skills and promote their professional and personal competence when approaching work-related problems (Preenen, 2010). Thus,

overcoming challenges at work could leave an employee feeling accomplished and satisfied with his/her work.

Lastly, it seems that feeling of being embraced by the co-workers and organization people work for is positively correlated with the job satisfaction. Although there is no empirical proof for that relationship so far, it indicates importance of feeling valued and respected from ones' co-workers. It is possible to explain that feeling of being admired and "popular" among co-workers makes an employee feel more secure in his job, considering his/her co-workers friendly and believing he/she has good working conditions (Van Zelst, 1951).

STUDY LIMITATIONS AND FURTHER RESEARCH

In the end, it is very important to address the limitations of the study and give directions for future improvement. The first set of issues refers to problems of content and construct validity in the process of scale development, primarily to the study framework and the specificity of the items. Namely, constructs such as job satisfaction and subjective well-being have been a focus of interest of organizational psychology for a long time. To look on them exclusively from the perspective of the positive psychology framework seems like narrowing this complex subject to the scope of a movement in psychology that states in advance that its goal is to measure "positive" traits. Following this principle, our questionnaire has only inquired into positive emotions and experiences at work, not questioning possibly existing unpleasant aspects and experiences of work which could possibly be more informative. In addition, since the content of the items was mostly broad and general, we didn't get specific feedback. The same goes regarding the item specificity of other scales. We have gained a general insight, but no specific answers or insights into the domains of work life. Questioning pleasant and unpleasant aspects of work together with using more detailed items would provide us with comprehensive feedback and enable line management and HR professionals to design more efficient interventions.

The next issue would be the language of the questionnaire. When doing cross-cultural research, it is of great importance to have in mind the language the

questionnaire is written in. To minimize the chances of differential item functioning and increase the reliability of the answers, the questionnaire should always be supplied to the participants in their native language, even if they speak multiple languages. In this case, respondents from other countries besides the Netherlands and Great Britain had to complete the survey in their non-native language. Different levels of English comprehension and difference in meanings associated with English words in various languages could influence understanding and interpretation of the survey instructions, items and the generated report. Consequently, employee responses and interpretation of the results were biased. The suggestion is that the questionnaire is translated to the languages of all the countries that have/will participate/d in the survey by persons who understand the objective of the questionnaire, the aim of the questions and are fluent in both the original and the target language. In order to check the validity of the translation, it is recommended to use methods most frequently used in cross-cultural research, such as back translation method.

The second set of issues refers to the research procedure. More specifically, to the way the questionnaire was administered. The fact that the retention rate was pretty low, and that two of the countries have a participation rate of only one employee indicate a possible problem with the distribution of the questionnaire. A general problem concerning web surveys is lack of control over the circumstances in which the participants will conduct the survey. It is impossible to control whether the person will complete the survey at all, or if they will do it multiple times. An additional problem in this study was that despite using uniform instruction for all the participants, there was no standard procedure of administering the questionnaire. It means that there was no control over who received the email with the questionnaire and whether the HR professionals provided additional comments, instructions or emphasized the importance of completing the questionnaire. A similar thing happened with the reminders, whose content HR professionals got to customize.

Thus, we propose sending the questionnaire via an email list containing the email addresses of all the employees working for the company in order to ensure all of the employees have received the email. Also, it is recommendable to organize a meeting for

all the local business units' line managers and/or HR professionals to sensitize them about the importance of ensuring standardized conditions for questionnaire completion for the employees.

Furthermore, one of the factors that can negatively influence the response rate is lack of anonymity. Considering the last item in the questionnaire requests employees to enter their name, surname and email address in order to receive an individual report, doubt in the anonymity of the survey could have arisen. Despite the fact that the instructions guaranteed confidentiality, it could have been a concern to the employees (Hoonakker & Carayon, 2009), especially because in addition to that request, they were supposed to fill in demographic data on the basis of which they could be identified: age, gender, sick leave, organizational tenure, country and department they work in. Since the item requesting the participant's name, surname and email address and most of the demographic questions were located at the end of the questionnaire, a possible consequence was that a significant proportion of the participants cancelled the survey right before submitting the questionnaire and their answer wasn't recorded.

CONCLUSION

Although there is a rich theoretical background behind the PERMA model Seligman (2011) didn't give an empirical rationale about why these five particular factors were chosen as the ones representing SWB. Therefore, the main object of the study was psychometric validation of the PERMA instrument. The survey has been conducted on 327 participants, employees of an international company developing traffic solutions.

We have explained 59.02 % variance of the questionnaire results by conducting factor analysis. Also, we can assume a hierarchical factor structure with one second-order factor representing general assessment of employee well-being and six first-order, extracted components reflecting more precise aspects of employee well-being.

Furthermore, we have proved the importance of SWB when it comes to predicting work outcomes such as job performance and job satisfaction. It means that using the

proposed final version of the questionnaire in the future could help employers in assessing and improving job performance and job satisfaction of their employees.

However, despite the promising results and a growing body of empirical evidence in the exciting area of subjective well-being at work, it is really important to have in mind that the field of well-being is relatively new and unexplored. Thus, as our study has confirmed, it is necessary to give careful consideration to the methodology used in SWB research and continue to conduct rigorous psychometric testing of the existing instruments.

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APPENDIX A

Table 3

Descriptive statistics, response range, and K-S value of the items and subscales of the initial version of the questionnaire

Item	M	SD	min _o	max _o	Kolmogorov-Smirnov z	Item-total correlation	α
POSITIVE EMOTIONS	20.47	4.60	6	30	1.54*		.92
5 Positive	3.57	.89	1	5	4.39**	.80	
6 Good	3.53	.87	1	5	4.74**	.80	
7 Pleasant	3.45	.86	1	5	4.61**	.82	
8 Happy	3.20	.93	1	5	4.08**	.85	
9 Joyful	3.39	.87	1	5	4.45**	.74	
10 Contented	3.32	.97	1	5	3.67**	.71	
ENGAGEMENT	17.88	4.36	4	28	1.16		.84
11 If I'm at work, I think of nothing else.	4.32	1.41	1	7	2.91**	.34	
12 I am immersed in my work.	4.72	1.33	1	7	3.06**	.50	
13 When I am working, I forget everything else around me.	4.27	1.36	1	7	3.08**	.56	
14 I get carried away when I am working.	4.56	1.22	1	7	3.39**	.48	
POSITIVE RELATIONSHIPS	69.43	13.92	14	96	1.76**		.90
15 My co-workers and I do not have any difficulty expressing our feelings to each other.	5.05	1.45	1	7	3.98**	.59	
16 My co-workers and I are not afraid to express our unpleasant feelings at work.	4.96	1.41	1	7	4.21**	.57	
17 Whenever anyone at work expresses an unpleasant feeling, he/she always does so in a constructive manner.	4.56	1.35	1	7	3.56**	.60	
18 My co-workers and I cope well with the conflicts we experience at work.	5.11	1.34	1	7	4.03**	.74	
19 Even when we are very busy and under pressure at work, my co-workers and I maintain good relationships.	5.62	1.17	1	7	4.99**	.69	
20 After my co-workers and I overcome major crises and periods of tension together, our relationships are stronger, not weaker.	4.84	1.44	1	7	2.87**	.72	
21 My team is always open to listen to the new ideas of co-workers.	5.08	1.46	1	7	4.01**	.68	
22 My team knows how to accept people who are different.	5.14	1.40	1	7	3.60**	.67	
23 My team is attentive to new opportunities that can make our system	4.99	1.58	1	7	3.82**	.71	

more efficient and effective.						
24 I feel like my co-workers like me.	5.56	1.17	1	7	5.05**	.66
25 I feel like my co-workers love me.	4.07	1.55	1	7	4.36**	.54
26 I feel admired in my workplace.	4.15	1.53	1	7	3.63**	.61
27 My co-workers and I are committed to one another at work.	5.22	1.25	1	7	3.69**	.76
28 There is a sense of empathy among my co-workers and myself.	5.07	1.34	1	7	3.70**	.78
MEANING	41.98	11.28	9	63	1.51*	.93
29 I have found a meaningful career.	4.90	1.60	1	7	3.73**	.76
30 I view my work as contributing to my personal growth.	5.12	1.54	1	7	3.83**	.76
31 I understand how my work contributes to my life's meaning.	4.88	1.55	1	7	3.55**	.74
32 I have a good sense of what makes my job meaningful.	5.19	1.29	1	7	3.78**	.78
33 I know my work makes a positive difference in the world.	4.52	1.59	1	7	2.97**	.75
34 My work helps me better understand myself.	4.29	1.60	1	7	3.13**	.73
35 I have discovered work that has a satisfying purpose.	4.72	1.49	1	7	4.04**	.78
36 My work helps me make sense of the world around me.	4.08	1.65	1	7	3.28**	.77
37 The work I do serves a greater purpose.	4.28	1.70	1	7	3.01**	.68
ACHIEVEMENT	55.59	11.93	12	81	1.17	.91
38 Where I have to prove myself.	5.08	1.37	1	7	4.15**	.62
39 Where I have to conquer myself.	4.46	1.49	1	7	3.07**	.69
40 Where my skills are tested.	5.17	1.39	1	7	3.98**	.67
41 Where I am tested.	4.88	1.43	1	7	3.61**	.72
42 Where I have to take a step further than normal.	4.98	1.40	1	7	3.29**	.79
43 Where I have to give a lot of myself.	5.02	1.41	1	7	3.76**	.69
44 Where I am not always sure I can do it.	4.25	1.60	1	7	2.79**	.66
45 Where I risk failure.	4.43	1.58	1	7	3.10**	.66
46 That are hard.	4.33	1.48	1	7	3.08**	.59
47 That are really hard.	4.26	1.46	1	7	3.08**	.52
48 Where I have to deal with tasks that are new to me.	4.88	1.55	1	7	3.42**	.70
49 Please indicate to what extent you are satisfied with your achievements at work.	3.93	.81	1	5	5.99**	.24
WORK ABSENCE						
50 By estimate, how many days in the last 12 months have you been absent due to health reasons?	6.18	23.78	0	365	6.87**	
PERFORMANCE	15.2	2.26	2	20	3.28**	.57

51 How do you rate your own performance on a scale from 1 (very bad) to 10 (very good)?	7.84	1.13	1	10	4.56**	.42	
52 How do think your boss rates your performance on a scale from 1 (very bad) to 10 (very good)?	7.36	1.54	1	10	4.11**	.42	
JOB SATISFACTION	15.49	4.48	3	21	3.87**		.94
53 I am satisfied with my current job.	5.18	1.64	1	7	5.20**	.87	
54 Most of the time I enjoy my job.	5.28	1.49	1	7	5.25**	.86	
55 All in all I'm very satisfied with my job.	5.04	1.60	1	7	4.51**	.92	

APPENDIX B

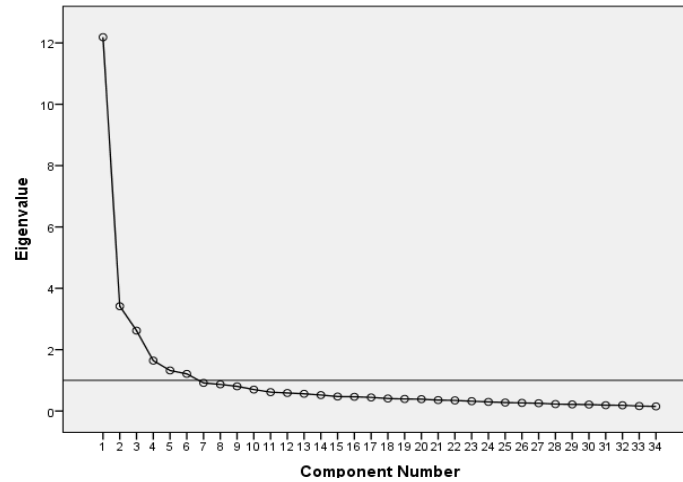
Table 4

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	1	.176**	.052	-.023	-.112*	-.034	-.083	-.059	.033	.040	.017	-.031	-.147*
2. Organizational tenure		1	.432**	-.044	-.106	.007	-.027	-.147**	-.029	.085	.042	-.055	-.068
3. Age			1	.159**	-.169**	.087	.084	.080	.095	-.021	.067	-.041	.096
4. Meaning				1	.464**	.531**	.488**	.620**	.465**	-.108	.213**	.301**	.666**
5. Achievement					1	.364**	.381**	.307**	.233**	-.073	.084	.149**	.427**
6. Positive relationships						1	.353**	.470**	.581**	-.011	.195**	.349**	.488**
7. Flow							1	.414**	.241**	.041	.246**	.133*	.461**
8. Positive emotions								1	.383**	-.008	.261**	.306**	.719**
9. Positive regard									1	.048	.230**	.418**	.440**
10. Sick leave										1	.042	-.246**	-.220**
11. Job performance (self-rated)											1	.421**	.254**
12. Job performance: employee metaperception												1	.446**
13. Job satisfaction													1

Intercorrelations of all the observed variables (N=327)

p<.05; **p<.01, gender (0=male, 1=female)

APPENDIX C



Picture 1. Scree plot of the final questionnaire version

APPENDIX D

Table 5
Structure matrix and communalities of the final questionnaire

Scale Items	Communalities	Factor loadings					
		1	2	3	4	5	6
5 Positive	.652	.587		.358	.333	-.798	
8 Happy	.682	.537		.349		-.871	
10 Contented	.596	.477		.392	.304	-.762	
12 I am immersed in my work.	.572	.359	.322		.792		
13 When I am working, I forget everything else around me.	.561	.369			.767		
14 I get carried away when I am working.	.595	.471			.765	-.365	
15 My co-workers and I do not have any difficulty expressing our feelings to each other.	.584			.626			.412
16 My co-workers and I are not afraid to express our unpleasant feelings at work.	.562			.620	.328		.380
17 Whenever anyone at work expresses an unpleasant feeling, he/she always does so in a constructive manner.	.424	.314		.611			.423
18 My co-workers and I cope well with the conflicts we experience at work.	.648	.383		.775	.343	-.333	.475
19 Even when we are very busy and under pressure at work, my co-workers and I maintain good relationships.	.608	.308		.736			.435
20 After my co-workers and I overcome major crises	.618	.436		.758		-.388	.411

and periods of tension together, our relationships are stronger, not weaker.							
21 My team is always open to listen to the new ideas of co-workers.	.667	.453	.334	.752		-.459	
22 My team knows how to accept people who are different.	.563	.442		.702		-.367	.317
23 My team is attentive to new opportunities that can make our system more efficient and effective.	.668	.493	.320	.785		-.404	
24 I feel like my co-workers like me.	.590	.370		.559		-.300	.682
25 I feel like my co-workers love me.	.579	.316		.424			.845
26 I feel admired in my workplace.	.575	.438		.488		-.357	.721
29 I have found a meaningful career.	.697	.740	.359	.450	.459	-.533	.414
31 I understand how my work contributes to my life's meaning.	.633	.753	.336	.366	.377	-.459	
32 I have a good sense of what makes my job meaningful.	.721	.788	.317	.440	.456	-.494	.307
33 I know my work makes a positive difference in the world.	.663	.809	.315	.367	.328	-.417	
34 My work helps me better understand myself.	.623	.766	.369		.311	-.444	
35 I have discovered work that has a satisfying purpose.	.688	.788	.321	.415	.370	-.541	.324
36 My work helps me make sense of the world around me.	.719	.823		.377		-.451	.331
37 The work I do serves a greater purpose.	.594	.723		.350		-.396	.315
39 Where I have to conquer myself.	.562	.417	.703	.327			
41 Where I am tested.	.592	.432	.695	.315	.356		
42 Where I have to take a step further than normal.	.719	.473	.777	.316	.435		
43 Where I have to give a lot of myself.	.630	.479	.654		.415		
44 Where I am not always sure I can do it.	.599		.754				
45 Where I risk failure.	.531		.708				
46 That are hard.	.489		.630				
48 Where I have to deal with tasks that are new to me.	.534	.328	.724				

APPENDIX E

Table 6

Descriptive statistics, response range, and K-S value of subscales of the final questionnaire version

	M	SD	MIN	MAX	Kolmogorov-Smirnov Z	α
Positive Emotions	10.10	2.48	3	15	2.06*	.86
Engagement	13.56	3.40	3	21	1.43**	.84
Positive Relationships	45.36	9.42	9	63	1.63**	.90
Meaning	36.86	10.07	8	56	1.56**	.92
Achievement	37.23	8.97	8	56	1.20**	.89
Positive Regard	13.78	3.65	3	21	2.04**	.81

APPENDIX F

Table 7

Correlation coefficients between the extracted factors

	1	2	3	4	5	6
1. Positive Emotions	1	.414**	.470**	.620**	.307**	.383**
2. Engagement		1	.353**	.488**	.381**	.241**
3. Positive Relationships			1	.531**	.364**	.581**
4. Meaning				1	.464**	.465**
5. Achievement					1	.233**
6. Positive Regard						1

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.