INSTITUTIONEN FÖR PSYKOLOGI

A Working Well-Being: The Individual's Relation to Their Job Relates to Their Well-Being

Ett arbetande välbefinnande: Individers relation till deras jobb relaterar till deras välbefinnande

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Subject index

SWB - Subjective Well-Being. Measures well-being with a cognitive and emotional part.

SWLS - the Satisfaction With Life Scale. Measures overall satisfaction with life.

HILS - the Harmony In Life Scale. Measures overall harmony in life

GJS - the Generic Job Satisfaction scale, Measures job satisfaction.

SS - Semantic Similarity score. Cosine, angle, measuring similarity between two words.

Semantic Space - table of words divided in dimensions, measuring relations between words.

Semantic t-test - statistically test if two sets of words of texts differ in meaning.

T-test plots - word clouds made from words from the t-tests, consisting of the most commonly used words.

Semantic numeric correlation - correlation between texts and numeric scales.

Semantic predictions - usage of words of texts to predict a numeric value.

ANEW - Affective Norms for English Words. Words given a positive or negative meaning.

Bipolar scale norm - continuum between two opposite ends of a norm, from high to low job satisfaction. Measures direction and intensity of participants position on continuum.

Personal Job Satisfaction Bipolar Scale - semantic similarity between personal job satisfaction word-responses and job satisfaction word norm, minus semantic similarity between personal job satisfaction word-responses and job dissatisfaction word norm.

Word norm - norm created from the words participants use to describe the construct.

Valence - the positive or negative value a word is given.

Abstract

Work takes up a lot of our time and a third of our lives. The purpose of this study is to examine how an individual's view of their work relates to their well-being. The study uses a survey to explore what views of the job that the participants (N = 240) have. Job satisfaction was measured with semantic measures, that is open-ended questions analysed with AI, and the Generic Job satisfaction Scale. The Satisfaction With Life Scale and the Harmony In Life Scale measured participants' well-being. Analyses of the semantic measures showed that words such as *money* described job satisfaction and *stress* described dissatisfaction (t(2630)=46.48, *p*<.001). The semantic similarity scores between described personal job satisfaction and a job satisfaction word norm (participant generated text that describes high job satisfaction) correlated with the Generic Job Satisfaction scale (*r* = .55) the strongest; hence this can be seen as a new word-based measure of job satisfaction, as an alternative to numeric scales. The semantic similarity scores correlated significantly with all numeric scales (*r* = .35 to *r* = .55, *p*<.001) and word-responses significantly predicted numeric scales (*r* = .38 to *r* =.58, *p*<.001). Participants described their job-satisfaction with words such as *rewarding*, *happy* and *challenging*. The study demonstrates how a person's view of their work is connected to their subjective well-being.

Sammanfattning

Arbetet tar upp mycket av vår tid och en tredjedel av våra liv. Syftet med denna studie är att undersöka hur en individs syn på sitt arbete relaterar till deras välbefinnande. Studien använder en enkät för att undersöka vilka synpunkter på jobbet deltagarna (N = 240) har. Arbetstillfredsställelse mättes med semantiska mätningar, som är öppna frågor analyserade med AI, och med Generic Job Satisfaction Scale. Satisfaction With Life Scale och Harmony In Life Scale mätte deltagarnas välbefinnande. Analyser av de semantiska måtten visade att ord som pengar beskrev arbetstillfredsställelse och stress beskrev arbetsotillfredsställelse (t (2630) = 46,48, p <0,001). De semantiska likhetspoängen mellan beskrivna personliga arbetstillfredsställelsen och en ordnorm för arbetstillfredsställelse (text genererad av deltagare som beskriver hög arbetstillfredsställelse) korrelerade med Generic Job Satisfaction Scale(r = .55) starkast; därför kan detta ses som ett nytt ordbaserat mått på arbetstillfredsställelse, som ett alternativ till numeriska skalor. De semantiska likhetspoängen korrelerade signifikant med alla numeriska skalor (r = .35 till r = .55, p <.001) och ordsvar predicerade signifikant de

numeriska skalorna (r = .38 till r = .58, p <.001). Deltagarna beskrev sin arbetstillfredsställelse med ord som givande, glad och utmanande. Studien visar hur en persons syn på sitt arbete är kopplat till deras subjektiva välbefinnande.

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Many spend over eight hours a day at their job, five days a week, for 40 years or more and as such we spend a third of our lives working, which is 90,000 hours at work in a lifetime (Gettysburg College, n.d.). Therefore, it is important that we can measure employees job satisfaction, as it forms such a big part of their lives. How important is it that you are satisfied with your work? How does the job affect our life outside of work? Does perhaps a person's job relate to or influence one's general well-being? These questions are important and forms the purpose of the study: examining if an individual's view of their work relates to their well-being. The purpose of the study is divided into three aims. The first aim involves examining how individuals describe job satisfaction and dissatisfaction. The second aim involves developing an instrument that can measure and describe individuals' personal job satisfaction with open-ended words. The third aim includes investigating how individuals think about their job and how that relates to their level of job satisfaction and subjective well-being.

Job satisfaction

Dunnette (1970) defines job satisfaction as the worker enjoying his/her work. It can also be about the overall positive or negative feelings that a person may have towards their work (Newstrom, 1986). Erdamar and Demirel (2016) summarize job satisfaction as being satisfied with what one works with, being successful at it and feeling happy about it. Several scales have been constructed for measuring job satisfaction where some of the most common ones are the Generic Job satisfaction Scale (Macdonald & MacIntyre, 1997), the Minnesota Satisfaction Questionnaire (University of Minnesota, 2019) and the Job Satisfaction Survey (Spector, 2019). They all measure different types of satisfaction within work such as the work itself and how that fulfills the individual, how colleagues affect the individual, pay and promotion opportunities, management and recognition for work done.

Importantly, in this study individuals' will be able to freely describe what they themselves think about their job and what they perceive as important for their Job satisfaction. We will further examine how job satisfaction relate to subjective well-being including satisfaction with life and harmony in life.

Subjective well-being

The Subjective well-being (SWB) approach assesses well-being through two components; the cognitive component and the affective component (Diener, 1984). The cognitive component is about how individuals think about their life and is often measured

with satisfaction with life. Satisfaction with life is seen as the cognitive part of subjective well-being whereas positive and negative affect concerns the emotional part of well-being (Diener et al., 1985). Hence, the focus will be on the cognitive component since it aligns with the aims of the study. An important part of the SWB approach is that the respondent should decide for himself what well-being is for them (Diener, 1984).

Satisfaction with life

Satisfaction with life is a construct of subjective well-being in life as a whole, after an individual appraisal of one's overall life (Zhao, Qu & Ghiselli, 2011). Diener et al. (1985) hold that the main construct for cognitive well-being is life satisfaction. It is a judgemental evaluation process of the individual's own life situation and the individual himself compares his life with own-set standards and reaches a global satisfaction score (Diener et al., 1985). Life satisfaction has been found to be correlated with health and marriage (Arrindell et al., 1991), and many studies show that SWB increases with income (e.g. Larson, 1978). Satisfaction with life is often measured with the Satisfaction with Life Scale (Diener et al. 1985). It has however during recent years been suggested that Satisfaction With Life does not fully cover the overall cognitive well-being on its own (Kjell, Daukantaitė, Hefferon & Sikström, 2016).

Harmony in life

It is suggested that harmony in life plays a complementary role to Satisfaction With Life in measuring a person's SWB. The construct of Harmony In Life (HIL) takes the environment and social conditions of a person's life into account and it has a balanced and flexible onset to subjective well-being as well as advocates a comprehensive view of the world (Kjell et al., 2016). A study by Delle Fave et al. (2011) made clear that individuals find harmony and psychological balance as vital components to their happiness and thus also their overall well-being. Consequently, Kjell et. al (2016) mentioned that an individual's well-being should not be examined with only satisfaction as the main concept, and instead include harmony as a vital complementary part of the concept.

The words related to either the HIL construct or the SWL construct also differ in their semantic content (Kjell et al., 2016). The statistical semantics analyses of these words revealed that satisfaction relates to words such as *money*, *job, success, wealth, achievement* etc. while harmony relates to *balance, peace, understanding, cooperation, friendship* etc. This can be observed in Kjells et al. (2016) word clouds for satisfaction and harmony. The

two constructs are similar, co-occur in certain contexts and also cover different aspects of the individual's' subjective well-being and as such, appear to complement each other well. Thus far there seems to be no prior research examining Harmony in Life and its relation to Job satisfaction.

Job satisfaction in relation to life satisfaction and harmony in life

Job satisfaction strongly relates to general life satisfaction. One study contributing to life satisfaction and work research found that job stress, job involvement and job satisfaction were correlated with life satisfaction (Lambert, Jiang, Liu, Zhang & Choi, 2018). Job stress reduced life satisfaction (Lambert, 2008; Lambert, Hogan, Paoline, & Baker, 2005), since it strained on the prison staff, spilling over on their private lives due to an inability of letting go of work stress once they were home. Job involvement, that is dedication and loyalty to one's work, had a positive effect on life satisfaction. It was concluded that people with job involvement had a higher job satisfaction and this was related to a higher life satisfaction. Jiang et al. (2018) connected job involvement with job satisfaction that could lead to stronger life satisfaction. Job satisfaction had the strongest prediction value of life satisfaction (Lambert, Hogan, Paoline, & Baker, 2005; Lambert, Hogan, Elechi et al., 2009) which is relevant to this study as an aim is to use life satisfaction as a well-being measurement in connection to well-being at work.

Another study showed how life satisfaction, job satisfaction and a sense of harmony were influenced by the psychosocial job factors in prison staff (Baranauskiene, Dirzyte & Valaikiene, 2010). Such factors were the work environment, job content, organizational conditions, workers' capacities, needs, culture, and their personal conditions affecting health, work performance and job satisfaction (Carayon & Lim, 1999). This study expects these factors to be reflected in the participants' own words when describing important aspects of their job satisfaction and dissatisfaction. Life satisfaction was positively correlated with work type, assisting customers, liking one's profession, career possibilities and work payment. Life satisfaction was reduced by low work payment, work routine and poor career prospects. Life satisfaction and the meaningfulness-component of harmony were related: the more meaning the tasks were given, the more life satisfaction the staff experienced. Job satisfaction decreased with poor career perspectives and monotony. Furthermore, O'Boyle (2001) confirmed that job satisfaction played a role in life satisfaction and therefore influenced satisfaction with life. When it came to harmony, those with a strong sense of harmony found

meaning in stressful situations, and judged themselves strong enough to handle the situation. They also experienced less job stress, and valued their inner harmony higher when the job strain was lower.

Life satisfaction and employment

With a focus on job presence for life satisfaction, employed women enjoyed a higher satisfaction with life than the unemployed women. Panwar and Srivastava (2019) focused on women, comparing 78 housewives with 78 working women concerning their stress, health problems and satisfaction with life. A total of 56% of the women with an employment had life satisfaction compared to 44% of the women who worked with household chores. The reasons for lower life satisfaction and higher mental stress among the housewives were a lack of talent recognition, of family support, of dignity, of equality and of economic security. The reasons for lower life satisfaction and higher mental stress among the employed women had more to do with a work-family conflict, with a total of 40%. The housewives experienced more mental stress than the employed women and this highlights the importance of work for an individual's satisfaction with life, which is an assumption of the study and a connection the study wishes to explore using the participants' own words.

Career satisfaction predicts life satisfaction

A study showed how career satisfaction relates to life satisfaction, within and across time (Hagmaier, Abele & Goebel, 2017). The study confirmed previous research supporting the notion of positive correlation between career satisfaction and life satisfaction (c.f. Erdogan et al., 2012; Lounsbury et al., 2004). By career satisfaction the study referred "to the evaluation of the accumulated experiences in one's career so far" (Hagmaier et al., 2017, p.142). The study examined how a person's life satisfaction affects how they experience their work, and not the other way around, which is interesting for this study as it seeks to explore how individuals view of their work relates to well-being, including life satisfaction. The result showed that a person with higher life satisfaction will view its work and career in a more positive light (Ballout, 2008). The article also showed how work centrality strengthens the connection between career satisfaction and life satisfaction. What this means is that the more a person attribute centrality to their work, the more effect will career satisfaction have on life satisfaction, which is important to this study as one of its aims is to examine how an individual's view of their work, such as the importance they add to their work, affect their life satisfaction.

Work-family conflict and life and job satisfaction

Life satisfaction, job satisfaction and work-family conflict were found to be related (Erdamar & Demirel, 2016). The focus laid on teachers in Turkey and how satisfaction and work-family conflict relate to demographic variables. Negative correlations were found between job satisfaction and work-family conflict: job satisfaction decreased when work-family conflict increased. Life satisfaction was negatively correlated with work-family conflict: when the work-family conflict decreased, life satisfaction increased. Work-life balance increases a person's life satisfaction (Allen et al., 2000; Carlson et al., 2006) whereas not being involved in work roles and family roles decrease life satisfaction (Michaels et al., 1988). A need for harmony between work and life exists, where an individual needs to find a rhythm in the relationship between the demands of work and of their private lives, ensuring a working combination of the two (Hughes, 2007). The present study wants to examine the relationship between work including job satisfaction, and well-being, and how work relates to harmony, where work-family conflict is relevant as it can reduce both well-being and harmony between the two components and reduce both job and life satisfaction.

In connection to gender, women experience more difficulties concerning the work-family conflict, often being the primary caregiver and working at the same time, and thus find it hard creating a work-life balance (Edralin, 2013). In the study Edralin (2013) explored women entrepreneurs in the Philippines and how they achieved harmony between personal life and work, and the spillover from work onto the private life as a consequence of the interference between them. The positive spillovers from work onto private life were being able to support oneself and one's family, increasing family reputation and ties and improving living standards. Negative spillovers were taking the work home, stress, work interfering with one's social life and domestic demands. The women entrepreneurs balanced work with personal life using types of relaxation, hobbies, social networks, and harmonized the two with the usage of domestic help, and help from family and partners, and by dividing their time between work and family.

The work-family conflict mediates the relationship between job satisfaction, life satisfaction, attachment to work, and affectivity (Cazan, Truță & Pavalache-Ilie, 2019). The higher the work-family conflict, the lower the life satisfaction and job satisfaction, the lower the well-being, and the higher the negative affectivity. Positive correlations were found between psychological wellbeing and satisfaction and affectivity, showing the strongest

correlation between job satisfaction and life satisfaction indicating the importance of satisfaction with one's work for one's overall happiness. A high job satisfaction and workplace attachment showed a low family-work conflict and thus a higher life satisfaction.

Work values in connection with life and job satisfaction

Life satisfaction is influenced by work values, where intrinsic work values at age 18 predict career and life satisfaction at age 43 (Chow, Galambos & Krahn, 2017). Intrinsic work values are for example interest, autonomy and accomplishment and were stable from 18 to 32 years old, the values were associated with intrinsic work rewards at age 43, and higher intrinsic work rewards were in turn related to higher career and life satisfaction. Parents who received postsecondary education led to their children receiving postsecondary education. This led to jobs which offered more intrinsic work rewards which in turn led to higher life and career satisfaction at age 43. Higher extrinsic work rewards forecasted a higher career and life satisfaction, however extrinsic work values (income and security) did not play as important a part for career and life satisfaction and work rewards as intrinsic work values did. This concludes that intrinsic values concerning work in adolescence leads to rewards in one's work in adulthood and those rewards leads to higher life satisfaction.

All the studies above have mainly focused on life satisfaction in relation to work, whereas harmony in life is conspicuous by its absence. Not much research has been done about harmony in life, especially in connection with work. This is a new aspect this study brings to the limelight. Satisfaction with life has more to do with achievement, career and money whereas harmony in life has more to do with aspects of the job such as cooperation (Kjell et al., 2016).

Open-ended questions: The importance of individuals' own descriptions

Research within the psychological field has used rating scales for a long time (see Likert, 1932) and continue to use them frequently today, however the natural way for individuals to express themselves is with words, not numbers (Sikström, Kjell & Kjell, 2018). Rating scales often use closed questions where participants can give their answers based on a numbered scale ranging from, for example, one to five where 1=Disagree and 5=Agree. This results in very one-dimensional answers. Do we as individuals realistically use numbers in such a way to describe complex feelings and how we view things? The words that an individual tend to use to relay their subjective feelings and views are typically words such as sad, fulfilled, content etc. In this study the interest lies in the respondent's satisfaction related

to their work and therefore, one-dimensional answers from a fixed scale will not provide fully descriptive applicable data. According to Kjell, Kjell, Garcia and Sikström (2018), semantic questions use an open-ended response format which allows the respondents to answer freely with any word they deem relevant and this in turn reveals the respondents' subjective thoughts and experiences. The respondents' answers, analysed with Natural Language Processing and Machine Learning, are thus based on their natural language and the semantic questions can assess and describe psychological constructs. The method takes word responses and predict rating scales scores, and then evaluate the success by correlating predicted and observed scores. Example of keywords for Harmony in life are *calm*, *love* and *peace* (predicting HILS with $r = .72$). Keywords for Satisfaction with Life has more to do with *work* and *money*. Therefore semantic questions are used as the open-ended questions of this study because of the importance of individuals' own descriptions. Semantic similarity scores, which illustrate the similarity in meaning between words or texts, is another way to measure psychological constructs and for that reason it has also been included in this study because it is more valid in previous research (Kjell et al., 2018).

Hypotheses

The first aim centres around examining the individuals' description of their job satisfaction, and as such, the hypotheses in section 1 below reflects that.

Hypothesis 1a: Individuals describe job satisfaction with words relating to money, success and cooperation; whereas they describe job dissatisfaction with words relating to stress and hostility.

Hypothesis 1b: Individuals' descriptions of general job satisfaction and dissatisfaction relate to their level of personal job satisfaction and subjective well-being (i.e., the HILS and the SWLS) and age. This correlation is expected to be low.

The second aim centres around creating an instrument that can measure and describe individuals' job satisfaction by enabling them to answer with an open-ended response format; and as such the hypotheses in section 2 below reflects that.

Hypothesis 2a: Job Satisfaction as measured with semantic similarity scores between individual's description of *personal job satisfaction* and a *word norm* describing job satisfaction correlate positively with rating scales measuring Job satisfaction, Harmony in Life and Satisfaction with Life.

Hypothesis 2b: Word responses that individuals use to describe their personal job satisfaction predict rating scales relating to job satisfaction and subjective well-being.

Hypothesis 2c: Individuals' descriptions of their personal job satisfaction relate to words such as *rewarding* and *fulfilled*.

The third aim centers around how individuals thoughts concerning their job is connected to their subjective well-being and their job satisfaction, and as such the hypothesis in section 3 below reflects that.

Hypothesis 3: How individuals think about their job relates to their level of job satisfaction and subjective well-being.

Method

Participants

The study sample comprises 240 participants, 122 were women, 116 male, one non-conforming and one trans male. The sample had an age range between 19 to 63, with a standard deviation of 9.71. The participants were mainly from the United Kingdom with a total of 190 individuals, 35 from the United States, and the remaining participants were scattered between 14 countries.

Prolific. Participants were recruited from Prolific, which is an online web-portal specifically developed for researchers to be able to pay participants to partake in research (Prolific, n.d.). Prolific also provide pre-screeners, that is they screened and selected participants for the study based on criteria set by the researchers. The study had pre-screeners with a full-time employment, no other requirements were enforced. The information received from Prolific was gender, age, country of birth, country of residence, employment and student status.

Instruments

Semantic questions regarding what the individual think is important for their job (dis)satisfaction. The purpose of these questions was to examine what creates job satisfaction and job dissatisfaction for the respondent and thus to investigate the differences amongst them. The instructions given to the respondents were firstly: "What creates job satisfaction for you? Please answer with five descriptive words what you believe creates satisfaction in your job. Write only one word in each box below." And secondly: "What

creates job dissatisfaction for you? Please answer with five descriptive words what you believe creates dissatisfaction in your job. Write only one word in each box below." The respondents could write whatever words they felt were appropriate to answer both questions.

The semantic question regarding the individual's Personal job satisfaction. The purpose of this question was to capture how satisfied or dissatisfied the respondents were with their work situation. The instructions given to the respondents for this question were: "Are you satisfied with your job? Please answer the question by writing 5 descriptive words below that indicate whether you are satisfied with your job or not. Try to weigh the strength and the number of words that describe if you are satisfied with your job or not so that they reflect your overall job satisfaction. For example, if you are satisfied with your job then write more and stronger words describing this, and if you are not satisfied with your job then write more and stronger words describing that. Write descriptive words relating to those aspects that are most important and meaningful to you. Write only one descriptive word in each box below." Once again, the respondents could write whichever words they felt were appropriate to answer the question.

The semantic question regarding the individual's thoughts about their job. The purpose of this question was to capture the respondent's subjective view of their work and thus to look at the frequency of positive or negative words in relation to how the individuals think about their work. The instructions given to the respondents for this question were: "What do you think about your job? Use 5 words to describe what you think about when you think about your job. Write one descriptive word in each box below". Once again, the respondents could write whatever words they felt were appropriate to answer the question.

The Satisfaction with Life Scale. The Satisfaction with Life Scale is a measurement of a person's subjective well-being as they judge it themselves concerning the entirety of their lives (Diener et al, 1985). It is a self-response survey and is answered using a Likert rating scale from 1 to 7. The study used SWLS-3, with the first three of the original five items (e.g. "I am satisfied with my life"), because it saves time without the psychometric properties being compromised (Kjell & Diener, 2019).

The SWLS-3 had high item total correlations between .88 to .97, and high internal consistency, with a Cronbach's alpha ranging between .88 to .94 and McDonald's Omega between .88 to .94 (Kjell & Diener, 2019). The test-retest Pearson correlation was strong ranging between .79 to .83. It showed strict invariance across time and gender (Kjell &

Diener, 2019). In this study, the Cronbach's alpha was .92 and the McDonald's omega was .92.

The Harmony in Life Scale. The Harmony in life Scale (HILS) was developed by Kjell, Daukantaité, Hefferon and Sikström as a complement to the Satisfaction with Life Scale. According to Kjell et. al (2016) the Harmony in Life Scale (HILS) puts an emphasis on the individual's flexibility in life and psychological balance. The HILS show a broad construct of harmony that complements the construct of satisfaction in SWLS and together the two scales create a two-factor model of the general populations' cognitive and subjective well-being.

The HILS-3 uses the same rating scale as the SWLS. The study used the HILS-3, with the first three of the original five items (e.g. "My lifestyle allows me to be in harmony"), because it saves time without the psychometric properties being compromised (Kjell & Diener, 2019). The HILS-3 had high item total correlations between .90 to .97, and high internal consistency, with a Cronbach's alpha ranging between 0.90 to 0.96 and McDonald's Omega between 0.90 to 0.96 (Kjell & Diener, 2019). The test-retest Pearson correlation was strong ranging between 0.70 to 0.74. It showed strict invariance across time and gender (Kjell & Diener, 2019). In this study, the Cronbach's alpha was .93 and the McDonald's omega was .93.

Regarding the relevance of utilising HILS in this study, Kjell et. al (2016) revealed that the harmony in life scale has good test-retest reliability, internal consistency, positive correlations with other validated questionnaires and the semantic analyses strengthened the validity of the HILS by demonstrating distinctive links to cognitive well-being. Furthermore, when a hierarchical regression was performed by Kjell et. al (2016) on the HILS, it was revealed that the scale can explain a more unique variance than the SWLS is capable of.

The Generic Job Satisfaction Scale. The Generic Job Satisfaction Scale (Macdonald & MacIntyre, 1997) consists of 10 statements (e.g., "I receive recognition for a job well done") the participants answer using a Likert 5-point scale of strongly agree to strongly disagree. The questionnaire measured participants' reactions to characteristics of their jobs. The Scale had adequate internal consistency with a Cronbach's Alpha reliability of .77. The 10 items of the scale were defined on one factor, measuring one construct, and all items had factor loadings above cut-off of 0.30. No significant difference was found between sexes or occupations, and overall scale means were stable between ages 20 to 60. High satisfaction

was associated with variables such as feeling happy ($r = 0.37$), getting enough sleep and not feeling worn out. In this study, the Cronbach's alpha was .88 and the McDonald's omega was .90.

Control items. For the SWLS-3 and the HILS-3 a control item was added in the survey: "Please answer the alternative "4 neither agree nor disagree" below" on the 1-7 scale. Participants that did not answer correctly were removed from the analyses.

Demographic questions. The survey included no demographic questions in itself since the participants demographic information relevant to the study was automatically included in the dataset as a result of the pre-screening when their Prolific ID was registered in the survey. The demographic information included gender, age, country of birth, country of residence, employment and student status.

Procedure

This study used an online survey to gather information concerning life satisfaction, job satisfaction and harmony in life. In order to create the survey, the multilingual online survey tool LimeSurvey was used. It was chosen because of the ability to randomise the order in which SWLS and HILS appear for each individual, and as such ensure a more valid result from the respondents. The surveylink was then sent to Prolific.co. Prolific sent out an email with the survey to the desired participants in their database, and the study's sample was formed based on who chose to answer the email. It took the participants 6.84 minutes (SD=3.74) on average to complete the study.

The survey consisted of a total of 20 questions, divided into six different sections. The survey began with a consent form, where the respondents received information about the research project, the researchers, and the requirements for participating in the survey. The first section of the survey required the respondent to write their Prolific ID. The second section contained the first semantic question group, including two questions concerning what the respondents believe is important for their job satisfaction as well as their job dissatisfaction. The third section contained the third semantic question regarding the respondent's subjective view/thoughts about their job. The fourth section contained the fourth semantic question, concerning the respondent's personal job satisfaction. The fifth section consisted of a randomised order of the SWLS and HILS, containing six statements. The sixth section consisted of the Job Satisfaction Scale, containing ten statements. The survey then

ended with a debriefing sheet, thanking the respondents again, letting them know of the purpose of the study and the researchers' contact information.

Ethical considerations

In order to accommodate anonymity, voluntariness and informed consent, a consent form was added in the beginning of the survey to inform the participants of the aforementioned. When entering this study's survey, participants were greeted with a message about what the questionnaire would entail. It was also expressed that any participation was completely anonymous, voluntary and the participant was free to disconnect from the survey at any chosen time. It was also made clear in the welcoming message that any information gathered about the participants was altogether anonymous, and it was impossible to determine the participants' identities by their answers, not by the researchers behind the survey nor by readers of future articles based on the survey. Prolific, the chosen platform for gathering participants, also has certain security measures employed so as to protect their members. For instance, Prolific (2018) securely stores data, participants are anonymous by their unique Prolific ID, passwords cannot be accessed, participants are free to withdraw at any time, Prolific follows GDPR and researchers cannot get access to information concerning participants that may be used to identify them. No negative consequences for the participants were predicted from taking part in this study. No sensitive questions were asked in the survey and participants were free to withdraw at any time.

Data processing and data analyses

In this study the significance level was set at $\alpha = .05$. A Cronbach's alpha and McDonald's Omega above .7 was regarded as satisfactory scale reliability. Cronbach's alpha and McDonald's Omega are reliability coefficients measuring internal consistency, that is how a set of items are related. Statistical semantics was used in this study to quantify the word responses. The semantic measures generate higher reliability and validity in comparison to the equivalent rating scales, produce overall good statistical properties, and may be used to complement or broaden the conventional rating scales (Kjell et al., 2018). The study was designed to result in both numerical data and semantic data, which was analysed using Semantic Excel and R-studio respectively. R-studio, and the R team, is a open-source programming language and was used for statistical computing of the study's data (R-studio, 2019). R-studio is an integrated development environment and used for developing statistical

software and data analysis. R-studio was used to calculate the descriptive statistics and correlations of the study's data.

The semantic analyses. In this study a web-based statistical software program called Semantic Excel (SemanticExcel.com; Sikström et al., 2018) was used to analyse the respondents' answers on the semantic questions, and their relationship to the numeric variables. The purpose of Semantic Excel is to enable various statistical analyses of words or texts. Semantic Excel can use datasets with the most commonly used languages from Google N-grams to create semantic representations, which reflects the meaning of the words. These representations can then be used for several different statistical analyses; such as semantic similarity scores, semantic t-tests, semantic-numeric correlations, semantic predictions and lastly word figures. These will be described below (for a more in-depth and detailed description, see Sikström et al., 2018 and Kjell et al., 2018).

The semantic space. Latent semantic analysis (LSA; Landauer and Dumais, 1997) is a method to numerically describe the relationship between and the meaning behind texts and words. The method places all texts in a high-dimensional space, so that conceptually related words are closer to each other in the space than words that are less meaningfully related (Landauer, Foltz & Laham, 1998). LSA includes pre-trained (pre-programmed) semantic spaces, which can be used to analyse the word/text content. The semantic space is a table where words (in rows) are described in numerous dimensions (in columns), the relation of each word to each other is represented by numbers and where each row is a semantic representation (Sikström et al., 2018). A semantic representation can then provide a vector with numbers that describe how a specific word relates to all the other words in the semantic space. Semantic similarity score provides an estimate of the degree to which the words are semantically related by comparing the vectors of two adjacent words in a high-dimensional semantic space (Foltz, Kintsch & Landauer, 1998). The estimate is based on the semantic similarity scores. The meaning and function of a word is defined by its relation to other words in the context, whereas the dimensions of a semantic space are not assigned any specific meaning per se (Landauer & Dumais, 1997). For instance, one can expect to find the word *dog* near the word *puppy* but further away from the word *hundred*. Unlike methods of analysis that only measure similarities between words from different texts, LSAs comparison is also based on semantically similar words such as synonyms, hyponyms, antonyms and

other words that tend to be used in similar contexts (Dumais, 1992). In this study, the semantic space used in Semantic Excel was the so-called English 1.

Semantic similarity scores. The cosine of the angle between two coordinates can be measured, which can range from -1 (no similarity) to 1 (high similarity). Ultimately, the semantic similarity scores are computed and then used to illustrate the similarity in meaning between words or texts.

Semantic t-tests. After examining the semantic similarities between words or texts, it may also be of interest to statistically test whether two sets of words or texts statistically differ in meaning. The semantic t-tests are used for that purpose (Sikström et al., 2018; Kjell et al., 2018). It is a useful way to examine the statistically significant difference between two semantic questions, which is of importance to this study regarding the respondents' answers on their SWL and HIL. The semantic t-tests are performed in three different steps. Firstly, the semantic representations for each condition, for example SWL and HIL, is combined separately and afterwards a semantic comparison representation is produced by subtracting the semantic representations from each other. Secondly, the semantic representations of the answers on each condition and the semantic comparison representation are compared on account of how semantically similar they are, thusly creating semantic comparison scores that can be examined in a t-test. Additionally, a leave-10%-out cross-validation is used in both step one and step two in order to avoid a biased result. In other words, 10% of the respondents' answers are disregarded in step one but utilized in step two. To achieve semantic comparison representation for all answers, semantic similarities must be found, by repeating stage one and two. Lastly, the semantic comparison scores are compared to each other using a semantic t-test, in order to examine if there is a significant difference in meaning between the two sets of texts. This will result in an effect size, a p-value and a z-score, in order to examine whether the meaning of one set of words differs from another set of words (Sikström et al., 2018; Kjell et al., 2018).

Semantic t-test plots. The t-test can then be used to create word figures, or more adequately so-called semantic t-test plots. In short, the z-score of the words are assigned a colour, the frequency of the answers is shown by making the most repeated words larger and the less repeated words smaller and the words in colour are the ones that were significant after Bonferroni correction. These are created to present statistically significant words from the individuals' words and texts responses and similarly to be able to qualitatively explain

which of these words contain the most meaningful aspects. The semantic t-test plots are made with statistics derived from the semantic representations as well as a similar method described above in the steps of the semantic t-test, however here on a word-by-word level (Kjell et al., 2018). In order to create two different groups a plot that is based on an interval scale will be split at the median. Words that appears frequently will have marginally different similarity scores that can result in a standard deviation and a mean that can be compared to the same of all the semantic similarity scores of every word. If a word only appears once, then the meaning of the word is assumedly comparable to the mean of all the other words and if a word has no semantic representation at all then each word is tested using the chi-square test of independence. A t-test is performed to compare the semantic similarity score mean of all the words with each word's semantic similarity score mean and followed up with a Bonferroni correction.

Semantic-numeric correlations. It may also be of interest to statistically inspect the strength of the relationship between a text variable (e.g., word responses) and a numeric variable (e.g., rating scale scores), an analysis referred to as a semantic-numeric correlation (Sikström et al. 2018). This is performed using a cross-validation which will utilize semantic training to acquire predicted values that are correlated to the empirical values, resulting in an approximation of the relationship's strength. The semantic representations are used in a multiple linear regression, where you can correlate the predicted and observed scores.

Semantic predictions. Another interesting feature of Semantic Excel is statistically trained models, which can use the words or texts to predict numerical values (Sikström et al. 2018). It is possible to make your own library of different models, retrieve already existing data sets with pre-made semantic trained models and then apply these to a completely new data set to better predict semantic-psychological features. Subsequently, it is also possible to share these new data sets with other users. ANEW, an acronym for Affective Norms for English Words (ANEW; Bangley & Lang, 1999), is a list of 1031 words that have been given a positive or negative value. It is used to create a trained prediction model for semantic prediction of valence, predicting if the word-answers from the survey are positively or negatively charged in its meaning. The semantic representations of the answers from the semantic questions are used to predict valence scores by multiple regression with a cross-validation of a 10% leave-out. For details see Kjell et al. (2018).

Results

Descriptives of numeric variables

Table 1 displays the descriptive statistics for the numeric variables. All variables produced a skew and kurtosis within ±2, and were thus considered normally distributed.

Table 1.

Descriptive statistics for valence of SS, the GJS, the HILS, the SWLS, and for age.

Variable	Mean	SD	Skew	Kurtosis
Semantic measures				
Personal job satisfaction Bipolar	-0.01	0.11	-0.09	-0.17
Think of job Bipolar	0.00	0.12	-0.09	0.48
Val Personal job satisfaction	5.33	2.19	-0.39	-0.64
Val Think of job	5.73	2.02	-0.43	-0.35
Rating Scales				
GJS	34.36	7.88	-0.4	-0.46
HILS-3	13.47	4.23	-0.6	-0.59
SWLS-3	13.2	4.33	-0.68	-0.46
Demographic				
Age	34.35	9.71	0.92	0.14

Note. N = 240

HILS-3 = Harmony in Life Scale; SWLS-3 = Satisfaction with Life Scale; GJS = General Job Satisfaction Scale; Val = Predicted valence; SS = semantic similarity score; Bipolar = Bipolar semantic similarity scale.

Individuals' Descriptions of Job Satisfaction

Figure 1 demonstrates descriptive words significantly differentiating between Job satisfaction and Job dissatisfaction. The most frequently used words for job satisfaction were *money* and *flexibility*. Other common words were *pay, salary, rewards, benefits* and *promotion* creating a theme that the most important aspect of job satisfaction is extrinsic work rewards. Another emerging theme is social aspects: *colleagues, friends, team, teamwork, support, social, helping* and *cooperation* indicates the importance of the people

one works with for job satisfaction and has more to do with intrinsic work values. Also words mentioned like *enjoyment, interest* and *learning* has to do with intrinsic work values. The most frequently used words for job dissatisfaction were boredom and stress. Boredom is complemented by the words *monotony, boring, repetitive* and *stagnation* creating a theme of tediousness and lack of interest in the work dissuading job satisfaction. Along with stress comes words such as *deadlines, overworked, pressure* and *workload* creating a theme of mental pressure thwarting job satisfaction. The t-test the figure was based on was significant $(t(2630)=46.48, p<.001)$.

Figure 1 Job (dis)satisfaction. The left side demonstrates words participants answered are important for job dissatisfaction. 203 were significant after Bonferroni correction. The job high satisfaction on the right side showed 170 significant words after Bonferroni correction.

Table 2 shows the semantic-numeric correlation between Job Satisfaction word responses and rating scales and Job Dissatisfaction word responses and rating scales. Word responses of Job satisfaction and Job dissatisfaction did not significantly predict the rating scales after Bonferroni correction for multiple comparisons (see Table 2). Overall, the results suggest that people have a similar view of job satisfaction and dissatisfaction independent of rating scale scores or demographics. What the participants answered in the scales and what

they answered in the semantic questions lacks parallel, and as such the semantic questions relating to view of job satisfaction does not predict GJS or subjective well-being according to SWLS and HILS.

Table 2.

Semantic-numeric correlation between the word responses of Job Satisfaction and Dissatisfaction and the rating scales

Numeric Variables	Job satisfaction word responses		Job dissatisfaction word responses	
	r	*p*	*r*	*p*
HILS-3	.06	.191	-.02	.633
SWLS-3	.05	.226	.04	.282
GJS	-.06	.800	-.10	.939
Age	.01	.447	.13	.022*
Gender	.03	.332	-.07	.858

Note. N=240

HILS-3 = Harmony in Life Scale; SWLS-3 = Satisfaction with Life Scale; GJS = General Job Satisfaction Scale. * = Significant without Bonferroni correction for multiple comparisons; ** = Significant after Bonferroni correction for multiple comparisons.

Measuring and Describing Personal Job Satisfaction

Table 3 shows the correlations between numeric scales, age, semantic similarity scores between personal job satisfaction word-responses and think of job word-responses, and predicted valence from words for the semantic questions think of job with personal job satisfaction, both standard and bipolar. The most important discovery was the possibility to measure job satisfaction with SS bipolar. With the strong significant correlation between the validated scale GJS and valence for job satisfaction, it was made possible to measure job satisfaction with words from the semantic questions without using numeric scales. A bipolar

scale norm then creates a bipolar semantic similarity scale: the Personal Job Satisfaction Bipolar Scale. The scale is the semantic similarity between Personal job satisfaction word responses and the job satisfaction word norm (i.e., the words all respondents used to describe job satisfaction) minus the semantic similarity between Personal job satisfaction word responses and the job dissatisfaction word norm (i.e., the words all respondents used to describe job dissatisfaction). Personal job satisfaction valence is the predicted ANEW valence score based on the individuals' Personal job satisfaction words. Correlations between the GJS and all other scales were significant (expect age) and the semantic questions think of job and personal job satisfaction (Personal job satisfaction bipolar: .55, Think of job bipolar: .51, Personal job satisfaction: .55. Think of job: .58, HILS-3: .57, SWLS-3: .61), and the Think of job valence score and Personal satisfaction valance score correlated significantly with the scales and the other of the two semantic questions. The correlation between the HILS-3 and the SWLS-3 ($r = .78$) was strong. The correlations between the HILS-3 and the GJS ($r = .57$, $p < .001$) and the SWLS-3 and the GJS ($r = .61$, $p < .001$) were also strong, indicating a relationship between job satisfaction, harmony in life and life satisfaction. Personal job satisfaction correlated higher with SWLS than with HILS.

Table 3.
Correlation of semantic similarity scores with the Scales and Age.

	1	2	3	4	5	6	7	8
1. GJS	-							
2. Pers.job.sat SS Bipolar	.55***	-						
3. Th.job SS Bipolar	.51***	.49***	-					
4. Val Pers.job.sat	.55***	.71***	.51***	-				
5. Val Th.job	.58***	.47***	.78***	.60***	-			
6. HILS-3	.57***	.39***	.35***	.38***	.40***	-		
7. SWLS-3	.61***	.42***	.38***	.41***	.40***	.78***	-	
8. Age	.02	.04	.08	-.01	-.03	-.02	-.06	-

Note. N = 240. * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.
HILS-3 = Harmony in Life Scale; SWLS-3 = Satisfaction with Life Scale; GJS = General Job Satisfaction Scale.
Valence = Predicted Valence; SS Bipolar = Bipolar semantic similarity scale; Pers.Job.Sat = Personal job satisfaction; Th.job = Think of job.

Figure 2 illustrates a word plot based on the words participants answered to describe their personal job satisfaction. The most common word for describing personal job satisfaction was *happy* and the second most common word was *rewarding*. Other words such as *interesting, satisfied* and *fun* creates an emerging theme of internal fulfillment. It needs to be entertaining and satisfying in a job to create job satisfaction. More negative words mentioned were *bored, stressful, tired, pressure, boring, unsatisfied* and *slow*. This creates two themes: boredom being one where things are slow, boring and employees unsatisfied because their skills are not put to good use. The second theme is stressful because it puts pressure on the employees, tires them out and makes them feel overworked. The t-test that the figure was based on was significant (t(2290) = 44.15, *p*<.001).

Figure 3 illustrates a word plot with two dimensions, the Personal Job Satisfaction Bipolar Scale arranged along the Job satisfaction scale (GJS). It shows color-coded data-points that significantly discriminate between the text data associated with the low and high values of the scale. The t-test that the figure was based on was significant (t(1290)=21.47, *p*<.001). The value on the GJS and the Personal job satisfaction bipolar correlates (*r* = .85, *p*<.001).

Figure 2 Described personal job satisfaction. Of a total of 598 unique words, 199 were significant after Bonferroni correction. The number of plotted words has been limited to 100.

Figure 3 Personal job satisfaction plotted according to the bipolar scale and the GJS. The number of plotted words has been limited to 25. The x-axis represents the job satisfaction scale [r =.38,p<.001] and of a total of 598 unique words, 164 were significant after Bonferroni correction. The y-axis represents personal job satisfaction bipolar.

Table 4 presents the semantic-correlation between the rating scales and personal job satisfaction. A moderate correlation was found between personal job satisfaction and the Generic Job satisfaction Scale (*r* =.48), as was expected since there should be a small difference between a personal description of one's job satisfaction and a numeric scale measuring personal job satisfaction. For all the numeric scales, the HILS-3, the SWLS-3 and the GJS, a low correlation was found but significant results were evident for personal job satisfaction (HILS-3: p <.001, SWLS-3: p <.001, GJS: p<.001), demonstrating that a person's job satisfaction can predict their score on the HILS-3, the SWLS-3 and the GJS, indicating a relationship between job satisfaction and satisfaction with life as well as harmony in life.

Table 4

Semantic-correlation between the Scales and personal job satisfaction

	Personal Job satisfaction r	Personal Job satisfaction p
GJS	.48	<.001**
HILS-3	.22	< .001**
SWLS-3	.21	<.001**
Age	-.12	.971
Gender	-.00	.511

Note. N=240, * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

HILS-3 = Harmony in Life Scale; SWLS-3 = Satisfaction with Life Scale; GJS = General Job

Satisfaction Scale; r = Item correlation; p = Probability.

How individuals think of their job and how it relates to their job satisfaction and well-being

For correlation between think of job and scales see table 3. The correlation between semantic similarity scores for think of job bipolar scale and the HILS ($r = .35$) and the SWLS ($r = .38$), were moderate as it was for the Think of job valence score and the HILS ($r = .40$) and the SWLS ($r = .40$). The Think of job bipolar scale is the semantic similarity between the Think of job words and the Job satisfaction word norm minus the semantic similarity between the Think of job words and the Job dissatisfaction word norm. A strong correlation was found between the GJS and both valence for think of job ($r = .58$) and semantic similarity scores for think of job bipolar ($r = .51$) indicating the relationship between job satisfaction and how an individual view their job. Predicted valence for the personal job satisfaction and predicted valence for the think about one's job was strong ($r = .60$, $p<.001$), which in effect means that what a person thinks about their job is associated with their personal job satisfaction.

Figure 4 illustrates a word plot based on the words the participants answered that they think about when they think about their job. The data is compared to the frequency of how words are generally used in the semantic space. The most common words the participants thought about concerning their job that were positive were *challenging, rewarding, interesting* and *fun*. This illustrates a theme of internal fulfillment, where intrinsic work rewards are central when thinking about one's job: it needs to mentally satisfy the employee.

It has to be amusing and engaging, there needs to be resistance and opposition the employee gets to work against so the victory of a job well done tastes all the sweeter. At the finish line, a compensation is provided for the hard work. These are all intrinsic, and there is no mention of money or other extrinsic rewards. Common words with a more negative connotation are *stressful, boring, hard, tiring* and *difficult* and also words like *dull* and *hectic* creating two emerging themes: one is stressful where the work is hard and stressful with much going on which tires the employee, and the other is boredom where nothing happens and the work becomes dull and the employee does not get to vitalize their talents. The t-test that the figure was based on was significant (t (2198) = 49.21, *p*<.001).

Figure 4 Think of job. Of a total of 529 unique words, 159 were significant after Bonferroni correction.

Discussion

With a focus on working life and the connection it has to private life, we wanted with this study to find out just how much the two components are connected, and how they relate to one another. Primarily we desired to examine how individuals describe their jobs, what words they use, and how it is linked to life satisfaction, harmony in life and job satisfaction. Therefore, a set of aims and hypotheses were established to explore the topic of interest.

How individuals describe their job satisfaction and dissatisfaction

The descriptions of one's job (dis)satisfaction constituted the first aim of the study because we were interested in finding out what individuals find relevant in their working lives for their well-being, not only what scales told us was important. Hypothesis 1a predicted that the participants would use words such as *money*, *success* and *cooperation* to describe job satisfaction whereas they would describe job dissatisfaction with words relating to *stress* and *hostility*. The words that the participants used to describe their job satisfaction and their job dissatisfaction were similar to the ones predicted in hypothesis 1a, meaning that it gained support. The most common words when describing important aspects for job satisfaction were for example *money, pay* and *salary* which creates a theme of extrinsic work rewards, and are all typical for satisfaction with life as can be seen in Kjells et al. (2016) study. In the study, word clouds were presented which illustrated words most associated with life satisfaction, and those most associated with the pursuit of harmony. Our participants' income-answers concerning job satisfaction fits in on Kjells et al. (2016) word cloud for satisfaction where we find similar words such as money. Apart from these answers, the most common words for job satisfaction were *colleagues, team* and *teamwork* that creates a theme of social aspects being the most important for job satisfaction. They fit in more on the harmony word cloud in Kjells et al. (2016) study. Here we find similar words such as *friendship, brotherhood, together* and *cooperation*. In conclusion it can be argued that what a person thinks is important for job satisfaction can be divided into categories, among them harmony and satisfaction, which supports the notion of previous research that life satisfaction is connected to job satisfaction, but it also answers our research question that there is a connection between harmony in life and job satisfaction.

For dissatisfaction the words *boredom, stress,* and *hours* were some of the most commonly used. *Boredom* and *stress* being the most common words for job dissatisfaction is

interesting since they are opposites of one another - meaning a balance between much to do and little to do is important. This relates to another word used as important for job dissatisfaction: *hours*. Long hours at work leads to fewer hours at home and creates a work-family conflict that in itself decreases life satisfaction. Erdamar and Demirel (2016) shows us their negative correlations between job satisfaction and work-family conflict, and life satisfaction with work-family conflict, upsetting the balance between work and private life. Cazan et al. (2019) also illustrate how as the work-family increases, job and life satisfaction decreases. A sense of harmony between the two is needed according to Hughes (2007). Edralin (2013) also support the importance of having a work-life balance, discussing the negative spillover effects of work onto private life such as taking the work home, stress, and work interfering with the social life. Other words found in the word plots were *inflexibility* as important for job dissatisfaction and *flexibility* for job satisfaction and this pinpoints what is said above: there exists a need for harmony between work and life, an opportunity for flexibility making it possible for the individual to combine the two components into a working system, so as not to ebb the life satisfaction.

Hypothesis 1b predicted that these descriptions would relate to their age, well-being using HILS and SWLS, and personal job satisfaction. Word responses of Job satisfaction and Job dissatisfaction did not significantly predict the rating scales. Overall, the results suggested that people have a similar view of job satisfaction independent of rating scale scores or demographic variables. What the participants answered in the scales and what they answered in the semantic questions lacked parallel, and as such the semantic questions relating to view of job satisfaction does not predict GJS or subjective well-being according to SWLS and HILS.

An instrument to measure and describe personal job satisfaction with open-ended words

Developing an instrument to measure and describe personal job satisfaction was the second aim of this study. Hypothesis 2a predicted that the Personal Job Satisfaction Bipolar Scale correlates positively with rating scales measuring job satisfaction and Harmony in Life and Satisfaction with Life. Hypothesis 2b predicted that the word-responses individuals would use would predict rating scales. The semantic-numeric correlations between personal job satisfaction and HILS and SWLS was low, however the predicted value for personal

satisfaction and the three scales was significant, and the Personal Job Satisfaction Bipolar Scale correlated positively with the three scales giving support to hypotheses 2a and 2b.

The strongest semantic-numeric correlation between the scales and semantic questions was found between the personal job satisfaction question and the Generic Job satisfaction Scale. This was anticipated due to the expected lack of individual differences within a participant between a numeric scale measuring their job satisfaction, and when they measure their job satisfaction with their own words. The correlation between Personal Job Satisfaction Bipolar Scale and GJS, and personal job satisfaction valence score and the Generic Job satisfaction Scale was as high as .55. What this means is that we can measure job satisfaction from only words-responses without using rating scales. This creates a bipolar norm and is a completely new way to measure job satisfaction. This new measurement further correlates strongly with a validated numeric scale, i.e. the Generic Job satisfaction Scale. Thus, our second aim in the study is fulfilled.

Hypothesis 2c predicted that individuals' descriptions of their personal job satisfaction would relate to words such as *rewarding* and *fulfilled*. The themes that emerged from personal job satisfaction were internal fulfillment when the words were positive, and when the words were negative the themes became stressful and boredom. The most frequently used words when you are low on both the personal job satisfaction and job satisfaction scale were *boring* and *unhappy*. When high on both personal satisfaction and job satisfaction scale the words most frequently used were *happy* and *rewarding*. We thus gained support for hypothesis 2c, that descriptions of job satisfaction would relate to words such as *rewarding*. The most common words used to describe one's personal job satisfaction was *happy* and *rewarding*. The second most common words were *challenging* and *interesting* - these are all to do with internal fulfillment, and intrinsic work values and rewards (Chow et al., 2017) , and money was not ranked as high for our participants' job satisfaction. This is an interesting result as we expected financial aspects to be if not the most important than very central for their job satisfaction based on Kjells et al. study (2016). When they described what was important for their job satisfaction in relation to dissatisfaction *pay* was very prominent but when the participants described their actual job satisfaction, income was an inconspicuous element. Our study indicating that intrinsic work values may be more important than extrinsic work values such as money, is supported by Chow's et al. (2017) study. The study's result showed that intrinsic values such as interest, autonomy and

accomplishment at a young age was associated with intrinsic work rewards which in turn predicted career and life satisfaction in middle age, whereas extrinsic work values such as salary was not as important for career and life satisfaction. This means that a person's life satisfaction is connected to their job as we thought and has already seen evidence of, but the central aspects of that job for life satisfaction are those that makes a person feel good and stimulated on the inside, not fulfilling needs on the outside.

How individuals think about their job in relation to job and well-being

This forms the last aim. The third hypothesis predicted that how individuals think about their job relates to their level of job satisfaction and subjective well-being. The predicted value for think about their job question and the three scales was significant, and the semantic similarity scores for think about job question correlated positively with the three scales giving support to hypothesis 3. Furthermore, there was a significant correlation between the predicted valence for the think about one's job question and the personal job satisfaction question. This boils down to the possibility that a person may view their job in a more favourable light if they have harmony in their lives, satisfaction with their lives and satisfaction in their jobs.

We had hypotheses based on previous research about the connection between satisfaction with life and job satisfaction and that formed the basis for this study. This could be seen in Lambert's et al. (2018) study where job satisfaction had the strongest prediction value of life satisfaction. The same correlation was found in Baranauskiene's et al. (2010) study, but here they directly correlated different aspects of the job with life satisfaction, being able to see the direct decrease or increase in life satisfaction based on work tasks. Here they also made a strong connection between life satisfaction and harmony in life in relation to the job tasks: the more meaning the tasks were given, the more life satisfaction. In our study we similarly can see that satisfaction with life and harmony in life had a strong correlation, and also that harmony in life and satisfaction with life had a strong correlation with job satisfaction. As such job satisfaction affects life satisfaction, but also the mere presence of a job may increase life satisfaction. Panwar and Srivastava (2019) state in their study, comparing working women with housewives, that women in jobs have more life satisfaction. This is thought to be because of the intrinsic and extrinsic work rewards that come with a job, such as economic security, talent recognition and experiencing dignity and equality which

improves their overall well-being. Not being involved in work roles decreases life satisfaction according to Michaels et al. (1988) supporting Panwar and Srivastava's point that work is a crucial aspect in creating one's happiness. Hence, work is important for a person's subjective well-being. This can be observed in our study by the strong correlations between HILS and GJS, and SWLS and GJS. Furthermore, the study's semantic questions what a person thinks of their job and their personal job satisfaction in words forms a person's view of their job and this correlates highly with the Harmony In Life Scale and Satisfaction With Life Scale giving an indication that a person's view of their job relates to subjective well-being.

Strengths and limitations

A limitation of this study is that we only used self-reporting measures on the job satisfaction construct, the GJS and the semantic question about the participants' own job satisfaction, and not objective measures. Objective measures are those without personal influence, such as time or number of occasions something happens in the field we are investigating, not the participants' own ratings and estimations. As we are exclusively studying the participants' own words of their satisfaction, we cannot know for sure if what they are saying is the case. We could have used measures such as sick leave or salary as a yardstick for job satisfaction as a complement, where we would have relied on unbiased data. A strength of our approach however is that we get a more descriptive and in-depth account of job satisfaction in comparison to only using a numeric job satisfaction scale.

Another limitation is the possibility of a directional problem being evident here: does one's SWB in life based on the numeric scales used here cause the view of the work and job satisfaction, *or* does one's job satisfaction and thus view of one's work cause the SWB in life? In other words, is it work affecting private life or life affecting work? Perhaps the Third Variable Problem is relevant here as well which threatens the internal validity of the study: does life satisfaction cause job satisfaction, or vice versa, or is there a third variable causing both job and life satisfaction? We do not know which other variables are affecting the study, such as attitude causing the level of life satisfaction and job satisfaction as opposed to the latter two components affecting each other which is our study's assumption that job impacts well-being. Many people may have similar lives and jobs and thus should score similarly on HILS, SWLS and GJS and share the same view of their job. But maybe a person who is more positive and optimistic will grade their HILS and SWLS higher and thus have a higher SWB,

and perhaps have a more positive perspective on their job and score higher on GJS, compared to a pessimistic person who sees the glass as half-empty and is not as easily satisfied with their lives and jobs as the more positive person is. Maybe the differences between the participants in this study are the differences that separate those with a positive and those with a negative outlook on life? For example, Hagmaier et al. (2017) used a top-down approach so they examined how life satisfaction affects how participants experience their work and not how work affects life satisfaction. The result supported this approach, thus a person with higher life satisfaction viewed their work and career in a more positive light (Ballout, 2008) - resulting in the conclusion that a person's positive or negative perspective on life can affect how they rank their life satisfaction and think about their job.

Many of the correlations between the rating scales and semantic questions were around .4 (see results) which according to Cohen's (1988) effect size is moderate. Perhaps with a bigger sample the correlation size would have been bigger. The total reliability of the study can be increased by repeating the study with other samples, and also examining test-retest reliability of our open-ended semantic measure.

Future research

A vital finding of the study and a surprising result is that this study has developed a way to measure and describe job satisfaction. As previously mentioned, job satisfaction can hence be measured entirely with word responses and without the use of rating scales. It would be interesting to further validate this new measurement with other methods and with only rating scales. In future research you could use objective measures such as sick leave or salary so as to have unbiased data to complement word-responses. Perhaps the new measurement can be applied to other psychological constructs, examining them in a likewise manner to see whether or not they can be measured with word responses and not rating scales as well.

Another example of future research would be to repeat the study using other samples to do a test-retest on our semantic measure of personal job satisfaction and see if it measures job satisfaction as substantially as our study did, if results differ and in that case why that is.

Lastly, a future research could be to complement the lack of objective measurements. A future research might be to compare rating scales of job satisfaction with our semantic measure of personal job satisfaction in relation to for example salary, sick leave etc. which is objective measures.

Conclusions

The discovery that semantic similarity bipolar can measure job satisfaction independent of rating scales appears to be the most intriguing conclusion of this study. Further, the study gives an overall indication that a person's view of their work is connected to their subjective well-being. Another conclusion is that Personal job satisfaction has a stronger correlation to The Satisfaction with Life Scale than the Harmony in Life Scale, and as such satisfaction with life seems to relate more to job satisfaction than what harmony in life does.

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Appendix
Survey

* Please enter your Prolific ID:

[   ]

Below are questions concerning what you believe is important for your job satisfaction.

*
What creates job satisfaction for you?
Please answer with five descriptive words what you believe creates satisfaction in your job.
Write only <u>one</u> word in each box below.

Word 1	[ ]
Word 2	[ ]
Word 3	[ ]
Word 4	[ ]
Word 5	[ ]

*
What creates job <u>dissatisfaction</u> for you?
Please answer with five descriptive words what you believe creates dissatisfaction in your job.
Write only <u>one</u> word in each box below.

Word 1	[ ]
Word 2	[ ]
Word 3	[ ]
Word 4	[ ]
Word 5	[ ]

Below is a question concerning your thoughts about your job. Describe these thoughts with your own words, using one descriptive word in each box.

*
What do you think about your job?
Use 5 words to describe what you think about when you think about your job.
Write <u>one</u> descriptive word in each box below.

Word 1	[ ]
Word 2	[ ]
Word 3	[ ]
Word 4	[ ]
Word 5	[ ]

Below is a question concerning your satisfaction with your job. Describe your level of satisfaction with your own words, using one descriptive word in each box.

*

Are you satisfied with your job?
Please answer the question by writing 5 descriptive words below that indicate whether you are satisfied with your job or not. Try to weigh the strength and the number of words that describe if you are satisfied with your job or not so that they reflect your overall job satisfaction. For example, if you are satisfied with your job then write more and stronger words describing this, and if you are not satisfied with your job then write more and stronger words describing that.
Write descriptive words relating to those aspects that are most important and meaningful to you.
Write only one descriptive word in each box below.

Word 1 [   ]
Word 2 [   ]
Word 3 [   ]
Word 4 [   ]
Word 5 [   ]

[Resume later]   [Next ▸]   [Exit and clear survey]

Below are six statements with which you may agree or disagree. Using the 1-7 scales below, indicate your agreement with each statement.
Please be open and honest in your responding.

* My lifestyle allows me to be in harmony

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* Most aspects of my life are in balance

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* I am in harmony

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* In most ways my life is close to my ideal

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* The conditions of my life are excellent

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* I am satisfied with my life

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

* Please answer the alternative "4 neither agree nor disagree" below

○	○	○	○	○	○	○
1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree

Resume later | Next ▸ | Exit and clear survey

Below are ten statements with which you may agree or disagree.
Using the 1-5 scales below, indicate your agreement with each statement. Please be open and honest in your responding.

* **I receive recognition for a job well done.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I feel close to the people at work.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I feel good about working at this company.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I feel secure about my job.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I believe management is concerned about me.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **On the whole, I believe work is good for my physical health.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **My wages are good.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **All my talents and skills are used at work.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I get along with my supervisors.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

* **I feel good about my job.**

○	○	○	○	○
1	2	3	4	5
Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree

Resume later   Submit   Exit and clear survey