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RESEARCH PAPER

The Application of Signature Character Strengths and Positive Experiences at Work

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Abstract We hypothesized that the amount of positive experiences at work (job satisfaction, pleasure, engagement, meaning) is a function of the extent to which the situational circumstances at the workplace allow for the application of an individual's signature character strengths. For the description of the individual a reliable and valid instrument already exists, but not for the environment. Hence, the newly developed Applicability of Character Strengths Rating Scales (ACS-RS) with information on its reliability and validity were also presented. A sample of 1,111 adults filled in the ACS-RS and measures for possession of character strengths and positive experiences at work. The ACS-RS was reliable by means of internal consistency and inter-rater reliability. It proved to be valid in several ways being sensitive to: (a) the differences in the applicability of trait-relevant behavior in formal versus informal situations by showing higher applicability of the character strengths in the latter; (b) the differences between traits regarding their applicability across situations; (c) people's disposition to choose situations fitting their dispositions by showing positive relationships between the degree of possession and applicability. Moreover, correlations between applicability of strengths and positive experiences increased with the individual centrality of the strengths. The more signature strengths were applied at the workplace, the higher the positive experiences at work. This study showed that character strengths matter in vocational environments irrespective of their content. Strengths-congruent activities at the workplace are important for positive experiences at work like job satisfaction and experiencing pleasure, engagement, and meaning fostered by one's job.

Keywords Character strengths · Signature strengths · Job satisfaction · Positive experiences

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1 Introduction

Psychology has long focused on pathology and the development of treatments for various disorders. In contrast, the main focus of *positive psychology* is on what makes our lives most worth living (Seligman and Csikszentmihalyi 2000). Three topics are at the center of positive psychology: (a) positive subjective experiences (e.g., happiness or satisfaction); (b) positive individual traits (e.g., character strengths or talents); and (c) positive institutions (e.g., families or workplaces) (Peterson 2006; Seligman and Csikszentmihalyi 2000). Positive institutions should enable the display of positive traits, like character strengths, which in turn foster positive experiences (Peterson 2006). The work environment is seen as one of the natural environments for positive psychology (Park and Peterson 2007). Therefore, the paper addresses the relationships between the application of character strengths at work and positive experiences at work.

1.1 Character Strengths

Peterson and Seligman (2004) introduced the Values in Action (VIA) classification of strengths to describe the good character as an important instance of optimal human functioning. Character strengths represent the components of the good character as measurable positive individual differences that exist as continua and not as categories (McGrath et al. 2010). The VIA classification describes 24 character strengths. Cognitive strengths like creativity, curiosity, judgment, love of learning, and perspective entail the acquisition and use of knowledge. Emotional strengths like bravery, perseverance, honesty, and zest involve the exercise of will to accomplish goals in the face of external or internal opposition. Interpersonal strengths like capacity to love and be loved (short: love), kindness, and social intelligence involve "tending and befriending" others. Civic strengths like teamwork, fairness, and leadership underlie healthy community life. Strengths protecting against excess are forgiveness, modesty, prudence, and self-regulation. Strengths of transcendence are appreciation of beauty and excellence (short: beauty), gratitude, hope, humor, and religiousness.

The character strengths can be ranked for each individual with respect to how central they are to the individual. Peterson and Seligman (2004, p. 18) stipulate that most people have between three and seven core or "signature" strengths. Signature strengths are the ones "[…] that a person owns, celebrates, and frequently exercises". Several studies highlighted that the application of individual signature strengths is related to overall positive experiences like life satisfaction, well-being, and meaning in life (e.g., Littman-Ovadia and Steger 2010; Proctor et al. 2011; Seligman et al. 2005; Wood et al. 2011). Such findings suggest that positive experiences in the work environment would be fostered when the individual signature strengths are applied at work.

1.2 Application of Signature Strengths and Positive Experiences at Work

Positive experiences are manifold. The focus of the present paper was on satisfaction and happiness at work. *Satisfaction* with life is defined as a global, cognitive assessment of the quality of life (Diener et al. 1985). More specifically, job satisfaction, or the domain satisfaction relating to work (Diener et al. 1999), was of interest in this study. According to Peterson et al. (2005b), pleasure (hedonism), engagement (flow), and meaning (eudaemonia) comprise three separate, yet related routes of life to obtain happiness. Furthermore, the use of the individual strengths is thought to facilitate engagement and meaning.

Engagement can be reached by using one's strengths (Seligman 2002) and leads to more flow—the state of mind when being absorbed by an engaging activity that matches an individual's abilities (Csikszentmihalyi 1990). Identifying one's character strengths, cultivating them and living in accordance with them to achieve a higher purpose leads to meaning. Accordingly, work allows for engagement and meaning when individual character strengths can be used to perform the work tasks.

In line with this theory, the deployment of character strengths at work relates to job satisfaction and meaning at work (Littman-Ovadia and Steger 2010). This relationship has not been studied so far with respect to pleasure and engagement. However, Park and Peterson (2007) reported that people most appreciated a job congruent with their signature strengths. Consequently, there are hints that the application of individual signature strengths might indeed be related to positive experiences at work (i.e., job satisfaction as well as pleasure, engagement, and meaning at work).

However, the *application* of a character strength depends on two conditions. *Firstly* (like for every trait; cf., Fishbein and Ajzen 2010; Saucier et al. 2007), an individual needs to *possess the strength* to a certain degree to be able to show strength-related behavior (i.e., apply it).[1] The Values in Action Inventory of Strengths (VIA-IS; Peterson et al. 2005a) is the standard measure for the possession of character strengths in adults. A variety of studies demonstrate its reliability and validity (e.g., Huta and Hawley 2010; Peterson et al. 2005a; Shimai et al. 2006).

Secondly, situational circumstances (e.g., at the workplace or in private life) need to allow or call for the demonstration of a strength, as trait-related behavior needs conducive circumstances to be displayed (Saucier et al. 2007; Ten Berge and De Raad 1999). Formal situations like the workplace might not always encourage behavior that suits an individual's trait pattern (Ten Berge and De Raad 1999). For example, norms given by the job description, supervisors or co-workers restrict the range of suitable behaviors. Therefore, the *applicability* of a given character strength may be defined as the degree to which situational circumstances allow an individual to display strengths-relevant behavior. Until now, there was no sophisticated instrument measuring the situational circumstances regarding character strengths-related behavior in a certain environment independent from the degree of the individual possession of a strength. Therefore, the present study was in a first step aimed at examining a new measure of the degree of applicability of character strengths prior to further studying the role of the application of character strengths in positive experiences at work.

1.3 Measuring the Applicability of Character Strengths

The situational circumstances (e.g., at the workplace or in private life) can be both external, relating to environmental aspects mainly independent of the individual, and internal, relating more to the individual's perception of the environment (cf., Saucier et al. 2007). The Applicability of Character Strengths Rating Scales (ACS-RS) measures two external and two internal influences perceived by the individual for each of the 24 character strengths. The two *external* influences are (a) the normative demands of a situation and (b) the appropriateness of certain behavior within a given situation. The two *internal*

[1] As it is the case for personality assessment in general, character strengths as personality traits are theoretical constructs and it is not possible to possess or apply them technically speaking. Nevertheless, one can endorse statements relating to the character strengths.

influences are (c) the perceived presence of factors that may facilitate or impede a behavior like time pressure and (d) the intrinsic motivation to show a certain behavior. Three out of the four influences (a–c) were based on suggestions of Fishbein and Ajzen (2010) regarding the influences on actual human social behavior. As highlighted by Fishbein and Ajzen (2010) in their reasoned action model, (a) *normative beliefs* refer to the perceived behavioral expectations of important referent individuals or groups, such as the supervisor and coworkers, as well as the formal job description. Items should therefore assess the strength of norms regarding the behavior of interest (i.e., "it is demanded" in the job description and/or within the team). Furthermore, Fishbein and Ajzen emphasize the role of (b) *behavioral beliefs* that the behavior of interest leads to expected outcomes. Items should therefore assess the degree of appropriateness of the behavior of interest (i.e., "it is helpful" for managing the job tasks). Finally, Fishbein and Ajzen emphasized (c) *control beliefs* defined as the perceived presence of factors that may facilitate or impede a behavior (e.g., perceived time pressure would impede behavior). Items should therefore assess the degree of control and confidence to perform certain behavior (i.e., "I do it"). We added a fourth aspect namely (d) the motivation to behave in a certain way in a certain environment, because the expression of traits also depends on individual motives (Ten Berge and De Raad 1999). Items should therefore ask for the individuals' evaluation of the relative importance of the behavior of interest (i.e., "it is important for me" to behave in line with the behavior of interest). The ACS-RS assesses the applicability of the character strengths as the individually perceived frequency (never to [almost] always) to which those four influences allow for the display of strengths-relevant behavior in a certain environment (here: work and private life).

These four ratings might be highly similar within a specific job. However, examples can be imagined where the ratings do not necessarily highly correspond with each other. For example, a nurse's job description entails many comments about hygiene, but less about kindness. Thus, job demands are rather low regarding kind behavior. However, a nurse might realize that caring for patients is easier when being kind to them and, therefore, kind behavior is helpful. Furthermore, a nurse might regard kind behavior as very important because she likes to treat people the way she would like to be treated by others. However, the workload of nurses is very high, which impedes kind interactions.

It might be more parsimonious to ask for the use of strengths in general (Wood et al. 2011) or utilize single-item measures for the frequency of application of each of the character strengths (Littman-Ovadia and Steger 2010). However, those approaches do not allow for the discrimination of the various influences on actual behavior (i.e., the degree of possession as well as the four aspects of applicability) influencing the application of character strengths.

1.4 The Present Study

The present study primarily aimed at investigating the role of the application of the individual character strengths at work in reporting positive experiences at work, namely job satisfaction as well as pleasure, engagement, and meaning. We expected the application of the individual signature strengths to be positively correlated with positive experiences at work. The degree of congruence between a person and his/her job might increase with the number of signature strengths that one can apply at work and with the extent to which one can do so. Therefore, three hypotheses on the role of the application of signature strengths for positive experiences at work were derived. (a) The degree of applicability of the strengths and the amount of positive experiences are related to each other. (b) The

correlation coefficients increase with the rank of the strengths (irrespective of the nature of the strengths). They are highest for the signature strengths (ranks 1–7) and lower for the strengths ranked lowest (ranks 8–24) for an individual. (c) There is a "satiation point" for the number of applied signature strengths. This satiation point may be expected to be located between three and seven strengths. We expect, the use of two rather than one signature strength would increase positive experience at work but the increment of predictive validity of any further signature strength would be consecutively lower, reaching a plateau past the hypothesized number of signature strengths.

Prior the examination of the hypotheses, the measure assessing the applicability of character strengths in work life and private life, namely the ACS-RS, was examined to study its usability. Of special interest were the descriptive statistics of the 24 scales (total scores of the four ratings for the applicability of each strength), their internal consistencies as indicators of homogeneity of the four ratings for each of the character strengths, and the interrater reliability. We expected that different persons rating (their perceptions of) the external influences (i.e., normative demands and appropriateness) within the same environment would agree in their judgments. We expected the 24 scales of the ACS-RS to be separate yet related, and therefore, intercorrelations of the 24 scales were examined. Non-redundancy was assumed if correlation coefficients were below internal consistencies.

Furthermore, this study examined the following four groups of theory-driven hypotheses as indicators for the validity of the ACS-RS. (1) Peterson and Seligman (2004; p. 23) highlighted that some strengths are tonic (i.e., show themselves "steadily in a variety of settings" like humor and kindness) while others are phasic (i.e., "comes and goes because it is relevant only in settings that afford it" like bravery). Generally, we assume that tonic strengths are more often applicable than phasic strengths (i.e., mean differences in the applicability scores). For example, strengths of humanity are relevant in interactive situations that emerge relatively often, while bravery needs a more specific situation of threat, like standing up for someone who is excluded from a group. (2) According to Ten Berge and De Raad (1999), functions and roles of individuals within a given context are important for actual behavior as well. The workplace as a formal situation is more restricted in roles and functions than the private life as an informal situation. Therefore, we expect that applicability of character strengths at work is smaller in magnitude than in private life. (3) We expect differential enabling or disabling situational conditions regarding the character strengths at work compared to private life, as different situations are more appropriate for the display of different traits (cf., Ten Berge and De Raad 1999). For example, the character strength of leadership may be more applicable at the workplace. Religiousness (except for job groups like priests and nuns) and love seem to be more private and therefore, may be more applicable in private life. (4) People tend to choose environments fitting their dispositions (Caspi and Herbener 1990). Consequently, we expect positive relationships between the degree of possession and the degree of applicability of the 24 character strengths.

2 Method

2.1 Participants

The sample consisted of 1,111 German-speaking employed adult volunteers (479 men, 632 women). Their mean age was 43.53 years ($SD = 10.02$; range 18–65 years). Concerning educational level, $n = 649$ indicated having a Master degree, $n = 250$ had an

apprenticeship, and $n = 138$ a doctor's degree. Participants represented a wide array of occupations (e.g., like medical doctors, sales personnel, engineers, mechanists, and office workers). The most prevalent occupational fields ($n > 50$) included $n = 127$ teachers, $n = 79$ participants with commercial education, $n = 67$ nurses, and $n = 51$ engineers. Three quarter of the participants had 80 % up to full time employment ($M = 84.42$, $SD = 22.41$; $n = 610$ worked full time).

2.2 Instruments

The *Applicability of Character Strengths Rating Scales* (*ACS-RS*) measure the extent to which each of the 24 character strengths of the VIA classification is applicable in (a) private and (b) work life. For each of the character strengths, short paragraphs are provided describing character strengths-relevant behavior based on the definitions by Peterson and Seligman (2004); e.g., kindness: Being nice, helpful, kind, and caring without expecting any reward). These behaviors are rated on a 5-point Likert-scale (1 = *never* through 5 = *[almost] always*) for (a) normative demands of a situation (actual wording in the ACS-RS: "it is demanded"), (b) appropriateness of the behavior ("it is helpful"), (c) perceived presence of factors that may facilitate or impede the behavior ("I do it"), and (d) intrinsic motivation to show it ("it is important for me"). As these ratings are very abstract, an example in the instructions highlights their specific meaning.[2] The environment of interest (i.e., at work, in private life) is mentioned in the instructions as well and different environments are rated independently from each other. For each environment, a total of 96 items measures the applicability of the 24 character strengths with the 4 ratings for each of the strengths.

The *Values in Action Inventory of Strengths* (*VIA-IS*; Peterson et al. 2005a) is a questionnaire consisting of 240 items in a 5-point Likert-scale (from 1 = *very much unlike me* through 5 = *very much like me*) measuring the possession of 24 character strengths. Sample items are "I expect the best" (hope) or "I never quit a task before it is done" (perseverance). The responses are averaged across the 10 items per character strength. The German version of the VIA-IS (Ruch et al. 2010) showed high reliability (median $\alpha = 0.77$) and high stability over 9 months (median test–retest correlation = 0.73). Self- and peer-rating forms correlated in the expected range (median correlation = 0.40).

The *Job Satisfaction Questionnaire* (*JSQ*; Andrews and Withey 1976) consists of five items in a 7-point Likert-scale (from 1 = *terrible* through 7 = *delighted*) measuring job satisfaction. Sample items are "How do you feel about your job?" or "How do you feel about the people you work with-your co-workers?" The responses are averaged to provide a total job satisfaction score. The JSQ showed high reliability ($\alpha = 0.81$) and convergent validity ($r = 0.70$) to other measures of job satisfaction (Rentsch and Steel 1992). Three psychologists translated the JSQ, and the initial version of the German JSQ was created by committee approach (Butcher and Pancheri 1976). A bilingual retranslated this version,

[2] Example given in the instruction is about kindness rated by a nurse: A nurse's job description entails many comments about hygiene but nothing about kindness and they do not talk much about it in the team. That is why she would rate "it is demanded" as seldom (rating = 2). As she realized that caring for patients is easier when being kind to them she rates that "it is helpful" often (rating = 4). Furthermore, it is usually important for her to interact with patients in a kind way and she therefore would rate "it is important for me" as 4 = often. However, the workload is very high and therefore impedes kind interactions some of the time ("I do it" = 3). In total kindness would have an applicability score of 3.25, which means that kindness is sometimes applicable at work.

a few modifications were made to the initial version, and items were checked for understandability.

The *Work Context Questionnaire* (*WCQ*; Ruch et al. 2004) is a three-item self-report questionnaire measuring the extent to which one's job allows for pleasure, to which it fosters one's potentials (engagement) and to which it allows for meaning. Answers are given on a 5-point Likert-scale (1 = *totally disagree* through 5 = *totally agree*). Validity of the ratings was supported, as they were meaningfully associated with other variables. For example, engagement was positively related to the promotion level of employees. Pleasure and meaning were positively related to satisfaction with the job.

2.3 Procedure

2.3.1 Data Collection

The study was advertised through press coverage (e.g., newspaper and several magazines) highlighting the requirement for participation of having a job with a percentage of employment of at least 50 %. Participants completed the questionnaires and provided information on demographics via the Internet (67.5 % of those who started to fill in the survey also completed it). Respondents were not paid for participating, but were given feedback concerning their individual results when interest was expressed.

2.3.2 Construction of Items in the ACS-RS

The short paragraphs describing character strengths-relevant behavior were developed in several steps in a committee approach procedure (cf., Butcher and Pancheri 1976). Four individuals (including the first author) with advanced knowledge in positive psychology read Peterson and Seligman (2004), summarized definitions of the strengths, and reworded them as necessary in a less scientific language independently from each other. Those solutions were compared to each other and integrated into the final form.

2.3.3 Pretest of the ACS-RS

Psychometric properties of the ACS-RS were examined in a sample of 152 employed adult volunteers (83 men, 69 women) from various occupations. Their mean age was 40.39 years ($SD = 9.48$; range 19–70 years). Participants judged the applicability of the character strengths in their work life. Internal consistencies were ≥ 0.74 for all scales (median $\alpha = 0.80$). Corrected item-total correlations of the ACS-RS were acceptable as they ranged from 0.36 to 0.91 with a median of 0.65. Mean scores out of the four ratings for each of the character strengths were normally distributed. Summing up, findings showed that there was no need to revise the ACS-RS for this research.

2.3.4 Interrater Reliability of the ACS-RS

The interrater reliability of the ACS-RS was tested by means of intra-class correlations (absolute agreement). If the measures were reliable, different persons rating the strength-related external demands (i.e., mean of the two ratings regarding normative demands and appropriateness) within the same environment (i.e., their workplace) would agree in their judgments. Three different workplaces—a road traffic department, a company for the

inspection of construction material, and a department for scientific research in psychology—were studied by using six or seven raters each. ICC(2) coefficients were computed to test the reliability of unit members' average ratings. Interrater reliability was moderate to strong with ICC(2, 7) = 0.73, ICC(2, 6) = 0.57, and ICC(2, 7) = 0.77, for administrative officials, inspectors of construction material, and teaching and research associates, respectively (cf. LeBreton and Senter 2008; F tests associated with ICC values were statistically significant, all $p < .001$). Agreement among inspectors of construction material was lower as they did not have tasks as homogeneous as the administrative officials, and the teaching and research associates. Furthermore, there were differences between the three groups in the applicability of certain character strengths that can by traced back to the contents of each environment. For example, teamwork was more applicable for the administrative officials and the inspectors of construction material than for the teaching and research associates, who usually work alone. The administrative officials shared a landscaped office and the inspectors of construction material usually worked in groups of two together with the construction crew when inspecting an ongoing building site.

3 Results

3.1 Preliminary Analyses

3.1.1 Descriptives and Internal Consistencies of the Instruments

For an examination of the measurements, minima, maxima, means, standard deviations, skewness, and kurtosis were computed for all scales. Furthermore, reliability analyses (Cronbach's alpha) were conducted for the scales that were not measured by single items. Table 1 presents the means, standard deviations, and internal consistencies.

Table 1 shows that the means were slightly above the scale midpoint of 3 in VIA-IS and ACS-RS (except for the religiousness scales). As often observed for satisfaction scales, the mean for the JSQ was considerably above the scale midpoint of 4 ($M = 5.40$). However, skewness and kurtosis indicated normal distribution of the scales. Internal consistencies were $\geq$0.70 for all scales (except honesty and kindness in the VIA-IS with $\alpha = 0.67$ and 0.69, respectively) and were higher for the ACS-RS (median $\alpha = 0.80$ and 0.84 for work life and for private life, respectively) than for the VIA-IS (median $\alpha = 0.76$). This might be due to higher standard deviations in the ACS-RS compared to the VIA-IS. Corrected item-total correlations of the ACS-RS were satisfactory as they ranged from 0.36 to 0.87 with a median of 0.66 and from 0.48 to 0.91 with a median of 0.70 for work life and for private life, respectively.

3.1.2 Intercorrelations of the ACS-RS Scales

To find out the magnitude to which the 24 applicability ratings within each area of life were associated with each other, Pearson correlations were computed. The correlation coefficients ranged from −0.01 (creativity and self-regulation) to 0.70 (beauty and gratitude) with a median of 0.26 in work life. In the private life, correlation coefficients ranged from 0.06 (zest and self-regulation) to 0.60 (beauty and gratitude) with a median of 0.26. Notably, all coefficients were lower than the internal consistencies indicating that the participants can discriminate between the applicability of the 24 different character strengths in both the work life and the private life.

Table 1 Descriptive Statistics and Reliability of The Possession of Character Strengths (VIA-IS) and Positive Experiences (WCQ, JSQ) as Individual Characteristics as well as the Applicability (ACS-RS) of Character Strengths in Work Life and Private Life as Environmental Characteristics

	Individual characteristics			ACS-RS Work Life			ACS-RS Private Life		
Scales	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α
Character strengths									
Creativity	3.55	0.63	0.88	3.68	0.76	0.82	3.51	0.78	0.87
Curiosity	4.10	0.47	0.79	3.56	0.76	0.81	3.50	0.77	0.87
Judgment	3.85	0.45	0.79	3.56	0.76	0.81	3.46	0.75	0.85
Love of learning	3.91	0.55	0.82	3.93	0.67	0.77	3.65	0.73	0.85
Perspective	3.54	0.45	0.75	3.74	0.76	0.84	3.53	0.74	0.87
Bravery	3.59	0.48	0.74	2.37	0.87	0.86	2.90	0.82	0.88
Perseverance	3.55	0.57	0.84	3.56	0.76	0.78	3.67	0.73	0.84
Honesty	3.80	0.40	0.67	4.11	0.64	0.72	4.24	0.57	0.76
Zest	3.70	0.52	0.77	3.72	0.67	0.71	3.98	0.63	0.78
Love	3.82	0.46	0.73	2.88	0.99	0.90	4.20	0.70	0.87
Kindness	3.75	0.44	0.69	3.65	0.76	0.79	4.01	0.63	0.79
Social intelligence	3.67	0.44	0.73	3.81	0.75	0.81	4.14	0.61	0.80
Teamwork	3.64	0.47	0.74	3.62	0.72	0.79	3.61	0.76	0.87
Fairness	3.90	0.45	0.76	3.71	0.76	0.80	3.72	0.81	0.88
Leadership	3.66	0.45	0.72	3.66	0.86	0.86	3.34	0.92	0.91
Forgiveness	3.54	0.51	0.78	3.30	0.74	0.79	3.68	0.71	0.81
Modesty	3.22	0.54	0.79	3.56	0.73	0.74	3.71	0.67	0.79
Prudence	3.35	0.50	0.72	3.72	0.73	0.79	3.55	0.80	0.87
Self-regulation	3.32	0.53	0.71	3.51	0.74	0.76	3.20	0.76	0.84
Beauty	3.59	0.52	0.73	3.31	0.88	0.85	3.96	0.67	0.83
Gratitude	3.70	0.51	0.80	3.25	0.88	0.85	3.99	0.67	0.82
Hope	3.60	0.54	0.80	3.60	0.75	0.80	3.90	0.67	0.81
Humor	3.61	0.55	0.85	3.34	0.77	0.80	3.76	0.69	0.83
Religiousness	2.81	0.87	0.91	1.98	1.02	0.90	2.63	1.17	0.94
Positive experiences									
WCQ[1]									
Pleasure	3.83	0.90	–						
Engagement	3.88	0.98	–						
Meaning	3.76	1.03	–						
JSQ (Job satisfaction)	5.40	0.95	0.80						

$N = 1{,}103$–$1{,}111$. Love = Capacity to love and be loved; Beauty = Appreciation of beauty and excellence

[1] Internal consistencies were not computed (single item measures)

Furthermore, we were interested in the relationships between the applicability ratings in the work life and the private life for each of the 24 character strengths. As people tend to choose environments fitting their traits (cf., Caspi and Herbener 1990), simple relationships might be inflated due to the underlying character strengths as traits that determine individuals' choices for similar environments. Hence, we computed partial correlations between the applicability of each strength in work life and its applicability in private life controlling for the VIA-IS score for the particular strength. The correlation coefficients

ranged from 0.09 (kindness) to 0.46 (bravery) with a median of 0.31 indicating that those ratings are representations of separate (yet related) constructs.

3.1.3 Correlations with Demographics

Correlations of scales with age, gender, and educational level were modest in size; shared variance between scales and demographics rarely exceeded 5 % (maximum was 10 %). However, there were some noteworthy correlation patterns: Females had systematically higher scores in the scales regarding appreciation of beauty and excellence, gratitude, and the strengths of humanity (in the VIA-IS, and in the ACS-RS for work and private life). The higher the education the more likely people rated the strengths of wisdom and knowledge higher on the VIA-IS and on the ACS-RS for work. Finally, age was positively related to religiousness (on the VIA-IS, and on the ACS-RS for work and private life) as well as to job satisfaction, engagement, and meaning. Hence, it was decided to control for demographics in the subsequently conducted analyses.

3.2 Examination of the Validity of the ACS-RS

3.2.1 Applicability of Character Strengths in Private and Work Life

In order to examine whether certain character strengths can be applied more than others and whether there were differences in private and work life, several analyses were conducted. Firstly, a 2 (environment: private vs. work life) × 24 (the character strengths) ANCOVA was computed with environment and character strengths as repeated measures variables, and demographics (i.e., age, gender, and education) as covariates. Partial η^2 was computed as the effect size index with scores between 0.01 and 0.05, between 0.06 and 0.13, and 0.14 and higher indicating small, medium, and large effects, respectively (Cohen 1988). Secondly, post hoc tests (Bonferroni) were computed for pairwise comparisons to further examine the nature of main effects. Thirdly, to break down the interaction effect between environment and character strengths, *t* tests for dependent samples were computed comparing the applicability for each of the 24 character strengths in private versus work life.

As sphericity was violated, the multivariate test statistics were used as they do not depend upon the assumption of sphericity. Both, the main effects and the interaction were significant ($p < .001$). The pairwise comparison for the small main effect of environment ($F[1, 1107] = 16.80$, $p < .001$, partial $\eta^2 = 0.015$) indicated that, overall, the character strengths were more often applied in private life than in work life ($M = 3.66$ vs. $M = 3.46$; $p < .001$). Furthermore, the pairwise comparisons for the large main effect of character strengths ($F[23, 1{,}085] = 8.62$, $p < .001$, partial $\eta^2 = 0.154$) indicated that the character strengths that were least often applied were religiousness ($M = 2.31$) and bravery ($M = 2.63$; all $p < .001$). Scores between 2 and 3 indicate that strengths were applicable seldom to sometimes. All other strengths were more often applicable. Honesty ($M = 4.18$) and social intelligence ($M = 3.98$) could be most often applied (all $p < .001$) with means indicating that theses strengths can be applied often to (almost) always (score = 4.00–5.00, respectively).

Furthermore, the statistically significant interaction ($F[23, 1{,}085] = 3.77$, $p < .001$, partial $\eta^2 = 0.074$) with a medium effect size indicated that different character strengths yielded different patterns in their applicability in private versus work life. Figure 1 shows the pattern of applicability of the 24 character strengths in private and in work life.

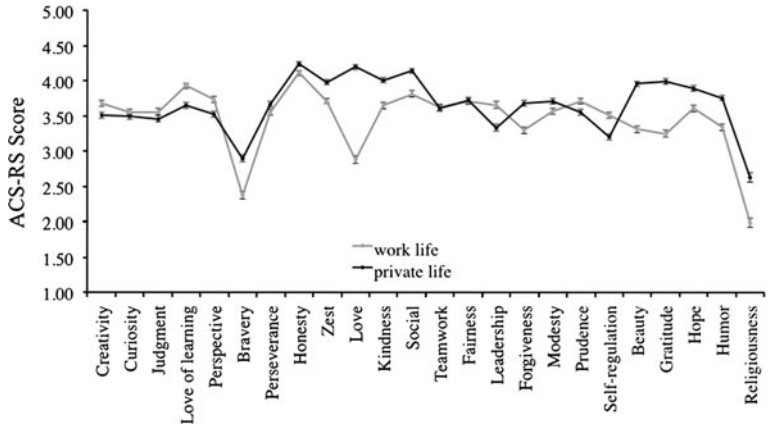

Fig. 1 Applicability of the 24 character strengths (ACS-RS score with 95 % confidence interval) in private and in work life. Love = capacity to love and be loved; beauty = appreciation of beauty and excellence

As indicated by Fig. 1, the *t* test for dependent samples showed that all character strengths of the virtue wisdom and knowledge and the character strengths of leadership, prudence, and self-regulation were more applicable in work than in private life (all $p < .001$; except for curiosity, $p < .05$). All character strengths assigned to the virtues courage, humanity, and transcendence, as well as the character strengths of forgiveness and modesty could be more applied in private than in work life (all $p < .001$). Applicability in working and private life for fairness and teamwork did not differ ($p = .70$).

3.2.2 Relationships Between Possession and Applicability of Character Strengths

To examine the relationships between possession and applicability of character strengths, and whether there are differences in the relationships for the two environments (i.e., private vs. work life), several analyses were conducted. Firstly, partial correlations (controlled for age, gender, and education) were computed between the corresponding character strengths measured by the VIA-IS and the ACS-RS (separately for private and work life). Secondly, differences between correlation coefficients were tested for significance for each of the character strengths (see Table 2).

Table 2 shows that all relationships between possessing (VIA-IS) and applying character strengths (ACS-RS) were positive for both, private and work life. The median of correlations was 0.34 for both, private (ranging from 0.21 to 0.82) and work life (ranging from 0.16 to 0.73), respectively. In 12 out of 24 character strengths, correlation coefficients did not differ between private life and work life; 11 out of 12 were higher for private life than for work life (e.g., capacity to love and be loved, religiousness, hope, and prudence). The only exception was leadership, which showed a stronger relationship between possessing the character strength and its applicability in work than in private life.

3.3 Relationships Between Applicability of Strengths and Positive Experiences at Work as a Function of the Centrality of the Strengths

It was expected that the applicability of strengths with highest ranks (i.e., high fit of possession and application of strengths) would yield stronger relationships to positive

Table 2 Partial correlations (controlled for age, gender, and education) between the VIA-IS scales and the ACS-RS scales (For private life and working life separately) and comparison of the correlations

Character strengths	Private life	Working life	*t*
Creativity	0.53	0.45	2.94**
Curiosity	0.33	0.27	1.91
Judgment	0.36	0.25	3.28**
Love of learning	0.46	0.37	2.90**
Perspective	0.26	0.19	2.10*
Bravery	0.26	0.22	1.38
Perseverance	0.29	0.31	−0.64
Honesty	0.30	0.21	2.72**
Zest	0.47	0.43	1.50
Love	0.53	0.28	7.74**
Kindness	0.32	0.27	1.52
Social intelligence	0.28	0.24	1.21
Teamwork	0.34	0.37	−0.91
Fairness	0.37	0.37	0.00
Leadership	0.32	0.42	−3.11**
Forgiveness	0.33	0.38	−1.71
Modesty	0.33	0.24	2.98**
Prudence	0.34	0.20	4.51**
Self-regulation	0.21	0.16	1.53
Beauty	0.47	0.40	2.56*
Gratitude	0.51	0.48	1.17
Hope	0.53	0.41	4.79**
Humor	0.58	0.55	1.35
Religiousness	0.82	0.73	7.63**

$N = 1{,}111$. All correlation coefficients are significant at $p < .001$. Love = Capacity to love and be loved; Beauty = Appreciation of beauty and excellence. t = significance test for difference between correlation coefficients for the comparison of dependent correlations Steiger (1980)

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

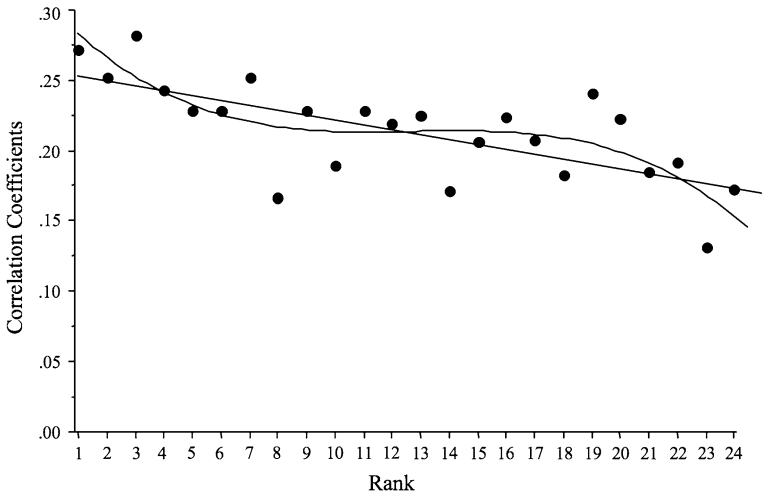

Fig. 2 Partial correlation coefficients (controlled for age, gender, and education) between applicability of character strengths and positive experiences at work as a function of the character strengths' rank (i.e., centrality). Computed regression lines of linear and cubic regression analysis are presented

experiences at work than the applicability of strengths with lower ranks. Positive experiences at work studied here were job satisfaction (JSQ) as well as pleasure, engagement, and meaning fostered by one's work (WCQ). For an examination of this expectation, partial correlations (controlled for age, gender, and education) between the applicability of the individuals' highest (rank 1), second highest (rank 2), and so forth up to the 24th character strength (rank 24) and the indicators of positive experiences at work were computed. A first inspection of the correlation coefficients indicated that correlation coefficients decreased as the rank of character strengths increased. To test the statistical significance of the decreases, Spearman rank correlations were computed between the 24 ranks and the corresponding correlation coefficients ($N = 24$) for each of the positive experiences. Correlation coefficients were significant for job satisfaction ($r = -0.63$, $p < .01$), pleasure ($r = -0.59$, $p < .01$), and engagement ($r = -0.65$, $p < .01$). Meaning ($r = -0.35$) did not yield significant correlation coefficients; nevertheless, the correlation was in the expected direction ($p > .05$).

For an in depth examination of the nature of the trend in the positive experiences at work, several analyses were conducted. Firstly, in order to increase reliability of the single item measures of positive experiences at work, a composite score was computed by conducting a principal component analysis using the variables clearly related to positive experiences at work by content (the JSQ and the three WCQ ratings). The Eigenvalues were 2.66, 0.54, 0.48, and 0.32 indicating that there was a clear one-dimensional factor solution explaining 66.49 % of the variance. Factor loadings ranged from 0.77 (job satisfaction) to 0.86 (engagement at work). The factor was labeled as "positive experiences at work". Factor scores were computed by means of regression. Secondly, partial correlations were computed (controlled for age, gender, and education) between the applicability of the individuals' highest strength (rank 1), second highest (rank 2), and so forth up to the 24th character strength (rank 24) and the factor scores of "positive experiences at work". Figure 2 presents the pattern of the correlation coefficients depending on the rank.

Figure 2 shows that the coefficients tended to decrease from rank 1 to rank 5 or 6, followed by a plateau up to rank 16, with another decrease until rank 24. Thirdly, to investigate the form of the relationships, these 24 correlation coefficients were entered into a regression analysis as criterion variables, with rank as the predictor variable, testing the linear, quadratic, and cubic trends. The linear and cubic trends were significant. The former explained 46 % of the variance in the correlation coefficients ($F[1, 22] = 18.93$, $p < .001$) and the linear and cubic trends together explained 61 % of the variance ($F[3, 20] = 10.57$, $p < .001$).

3.4 The Number of Applied Signature Strengths and Positive Experiences at Work

To examine, whether there is a satiation point for the number of applied signature strengths located between three and seven strengths with respect to the effect on positive experiences at work, several analyses were conducted. Firstly, groups were computed defining participants that can apply 0–7 of their seven highest character strengths. A conservative way was selected in order to minimize effects of answer styles. A character strength among the seven highest within an individual was only defined as being applied, if (a) the ACS-RS score was 4 or higher (i.e., this is equal to an applicability that is a least rated as "often") and if (b) the VIA-IS score was 3.5 or higher (i.e., this is equal to possessing a character strength at least slightly). It was assumed that people could not apply character strengths-relevant behavior that they do not possess to, at least, a small degree. Secondly, a univariate ANCOVA was computed with the number of character strengths that are applied at

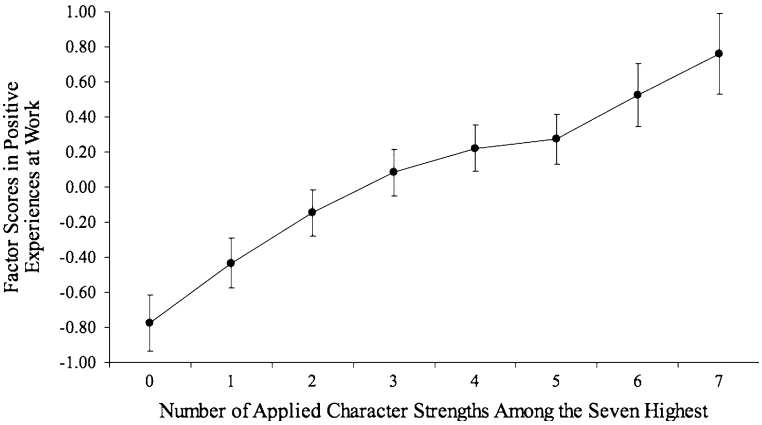

Fig. 3 Average factor scores in positive experiences at work (with 95 % confidence interval) as a function of number of the seven highest character strengths applied at work. Group sample sizes were $n_0 = 123$, $n_1 = 152$, $n_2 = 181$, $n_3 = 175$, $n_4 = 171$, $n_5 = 151$, $n_6 = 94$, and $n_7 = 59$

work as classification variable (8 groups: 0–7 strengths applied; with group sizes ranging from 59 to 181) and the factor scores of "positive experiences at work" as the dependent variable. Again, age, gender, and education entered the analysis as covariates. Repeated contrasts were utilized to check whether positive experiences differed when using one strength instead of none, two strengths instead of one, three strengths instead of two etc. The ANCOVA indicted a large effect of the number of strengths that were applied at work on positive experiences at work, $F(7, 1{,}106) = 33.15$, $p < .001$, $\eta^2 = 0.175$. Figure 3 shows the average of positive experiences at work as a function of number of the seven highest character strengths applied at work.

Fig. 3 shows that group means in positive experiences at work ranged from −0.78 to 0.76 when applying zero to seven of the highest strengths, which was a range equivalent to 1.5 standard deviations. The repeated contrasts revealed that using one instead of no strength ($p < .01$), two instead of one ($p < .01$), and three instead of two ($p < .05$) yielded in a significant increase in positive experiences at work. The curve subsequently flattened; applying four instead of three or five instead of four did not make a difference in positive experiences at work. There seemed to be a satiation point between three and five strengths. However, positive experiences at work slightly increased when six or seven strengths could be applied (i.e., one half standard deviation). When considering the eight or nine highest character strengths, there was no significant increase in positive experiences at work. Interestingly, group size dropped for the groups being able to apply six ($n_6 = 94$) or seven strengths ($n_7 = 59$) indicating that applying a sixth or seventh signature strengths was relatively rare.

4 Discussion

The combination of the ACS-RS and the VIA-IS gives a new approach for the investigation of the congruence between signature strengths and the situational circumstances in specific environments of interest. The present study compared the character strengths of a person with the situational circumstances in his/her workplace. In line with the expectation,

there were positive relationships between the degree of congruence and positive experiences at work. Correlations between applicability of strengths and positive experiences increased with the centrality of the strengths (irrespective of the nature of the strengths). This study provides strong empirical evidence supporting the construct validity of signature strengths. Independent from content, character strengths differ in their importance. Actually, the amount of positive experiences at work increased with the number of signature strengths that could be applied. A "satiation point" was observed at around four strengths, which is within the range of the number of signature strengths (i.e., between three and seven) stipulated by Peterson and Seligman (2004). However, this finding does not mean that each person owns four signature strengths. This number results from analyzing data across but not within participants. There will be individual differences in the number of signature strengths. Peterson and Seligman (2004) assumed that signature strengths are characterized by ten criteria (e.g., a sense of ownership, a feeling of excitement while using it, and an intrinsic motivation to use it). These criteria would need to be considered in future studies investigating individual differences in the number of signature strengths.

Studies of the congruence between the signature strengths and the situational circumstances should not to be confused with studies of the fit between other characteristics of a person and the attributes of the work environment. This fit has often been highlighted in psychological research on career choice and development as being decisive for positive work-related outcomes (e.g., Brown 2002; Caplan 1987; Holland 1997). For example, the degree of fit relates to *job satisfaction* (e.g., Gati, Garty, and Fassa 1996; Lyons and O'Brian 2006) and *pleasure* as a positive emotion towards the job (Edwards 1996). The specific role of character strengths as important characteristics of a person within the workplace remains understudied. The congruence between the job tasks and the individual signature strengths can be interpreted as both a need-supplies and a demands-abilities related fit (cf., Kristof 1996). The individual's signature strengths form the individual's need to be allowed to behave congruent with those strengths. If the job tasks do allow for them, then the job supplies this need. This notion is also in line with research that highlights the need for opportunities for the use of individual capacities for promoting job satisfaction, engagement, or productivity at work (e.g., Lowe 2010; Walton 1975). However, the job tasks may demand strengths-related behavior that a person is able to show (or not) due to the degree of possession of the relevant strengths. The need-supplies related fit was most of interest here as the starting point was the constellation of strengths within the individual and their applicability at work, but not the strengths most required by the job. Additionally, incremental validity might be studied with respect to common operationalizations of person-job fit like values, abilities or interests (e.g., Holland 1997; Kristof 1996) when predicting job satisfaction or other work related outcomes. Nevertheless, the present study provides initial evidence that the strength-related congruence between a person and his/her job might play a role in positive experiences at work.

As a methodological extension of the present research, the applicability of character strengths might be measured by means of peer-ratings as well. A replication of the findings using peer-ratings would also provide further validation, as the findings regarding the congruence between the signature strengths of a person and the applicability of those strengths could in part be due to methodological reasons—both, possession and applicability of character strengths as well as the positive experiences at work were measured through self-ratings. However, the identification of signature strengths was a conservative one, because they were identified by rank ordering the scores in possessing the character strengths. Consequently, the impact of response styles was kept constant at least to some

degree. Furthermore, generalizability of results to less educated people should be examined, as individuals with a very high educational level characterized the sample for this study.

Despite the implicit assumption that the positive experiences at work are the result of the application of individual signature strengths, causality cannot be established from the cross-sectional data reported here. This paper examined whether the application of individual signature strengths was robustly associated with positive experiences at work. Further research utilizing longitudinal design or intervention studies would be needed to address the assumed causality.

The focus of the present paper was on an individual worker's perspective. However, the work context is much more complex and therefore, antecedents of positive experiences at work are manifold as well. For example, the relationships among co-workers as well as between employees and managers, organizational culture, and leadership practices may play important roles (cf., Lowe 2010). Furthermore, positive experiences at work like job satisfaction and engagement relate to efficiency and effectiveness (e.g., Judge et al. 2001; Stairs and Galpin 2010). Further research needs to study more complex models moving beyond the individual worker's perspective to study the application of strengths within a broader context, for example, to study how different leadership practices foster or hinder the application of strengths.

Compared to the possession of character strengths, variance in the applicability of character strengths-relevant behavior tended to be higher. Hence, it might be interesting to investigate specific jobs, as the sample investigated here was a mixed sample with employees from very different occupations. However, it might be of interest to study which character strengths are the most appropriate ones within certain occupational fields as well. Research has already pointed to the role of specific character strengths within certain jobs; for example, the strengths of humanity were especially related to job satisfaction in jobs that involve other people like teaching or sales (Peterson and Park 2006). Additionally, strengths like bravery, honesty, and teamwork discriminate between a civilian sample and military samples (Matthews et al. 2006). It might be expected, that those persons who especially possess (and apply) those strengths, better fit into these environments. Consequently, their job satisfaction and job performance should be higher. Results of studies investigating these questions will provide further evidence for the role of character strengths in the workplace as well.

The present study indicated that the ACS-RS seems to be a reliable and valid instrument for the measurement of situational circumstances that foster or hinder character strengths-relevant behavior. Reliability was satisfactory in terms of internal consistency and inter-rater-reliability. Validity of the ACS-RS was studied by means of replicating knowledge from research on situational influences on personality and extending it to the concept character strengths. As people tend to choose situations suiting their personality (Caspi and Herbener 1990), possession and applicability of character strengths were positively related.

Furthermore, the situational influences on trait-relevant behavior have been noted earlier in personality research (Ten Berge and De Raad 1999), but this study extends this to the trait concepts of the character strengths as postulated by Peterson and Seligman (2004). Kenrick et al. (1990) found that some traits could be observed across more situations than others. This was found for character strengths as well; bravery and religiousness were the strengths least often applicable, and honesty and social intelligence were the ones most often applicable with the rest of the strengths ranging in between. Differences in the degree of applicability as measured with the ACS-RS can be interpreted as first hints that character strengths do differ in the degree of being tonic versus phasic. Nevertheless, frequency of

applicability is an approximation for the degree of being tonic versus phasic. Further studies are needed, for example, examining whether the degree of being tonic versus phasic is one dimensional.

Additionally, applicability of certain character strengths as measured with the ACS-RS differed with respect to the environment considered (i.e., private life vs. work life). For example, leadership was more applicable at work than at home and the capacity to love and be loved was more applicable at home. This result is in line with previous research stipulating that situations differ in their suitability for the expression of certain traits (Ten Berge and De Raad 1999; Kenrick et al. 1990).

The paragraphs describing strength-relevant behavior in the ACS-RS rely on the definitions presented by Peterson and Seligman (2004). Those paragraphs entail more information than simple labels of the strengths. This makes sure the whole bandwidth of the character strengths is presented with less room for interindividually different interpretations regarding the meaning of the character strengths. In the present study, the applicability of character strengths at work and in the private life were studied. However, another or more specific environments or situations (e.g., leisure time, project a vs. project b) can be studied by emphasizing it in the instruction of the ACS-RS.

This study showed that character strengths matter in vocational environments irrespective of their content. Strengths-congruent activities at the workplace are important for positive experiences at work, like job satisfaction as well as experiencing pleasure, engagement, and meaning fostered by one's job. One operationalization of strengths-congruence could be the overlap between the signature strengths (as positive traits) of an individual and the demands of the workplace. Using the VIA-IS and the ACS-RS together in career counseling could give information on the signature strengths of an individual and the degree of applicability of these strengths in his/her work. Any discrepancies identified might be addressed by a systematic, individualized intervention strategy to reduce them (e.g., by changes in workplace design and job tasks), which in turn could lead to an increase in job satisfaction and happiness at work.

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