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## Strengths use and work engagement: a weekly diary study

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The present study among 65 civil engineers investigates the impact of organizational support for strengths use on weekly work engagement and proactive behaviour. Positive psychology postulates that strengths use makes people feel authentic and efficacious. We argue that employees use these positive psychological states as resources that fuel work engagement and proactive work behaviour. Participants completed a general questionnaire regarding strengths use support, and a weekly quantitative diary questionnaire regarding their strengths use, self-efficacy, work engagement, and proactive behaviour over a period of five consecutive workweeks. In line with the hypotheses, the results of multilevel structural equation analyses showed that organizational strengths use support was positively related to weekly strengths use. Furthermore, the results indicated that weekly strengths use was positively related to weekly work engagement and proactive behaviour, through weekly self-efficacy (sequential mediation). Although strengths use support contributed indirectly to work engagement (mediated by strengths use and self-efficacy), there was no significant indirect relationship with proactive behaviour. Our study indicates that strengths use is associated with employees' levels of self-efficacy, work engagement, and proactive behaviour and that organizations can help employees to use their strengths more often by giving them the opportunity to do what they are good at.

**Keywords:** strengths use; work engagement; positive psychology

A key aspect of the research agenda of the positive psychology approach has been a focus on personal strengths, the use of which has been suggested to lead to energizing experiences and elevated, sustainable well-being (Peterson & Seligman, 2004). Personal strengths refer to an individual's specific individual characteristics, traits, and abilities that, when engaged, are energizing and allow a person to perform at his or her personal best (Linley & Harrington, 2006; Wood, Linley, Maltby, Kashdan, & Hurling, 2011). Although still little is known about the effects of strengths use in an organizational context, two recent cross-sectional survey studies provided evidence for a positive relation between strengths use and work engagement (Harzer & Ruch, 2012, 2013). Both studies considered strengths use as a relatively stable individual difference variable, assuming that employees have an overall tendency to use their strengths to differing degrees. However, we propose that whereas the specific strengths one *has* is likely to be relatively stable, it is important to account for the external circumstances that may influence the extent to which people *use* their strengths in any given situation. We argue that this is important because strengths use is likely to help explain variability in employees' work

engagement and proactive behaviour (Bakker & Bal, 2010; Fritz & Sonnentag, 2007) from one moment to another.

A central aim of the present study is therefore to investigate to what extent organizational support for strengths use is related to employee's strengths use, and to what extent weekly levels of strengths use are associated with weekly levels of work engagement and proactive behaviour. Based on strengths use theories (Clifton & Harter, 2003; Peterson & Seligman, 2004; Wood et al., 2011), which suggest that having the opportunity to apply one's strengths makes people feel efficacious, excited, invigorated, and intrinsically motivated, we argue that employees use these positive psychological states as resources that fuel work engagement and proactive work behaviour.

Although it is true that individuals' enduring traits shape their experiences, people's experiences in any given situation—and the psychological outcomes that result—are also strongly influenced by their psychological states (George, 1991). A cross-sectional study of strengths use is not able to capture or explain fluctuations in these states. However, certain research designs—such as weekly

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diaries—are well suited to explaining both variation in strengths use as well as differences in work engagement and proactive behaviour, the latter for which there is evidence of substantial within-person differences (Bakker & Bal, 2010; Fritz & Sonnentag, 2007). By adopting a weekly diary design we are able to examine strengths use in its organizational context at the time and level it is manifested (Ilies, Schwind, & Heller, 2007). Therefore, this study provides an important contribution to the literature by providing insight in the antecedents and consequences of strengths use in everyday working life. This is important, because in the positive psychology literature, it is widely propagated that people can only excel when they can build on their strengths (Buckingham & Clifton, 2001; Peterson & Seligman, 2004; Roberts, Dutton, Spreitzer, Heaphy, & Quinn, 2005; Seligman & Csikszentmihalyi, 2000). Additionally, recent studies have indicated that strengths use may lead to valuable outcomes, such as work engagement (Harzer & Ruch, 2012, 2013; Keenan & Mostert, 2013), higher levels of in-role and extra-role performance (Van Woerkom & Meyers, 2015), enhanced ability to cope with job demands and lower levels of sickness absenteeism (Van Woerkom, Bakker, & Nishii, 2015). However, the mechanisms that mediate between strengths use and these favourable outcomes are still relatively unexplored. If we want to understand why strengths use leads to beneficial outcomes, we need to understand the processes that lead to these outcomes. Because most human resource management practices in organizations are still based on a deficit model in which a person's area of weakness is seen as the greatest area of opportunity (Bouskila-Yam & Kluger, 2011; Roberts et al., 2005), providing insight in the mechanisms that mediate between strengths use and outcomes may help organizational decision-makers to implement strengths-based HR practices.

## Theory and hypotheses

### *Strengths and strengths use*

In line with Wood et al. (2011), we define strengths as trait-like individual characteristics that potentially allow a person to perform at his or her personal best. Although scholars disagree about the extent to which strengths are determined by innate factors, most of them agree that strengths refer at least partly to genetic aspects which “naturally” make people good at certain types of performances (Biswas-Diener, Kashdan, & Minhas, 2011) as is also evidenced by research among twins (Steger, Hicks, Kashdan, Krueger, & Bouchard Jr, 2007). Whereas Peterson and Seligman (2004) refer more narrowly to character strengths as virtues that are morally valued across cultures and throughout history, we concur with Wood et al. (2011) who argue that the broader positive psychological prediction that using one's strongest

characteristics leads to desirable outcomes such as increased well-being should be applicable to physical, cognitive, as well as affective characteristics. To the extent that these characteristics are recognized by oneself and by others, they can become cultivated through practice and by developing related knowledge and skills, such that they can be productively applied across different contexts. It is important to note that we conceptualize strengths at the within-person level, rather than applying a traditional, between-person approach of looking across people to see who has the greatest strengths in a particular situation (Roberts et al., 2005). We assume that every person possesses certain strengths, regardless of whether others possess a particular strength more or less than the focal individual. Moreover, although we consider strengths to be largely stable, how and to what extent strengths come to the surface is dependent on context, personal values, interests, and other strengths (Biswas-Diener et al., 2011), implying that two persons will never have the exact same strength.

Because many employees cannot clearly identify their own strong points without help (Buckingham & Clifton, 2001) and report not using their strengths very often at work (Buckingham, 2010), we hypothesize that perceived organizational support (POS) for strengths use will facilitate strengths use. Moreover, whereas some authors see a state of excitement, invigoration (Peterson & Seligman, 2004), enjoyment (Govindji & Linley, 2007), or near perfect performance (Rath, 2007) as a defining characteristic of strengths use, in our study, we aim to disentangle strengths use from its possible consequences. Since positive feelings such as invigoration and excitement are suggestive of higher levels of work engagement, we argue that strength use is related to higher levels of work engagement, and that self-efficacy is an important mediating mechanism in this relationship. Furthermore, we expect that the positive emotions that engaged employees experience will act as energetic resource that broaden their thought–action repertoire and make them actively engage with their environment in the form of proactive behaviour (Fritz & Sonnentag, 2007).

### *Support for strengths use*

Conventional methods of human resource management and development are often based on a deficiency model and focus on identifying and closing the gap between current and desired levels of performance (Buckingham, 2005; Buckingham & Clifton, 2001). Although this may lead to skill development and performance improvement, a focus on employees' deficits can be demoralizing and therefore is likely to be less effective than building on employees' innate qualities or strengths as a means of improving performance (Hodges & Clifton, 2004). The positive psychology approach has created an awareness

that workplaces are in need of a more balanced approach by both building on strengths and trying to correct weaknesses (Luthans & Youssef, 2007). This means that practitioners and organizational researchers should start paying attention to the question of how employees can be supported in taking on roles and tasks that play to their strengths.

In line with the concept of POS, which refers to employees' global beliefs concerning the extent to which the organization values their contributions and cares about their well-being (Rhoades & Eisenberger, 2002), *perceived organizational support for strengths use* (or in short strengths use support) refers to employees' beliefs concerning the extent to which the organization actively supports them to apply their strengths at work (Keenan & Mostert, 2013). Strengths use support can be seen as a new type of organizational resource that is functional in achieving work-related goals, reducing job demands, and stimulating personal growth and development (Bakker & Demerouti, 2007; Dollard & Bakker, 2010). When employees are supported to engage in tasks that capitalize on their strengths they are more likely to achieve work-related goals. Moreover, these goals, or the way in which these goals are achieved, will be more self-concordant (Sheldon & Elliot, 1999), making it more likely that people put sustained effort into achieving them (Koestner, Lekes, Powers, & Chicoine, 2002). Being supported to use one's strengths is expected to bring about feelings of competence (Peterson & Seligman, 2004), making employees more effective in coping with job demands (Folkman & Moskowitz, 2004). Furthermore, strengths use support is likely to stimulate growth and development because developing strengths comes much more easily to individuals than developing deficiencies (Peterson & Seligman, 2004).

Whereas strengths use support is related to POS, the latter construct is much broader in nature. For instance, the organization might value the employee's contribution by appreciating his or her commitment or the fact that the employee is working overtime instead of appreciating an employee's innate strengths. Furthermore, the organization might care about an employee's well-being by stimulating a healthy work-home balance, reducing the workload, or making sure that sufficient resources (e.g., training facilities, performance feedback, social support) are available, instead of stimulating the employee to make more use of innate strengths per se. Moreover, Van Woerkom and Meyers (2015) showed with confirmatory factor analysis that a strengths-based climate and POS are empirically distinct and only moderately correlated ( $r = .49, p < .001$ ).

Although related, strengths use support is not the same as high-involvement or high-commitment work practices that refer to a system of human resource practices thought to enhance employees' levels of skill, motivation,

information, and empowerment (Guthrie, 2001). Although these organizational practices emphasize the importance of training and skill enhancement, they do not refer to the extent to which employees feel supported to make use of their innate strengths.

Employees' beliefs concerning strengths use support provided by the organization may, for example depend on whether the organization employs a job design that allows an employee to maximize the use of his or her strengths through task allocation. We expect that human resource practices that are aimed at reaching optimal person job-fit (Lauver & Kristof-Brown, 2001) will provide high levels of strengths support. Another option would be to work with complementary partnering, so that two or more colleagues with complementary strengths join forces and accomplish together what they could not have accomplished separately (Linley & Harrington, 2006). Yet another example of strengths use support is when employees are given the latitude and encouragement to perform their tasks in a manner that best suits their strong points. For instance, business consultants may go about their task of selling consulting services by giving presentations to groups of organizational representatives or by engaging in one-on-one dialogues with individual clients they already know. When the organization allows consultants to choose their own project acquisition strategy, they can choose a strategy that plays to their individual strengths (e.g., persuasive communication in a social interaction) while their weaknesses (e.g., presenting in front of a larger group) become less relevant for their task performance.

Accordingly, we expect that employees will use their strengths to a greater extent when they perceive organizational strengths support.

*Hypothesis 1:* Organizational strengths use support relates positively to weekly strengths use.

### ***Strengths use, work engagement, and proactive behaviour***

We argue that within-person fluctuations in strengths use are important because these might explain why a person's work engagement, an active, positive work-related state that is characterized by vigour, dedication, and absorption (Schaufeli, Bakker, & Salanova, 2006), may differ from week to week. Because strengths refer to individual characteristics that allow a person to perform at his or her personal best (Wood et al., 2011) and that are authentic and energizing to the user (Linley & Harrington, 2006) and since people vary their personal engagements according to their perceptions of the meaningfulness of a situation (Kahn, 1990), we expect that strengths use will be positively related to work engagement.

Two recent survey studies among employees from various occupations provided evidence for a positive

relation between strengths use and work engagement (Harzer & Ruch, 2012, 2013). Furthermore, several studies provide evidence for the relation between strengths use and outcomes that are closely related to engagement. In their study based on a community sample, Wood et al. (2011) found that the use of strengths was significantly related to gains in positive affect after 3 and 6 months. An intervention among students aimed at identifying their strengths and stimulating them to use these strengths in a new way was found to lead to increased happiness as assessed over a 6-month period (Seligman, Steen, Park, & Peterson, 2005). Moreover, two more studies (Govindji & Linley, 2007; Koestner et al., 2002) revealed that the use of strengths was positively linked to students' subjective well-being in terms of high positive affect, low negative affect, and life satisfaction.

What is still unknown is whether weekly variations in weekly strengths use can explain why a person's work engagement may differ from one week to another. Based on the literature described earlier, it can be argued that momentary states of strengths use at work are positively related to momentary energy while working, a sense of enthusiasm and inspiration, and immersion in one's work (Salanova & Schaufeli, 2008). Hence,

*Hypothesis 2a:* Weekly strengths use is positively related to weekly work engagement.

When employees use their strengths at work, they are more likely to excel and to be successful in attaining their work-related goals. This will provide them with positive feedback, mastery experiences, and reduced job demands (Bakker, 2011), thereby stimulating their confidence and self-efficacy (Bandura, 1997), which are known correlates of employee work engagement (Schaufeli & Salanova, 2007, 2008). Because employees with high levels of self-efficacy believe in their ability to meet their work demands, they are able to spend the required effort in order to meet their work goals, and persist when they face difficulties (Gist, 1987). As a result, engagement occurs through the facilitation of goal attainment (Xanthopoulou, Bakker, & Fischbach, 2013). Since the relation between self-efficacy and work engagement was also supported in a meta-analysis (Halbesleben, 2010), we hypothesized the following:

*Hypothesis 2b:* Weekly strengths use is positively related to weekly work engagement, with the relationship being mediated by weekly self-efficacy.

Moreover, we expect that using one's strengths brings about positive psychological states that increase the likelihood that individuals engage in proactive behaviour. Employees who are engaged with their work feel energetic, dedicated, and absorbed by their work (Bakker & Schaufeli, 2008). These feelings are necessary for the self-regulatory, goal-oriented,

and persistent qualities of proactive behaviour (Fritz & Sonnentag, 2007); a behavioural pattern whereby the individual takes an active self-starting approach to work, thereby going beyond formal job requirements (Frese, Fay, Hilburger, Leng, & Tag, 1997). Moreover, the broaden-and-build theory of positive emotions (Fredrickson, 1998, 2001) posits that positive emotions may act as a resource that broadens a person's thought-action repertoire, which can then result in effortful and goal-directed activities such as proactive behaviour (Fritz & Sonnentag, 2007). According to this same theory, the positive emotions that are experienced by engaged employees (Bakker, Schaufeli, Leiter, & Taris, 2008) will also foster approach behaviour (Cacioppo, Gardner, & Berntson, 1999) causing them to actively engage with their environment in the form of proactive behaviour aimed at changing the current situation (Fritz & Sonnentag, 2007).

Because we expect that weekly strengths use makes employees more engaged, and because work engagement has also been found to predict proactive behaviour (Salanova & Schaufeli, 2008; Sonnentag, 2003), we hypothesize that:

*Hypothesis 3:* Weekly strengths use is positively related to weekly proactive behaviour through weekly self-efficacy and work engagement (sequential mediation hypothesis).

Following from our reasoning given earlier, we anticipate that organizations that provide strengths use support can help their employees in becoming more engaged and proactive by enhancing their levels of actual strengths use and self-efficacy. The indirect relation between strengths use support and proactive behaviour also follows from the general principles of social exchange theory (Cropanzano & Mitchell, 2005) according to which employees who feel supported are more inclined to give back to the organization in the form of proactive behaviour.

*Hypothesis 4:* Strengths use support is indirectly and positively related to weekly proactive behaviour. In particular, more strengths use support will facilitate weekly strengths use among employees, which will initiate higher levels of weekly self-efficacy, work engagement, and proactive behaviour (sequential mediation hypothesis).

Figure 1 presents a summary of our theoretical model.

## Methods

### *Sample and procedure*

Sixty-five civil engineers working for 43 different organizations (e.g., engineering agencies, building



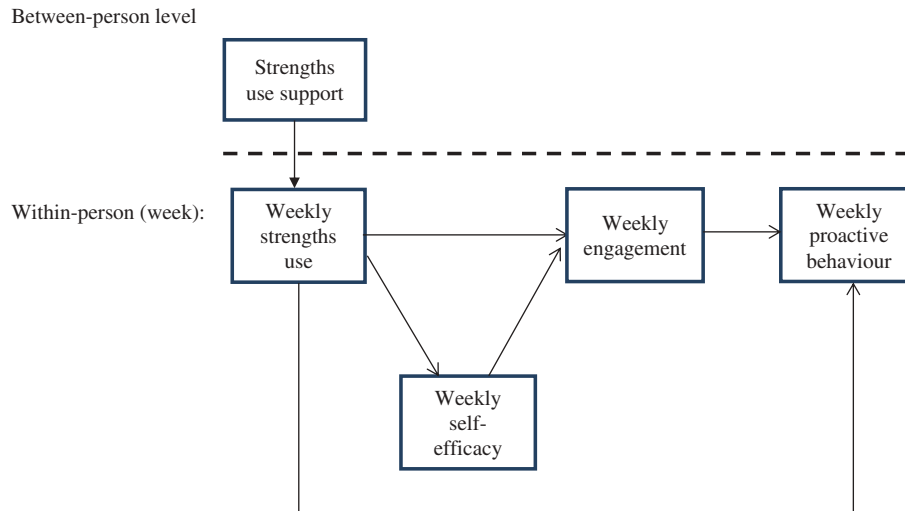


Figure 1. Theoretical model.

companies, or (local) governments) in the Netherlands completed a general questionnaire (in Dutch) about strengths use support and background characteristics like their age, gender, educational level, and years of work experience. Respondents completed weekly diaries regarding strengths use, self-efficacy, work engagement, and proactive behaviour each week for five consecutive weeks. Engineers were invited to participate voluntarily in the study via an organization that specializes in offering 3-year multi-company traineeships for civil engineers who have recently graduated. The aim of this organization is to contribute to a better inflow of professionals in the sector. Invitations were sent to all (former) trainees of this organization and to their direct colleagues. In addition to that, participants were recruited by placing a message on LinkedIn discussion groups for civil engineers. In the invitation, individuals were informed about the purpose of the study, their anonymity was guaranteed, and instructions were given. The (electronic) diary questionnaires were sent every week on Friday and respondents were asked to fill in these questionnaires on the same day they received them. By minimizing the amount of time elapsed between respondents' experiences and the account of this experience, we reduced the likelihood of retrospection bias (Bolger, Davis, & Rafaeli, 2003). In line with Bakker and Bal (2010), we decided to use time lags of 1 week since a working week from Monday to Friday was for the engineers a natural unit of working time, with the weekends as natural breaks. Moreover, the engineers in our sample typically work on larger engineering projects in which working tasks typically differ on a weekly basis rather than a daily basis or a monthly basis. Since previous research has shown that

individuals are able to accurately perceive and report on their well-being and affect on a weekly basis (Parkinson, Briner, Reynolds, & Totterdell, 1995; Totterdell, Wood, & Wall, 2006), we expected this to be similar for our focal variables.

Invitations to respond to the questionnaire were sent by e-mail. The data were collected in a 6-week period between May and June 2012. In total, there were 70 engineers who signed up to participate in this study and 65 of them (93%) filled in the first (general) questionnaire. Of these 65 respondents, 53 (81.5%), 56 (86.2%), 55 (84.6%), 62 (95.4%), and 62 (95.4%) filled in questionnaire 2 through 6. The average age in the sample was 29.72 years ( $SD = 5.92$ ), whereas the majority of the sample was male (84.6%,  $N = 55$ ). All participants were highly educated, with 55.4% who completed higher academic education and an additional 44.6% who completed higher professional education. Respondents worked on average 38.98 hours a week ( $SD = 4.45$ ), and had on average 5.24 years of work experience ( $SD = 5.24$ ).

### Measures

#### General strengths use support

We measured general strengths use support in week 1 with an eight-item scale developed by Keenan and Mostert (2013), who showed that the items of this scale clearly load on to one factor with strong item loadings ( $\alpha = .97$ ). When the authors conducted an exploratory factor analysis in which they included four other job resources (supervisory support, autonomy, information, and participation) (Van Veldhoven, Meijman, Broersen, & Fortuin, 1997), they identified a clear five-factor model in which all items loaded onto the supposed factors. This factor structure was

supported in a validation study using confirmatory factor analysis (Van Woerkom, Els, Mostert, Rothmann, & Bakker, 2013). Example items of the scale include, “This organization allows me to do my job in a manner that best suits my strong points” and “This organization gives me the opportunity to do what I am good at”. The scale had a seven-point response format, ranging from 1 (almost never) to 7 (almost always). The internal consistency of the scale was good. Cronbach’s alpha was .95.

#### *Week-level data*

The weekly diary assessed state measures of weekly strengths use, occupational self-efficacy, work engagement, and proactive behaviour. These measures reflect persons’ levels on these characteristics in the specific weeks tested. Due to the space constraints that are inherent to diary studies (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), a limited number of items from the original scales for self-efficacy and proactive behaviour were selected based on the items’ face validity for the current study. The within-person reliability of the week-level variables was calculated using the multilevel approach as suggested by Geldhof, Preacher, and Zyphur (2014).

#### *Week-level strengths use*

Since the only available strengths use questionnaire (Wood et al., 2011) does not specifically focus on the work context and includes items that refer to both opportunities for strengths use and a general disposition towards strengths use, we decided to develop a new scale referring to actual strengths use behaviour over the course of the week based on the scale for strengths use support as developed by Keenan and Mostert (2013). The following four items were included: “This week, I used my talents at work”; “This week I have benefited in my work from my strengths”; “This week I have conducted tasks that suit my strengths well”; and “This week I have applied my personal qualities in my job”. Responses were given on a seven-point frequency scale, ranging from 1 (almost never) to 7 (almost always). The within-level alpha was .89, indicating a good reliability.

Since both general strengths use support and week-level strength use are fairly new constructs, we conducted a multilevel confirmatory factor Analysis (MLCFA) in Mplus (Muthén & Muthén, 1998–2010) to examine the validity of both constructs. Strengths use support items were identified as variables at the between-person level and were centred on the grand-mean, whereas strength use items were identified as variables at the within-person level and were centred on the group-mean. The eight items for strengths use support loaded on one factor at the between-person level, and the four items for strength use loaded on

one factor at the within-person level. Goodness-of-fit for the CFA analyses were evaluated using the  $\chi^2$ -likelihood ratio statistic. Because  $\chi^2$  test is sensitive to sample size, we also used the comparative fit index (CFI), the Tucker–Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) as guides in assessing fit. Levels of .90 or higher for CFI and TLI and .08 or lower for RMSEA and SRMR indicate an acceptable fit of the model to the data (Hu & Bentler, 1999). The MLCFA showed very good fit indices ( $\chi^2 = 64.18$ ;  $p = .001$ ; CFI = .96; TLI = .94; RMSEA = .07, SRMR between-person = .05; SRMR within-person = .02). The item loadings of the general strengths use support items ranged from .68 to .95 on the between-person level, and the loadings of the strength use items ranged from .77 to .86 on the within-person level.

*Week-level occupational self-efficacy* was measured using a three-item version of the six-item occupational self-efficacy scale developed by Schyns and Von Collani (2002) in order to reduce respondent burden. The items of the scale were transformed so that they referred to the week leading up to the measurement, for example “This week, I could find solutions for the problems occurring in my work” and “This week, I could handle whatever came my way in my job”. A Likert-type response scale with six categories was used, ranging from 1 (completely true) to 6 (not at all true). The within-person alpha was .68.

*Week-level work engagement* was measured with the nine-item version of the Utrecht work engagement scale (UWES) (Schaufeli et al., 2006) with three items for each of the three underlying dimensions: vigour, dedication, and absorption. The items of the scale were transformed to items focusing on a weekly basis (cf. Bakker & Bal, 2010; Breevaart, Bakker, Demerouti, & Hetland, 2012), for example “This week, I felt bursting with energy at my work” (vigour), “This week, I was enthusiastic about my job” (dedication), and “This week, I was immersed in my job” (absorption). A seven-point rating scale was used, ranging from 1 (never) to 7 (every day). The within-person alpha was .89.

An MLCFA, with all items for work engagement and strength use loading on one factor, showed a poor model fit ( $\chi^2 = 516.09$ ; TLI = .70; CFI = .75; RMSEA = .16; RMR within-person level = .09), whereas an MLCFA with work engagement and strength use loading onto separate factors showed an adequate model fit ( $\chi^2 = 150.327$ ; CFI = .95; TLI = .93; RMSEA = .07; RMR within-person level = .05). This indicates that strengths use and work engagement can be distinguished empirically.

*Week-level proactive behaviour* was assessed using a three-item version of the seven-item personal initiative scale (Frese et al., 1997). The items were transformed so that they referred to the week leading up to the measurement: “This week, I actively attacked problems”, “This week, I did more than I was asked to do”, and “This week

I took initiative immediately even when others didn't" (1 = not at all, 5 = very often). The within-person reliability of the scale was .70.

### Strategy of analysis

The data have a hierarchical structure with weeks nested within persons. Traditional multilevel modelling (MLM) approaches for analysing mediation effects can suffer from conflation of between-person and within-person effects (Preacher, Zyphur, & Zhang, 2010). Alternatively, aggregating within-person data to a higher level to conduct traditional mediation analyses is also highly problematic, because it assumes that the within-group variability is zero. In addition, aggregation effectively gives small groups and large groups equal group weight in determining the parameter estimates. Therefore, multilevel structural equation modelling (MSEM) was used to analyse the data on a between-person (level 2) as well as a within-person (level 1) level (Preacher, et al., 2010). Indeed, calculations of intra-class correlations for each of the week-level variables revealed that a significant and relevant percentage of the variance for weekly strengths use (58%), self-efficacy (71%), work engagement (41%), and proactive behaviour (61%) resides on the within-person (week) level, emphasizing the necessity to perform multilevel analyses (Snijders & Bosker, 1999). Whereas sample sizes smaller than 30 at the between-person level may lead to biased results (Scherbaum & Ferrerter, 2009), the present study included 65 persons. We also collected follow-up data across five consecutive weeks, consistent with trends in most diary or week-book studies which usually include 3–5 follow-up measures within persons across time (Bakker & Bal, 2010; Ohly, Sonnentag, Niessen, & Zapf, 2010). At the between-person level, we had no missing data. At the within-person level, we observed 274 out of a maximum number of 325 (weekly) cases, so the response rate at the week-level was 84.31%. Since multilevel analyses are

capable of handling datasets with a small number of missing values at the within-person level (Hox, 2010), we treated the dataset "as is", and included all the within-person data in our analyses.

## Results

### Descriptive statistics and preliminary analyses

Table 1 reports means, standard deviations, and zero-order correlations of the study variables. Correlations below the diagonal are at the between-person level ( $N = 65$ ), whereas correlations above the diagonal are at the within-person, week level ( $N = 274$ ). At the between-person level, results in Table 1 showed that none of the demographic variables (gender, age, work experience, work hours) were significantly associated with any of the study variables (i.e., general strengths use support, and all week-level variables). General strengths use support was significantly and positively related to weekly strengths use, work engagement, and weekly proactive behaviour. Also, at the within-person level, weekly strength use, self-efficacy, work engagement, and proactive behaviour were all significantly and positively correlated.

We conducted an MLCFA to analyse if each of the four indicators at the within-person level (weekly strength use, weekly self-efficacy, weekly work engagement, and weekly proactive behaviour) is a distinct construct. Results of confirmatory factor analyses with all four within-person level variables as separate constructs showed acceptable fit indices ( $\chi^2 = 331.880$  ( $df = 143$ );  $p < .001$ ; CFI = .92; TLI = .90; SRMR within-person level = .06; RMSEA = .07), indicating that the constructs are sufficiently distinct from one another.

### Testing the hypotheses

We performed MSEM as proposed by Preacher et al. (2010), using Mplus (Muthén & Muthén, 1998–2010) by setting up a 2-1-1-1-1 model. In this model, general

Table 1. Means, standard deviations, and correlations of the study variables.

	Mean	SD	1	2	3	4	5	6	7	8	9
1 Gender (0 = female, 1 = male)	0.15	0.36									
2 Age (years)	29.72	5.91	.00	—							
3 Work experience (years)	5.24	6.08	-.05	.92***	—						
4 Weekly work hours	38.98	4.45	-.10	-.47***	-.40***	—					
5 General strengths use support	4.87	1.00	.02	.16	.15	.04	—				
6 Weekly strength use	4.76	0.96	.15	.13	.15	-.07	.69***	—	.24***	.72***	.68***
7 Weekly self-efficacy	4.88	0.63	-.12	-.05	.03	.09	.12	.19	—	.23***	.15*
8 Weekly work engagement	4.30	0.89	.15	.06	.10	.03	.57***	.83***	.28*	—	.78***
9 Weekly proactive behaviour	3.49	0.62	.11	.09	.11	.05	.42***	.51***	.06	.55***	—

Note: \* $p < .05$ ; \*\*\* $p < .001$ . Correlations below the diagonal are between-person level correlations ( $N = 65$ ). Correlations above the diagonal are within-person observations at the week level ( $N = 274$ ).



strengths use support is the predictor variable at level 2 (the between-person level). Because strengths use support was only measured at the between-person level, it cannot predict within-person weekly fluctuations in any of the other variables. This means that we can only examine whether higher levels of strengths use support were associated with higher levels of strength use at the between-person level. Therefore, weekly strengths use was modelled at both the between-person and the within-person level using grand-mean centring to serve as a linking pin between our between-person level variable (strengths use support) and our within-person variables (self-efficacy, work engagement, and proactive behaviour). Strength use support and strength use were centred at the grand-mean, whereas self-efficacy, work engagement, and proactive behaviour were centred at the person-mean to assess within-person weekly fluctuations in these outcome variables within persons across the 5 weeks. We included a random intercept for strengths use, as this variable contains both between- and within-person variation.

In accordance with the hypothesized relations, one path flowed from general strengths use support to weekly strengths use. Also, a path from weekly strengths use to weekly work engagement was included, as well as an indirect path flowing from weekly strength use to weekly

work engagement via weekly self-efficacy. In addition, a path from weekly engagement to weekly proactive behaviour was included. Indirect effects (i.e., sequential mediation) were calculated in a separate model constraints section of the model. Also, we controlled for the lagged effects of the preceding week for all of the week variables. This way, we can test if within-person relationships occurred above and beyond the effects of the previous week on the next week.

The model fitted the data well ( $\chi^2 = 509.37; p < .001$ ; CFI = .93; TLI = .91; RMSEA = .05; SRMR within-person = .04; SRMR between-person = .03). Figure 2 shows the MSEM model, including factor loadings of all individual items on the studied constructs, as well as unstandardized estimates and significance levels for the paths of the structural model. Confirming our first hypothesis, general strengths use support related positively to the weekly use of strengths at the between-person level (estimate = .51; SE = .09;  $t = 5.43; p < .001$ ). Moreover, weekly strengths use related positively to weekly work engagement (estimate = .32; SE = .07;  $t = 4.90; p < .001$ ), which supports Hypothesis 2a.

In Hypothesis 2b, we predicted that weekly strengths use would be positively related to fluctuations in weekly work engagement through fluctuations in weekly self-

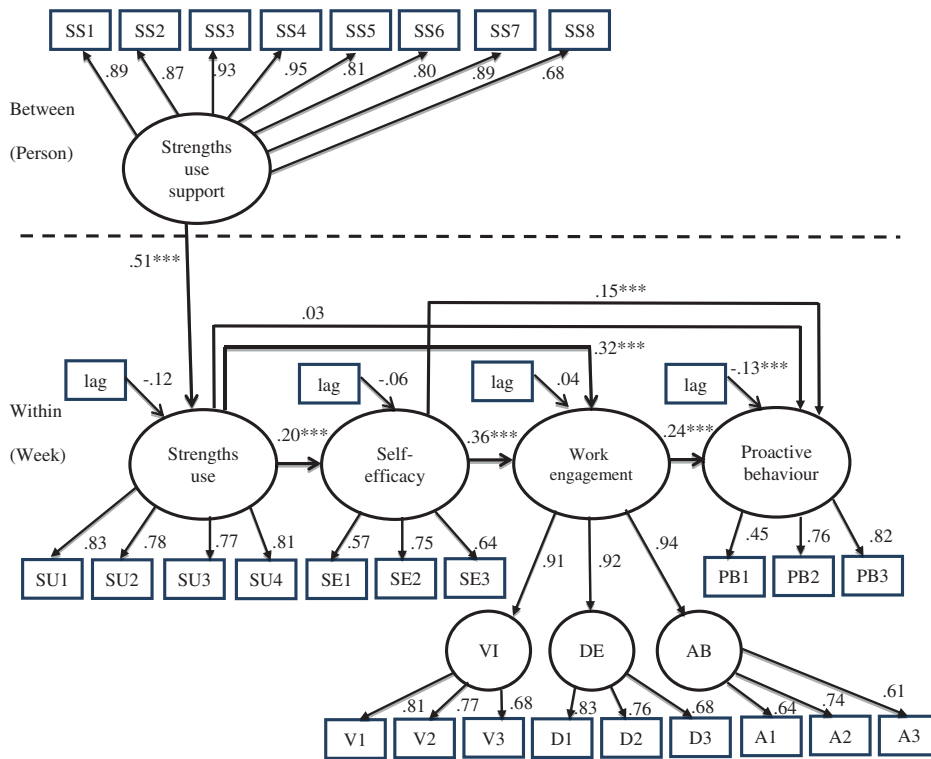


Figure 2. Multilevel structural equation model of strengths use support and positive organizational behaviour ( $\chi^2 = 509.370; p < .001$ ; CFI = .93; TLI = .91; RMSEA = .05; RMR within-person = .04; RMR between-person = .03). Note that strengths use support and strengths use were centred at the grand-mean, whereas self-efficacy, work engagement, and proactive behaviour were centred at the person-mean.

efficacy. We tested this indirect effect using the model constraints procedure as proposed by Preacher et al. (2010). In support of Hypothesis 2b, results showed that the indirect effect of weekly strengths use on weekly work engagement via self-efficacy was indeed significant (estimate = .07;  $SE = .03$ ;  $t = 2.26$ ;  $p < .05$ ). However, strength use is still positively related to work engagement even when taking into account this indirect path. Because the distribution of the product-by-coefficients is skewed, we also conducted Bayesian analyses to test our mediation hypotheses (Kruschke, Aguinis, & Joo, 2012). Bayesian analyses confirmed that the credibility interval of the effect of strength use on work engagement, via self-efficacy, was higher than 0 (95% CI = .12, .15; zero deemed not credible), supporting Hypothesis 2b.

Hypothesis 3 predicted that weekly strengths use would be positively related to fluctuations in weekly proactive behaviour through fluctuations in subsequently weekly self-efficacy and weekly work engagement. Again, we tested for the significance of such an indirect effect by using the model constraints procedure as proposed by Preacher et al. (2010). Results showed that this indirect effect was indeed significant (estimate = .02;  $SE = .01$ ;  $t = 1.97$ ;  $p < .05$ ). Moreover, Bayesian analyses confirmed that the credibility interval of the effect of strength use on proactive behaviour, via self-efficacy and work engagement, was higher than 0 (95% CI = .02, .42; zero deemed not credible), supporting Hypothesis 3.

Hypothesis 4 stated that strengths use support would be indirectly and positively related to weekly proactive behaviour. In particular, we expected that more strengths use support would be related to weekly strengths use among employees, which would relate to higher levels of weekly self-efficacy, work engagement, and proactive behaviour. Using the procedure of Preacher et al. (2010), results showed that the indirect effect of general strengths use support on weekly proactive behaviour was not significant (estimate = .01;  $SE = .00$ ;  $t = 1.85$ ;  $p = .064$ ), rejecting Hypothesis 4. Bayesian analyses also showed that the credibility interval of the mediated effect of strength use support on proactive behaviour was equal to 0 (95% CI = .00, .02; zero deemed credible), rejecting Hypothesis 4.

However, additional analyses did show that the indirect effect from general strengths use support to weekly work engagement, via weekly strengths use and weekly self-efficacy, was significant (estimate = .04;  $SE = .02$ ;  $t = 2.081$ ;  $p < .05$ ). Bayesian analyses confirmed that this relationship was indeed credible (95% CI = .01, .08, zero deemed not credible). Also, there was a significant indirect effect from weekly strength use on proactive behaviour, via self-efficacy and work engagement (estimate = .17;  $SE = .009$ ;  $t = 1.97$ ;  $p < .05$ ). Again, Bayesian analyses showed similar results (95% CI = .01, .04; zero deemed not credible).

In additional analyses, we investigated whether our hypothesized model (as presented in Figure 2) fits better to the data compared to four alternative models. In a first alternative model, we swapped the position of weekly work engagement and weekly self-efficacy so that general strengths use support would first relate to strength use, and weekly strengths use would subsequently relate to work engagement, self-efficacy, and proactive behaviour. In a second alternative model, we tested whether general strengths use support would first relate to strength use and whether strengths use at the within-person level would subsequently be associated with weekly proactive behaviour, self-efficacy, and finally work engagement. In a third alternative model, we examined whether general strengths use support would first relate to strength use and whether weekly strength use at the within-level would relate to proactive behaviour, work engagement, and finally self-efficacy. In a fourth model, we tested whether strengths use support would relate to both strength use and proactive behaviour, and whether weekly strengths use and proactive behaviour would relate to work engagement via self-efficacy.

When comparing the four models, several things stand out. First, alternative models 2, 3, and 4 showed a significantly poorer fit than the proposed model in terms of  $\chi^2$  (Model 2 vs. hypothesized model:  $\chi^2$  difference = 7.231;  $p < .01$ ; Model 3 vs. hypothesized model:  $\chi^2$  difference = 7.334,  $p < .01$ ; Model 4 vs. hypothesized model:  $\chi^2$  difference = 82.925,  $p < .001$ ). Second, the fit indices of alternative Model 1 showed no significant differences in comparison with our hypothesized model in terms of  $\chi^2$  ( $\chi^2$  difference = .225,  $p = .61$ ) and other fit indices (CFI, TLI, RMSEA, SRMR within-person, SRMR between-person). Moreover, all direct relationships at the within-person level were significant in this model. Thus, at the within-person level, strength use related positively to work engagement (estimate = .39;  $SE = .06$ ;  $p < .001$ ); work engagement related positively to self-efficacy (estimate = .19;  $SE = .08$ ;  $p < .01$ ); and self-efficacy related positively to proactive behaviour (estimate = .15;  $SE = .07$ ;  $p < .05$ ). However, the indirect path from strength use to proactive behaviour, via work engagement and self-efficacy, was not significant (estimate = .011;  $SE = .007$ ;  $p = .12$ ), whereas in our hypothesized model, the indirect effect of weekly strength use to weekly proactive behaviour through self-efficacy and work engagement was significant (estimate = .017;  $SE = .009$ ;  $p < .05$ ). Therefore, from an empirical perspective, we conclude that the ordering of the weekly variables at the within-person level in our hypothesized model provides the best fit to the data. Moreover, from a more theoretical perspective, based on the job demands–resources model (Xanthopoulou et al., 2009) and the conservation of resources theory (Hobfoll, 2001), one can argue that personal resources such as self-

efficacy are causally related to well-being outcomes such as work engagement.

### Discussion

Although work is a major life domain that affords important opportunities for strengths deployment (Seligman, 2002), there has been virtually no research on individual strengths use in work organizations. This is unfortunate, especially because the workplace is a setting where people are expected to perform at high standards. To deal with economic uncertainty, global competition, and advancing technology, today's organizations need engaged employees who show initiative and go the extra mile (Bakker & Schaufeli, 2008; Luthans, 2002). Using strengths can be of help in meeting these performance requirements that go beyond the fulfilment of core technical activities. The current study has shown that organizational strengths use support is positively related to weekly strengths use and that weekly strengths use is positively related to weekly work engagement and proactive behaviour, mediated through weekly self-efficacy.

### Theoretical contributions

Although previous research has shown that using strengths in general leads to better well-being, and while there is some evidence from survey research that this also applies to work contexts (Harzer & Ruch, 2012, 2013), little is known about the factors that predict strengths use, to what extent strengths use varies between individuals but also between occasions, and whether fluctuations in strengths use may explain fluctuations in work engagement and proactive behaviour.

The results of our weekly diary study indicate that employees who are supported by their organization to use their strengths are more inclined to use their strengths at work on a weekly basis, and develop higher levels of self-efficacy and work engagement. This is an important contribution to strengths theories, which have often treated excitement, invigoration (Peterson & Seligman, 2004), and enjoyment (Govindji & Linley, 2007) as defining characteristics instead of consequences of strengths use. Moreover, our finding that self-efficacy mediates the relationship between strengths use and work engagement adds to our understanding of the mechanisms that might explain why using strengths makes people more engaged.

Our research design was not experimental and we do not know whether the relations between strengths use support, strengths use, self-efficacy, and work engagement are causal. However, our measurement of strengths use support preceded the measurement of weekly strengths use and work engagement, and we controlled for the lagged effects of the preceding week for all of the week variables. This indicates that

organizations can stimulate strengths use, self-efficacy, and work engagement by allocating tasks according to individual strengths, giving opportunities for complementary partnering and allowing people to choose a task strategy that plays to their strengths while making their weaknesses less relevant for their performance. Whereas strengths use support did indirectly contribute to work engagement, we did not find an indirect relation with proactive behaviour. Future research, including larger sample sizes is needed to investigate whether this non-significant effect was a result of our limited sample size or that we need to revise our theoretical considerations.

Knowing that perceived strengths use support may lead to higher levels of strengths use is important, especially since there is still little knowledge about the effectiveness of positive psychology interventions in organizational settings that aim to increase the level of strengths use (Meyers, Van Woerkom, & Bakker, 2013). There is some literature based on clinical samples (Duckworth, Steen, & Seligman, 2005) to suggest that strengths use can be stimulated with short-term interventions, such as having participants take a strengths test, providing them with feedback about their strengths, and asking them to use different strengths in new ways every day for 1 week. Although these short-term interventions may give an immediate boost to individual strengths use, it is possible that this effect may fade over time (Duckworth et al., 2005). Because perceived strengths use support is able to explain a considerable proportion of the between-person variance in strengths use, our findings indicate that POS for strengths use may have a more long-lasting effect on strengths use. Future studies should try to employ an experimental design in which employees are instructed to use their strengths at work. This could be done by first measuring participants' strengths (e.g., with the values in action inventory of strengths, Peterson & Seligman, 2004), and then asking them to use their strengths on a daily basis. By following the participants over time and comparing their behaviours to those of a control group, we can establish stronger support for the causal relation between strengths use support and strength use.

Previous studies have shown that strengths use is related to well-being, stress, self-esteem, vitality, and positive affect in a community sample (Wood et al., 2011), and that the application of character strengths in a vocational context is related to job satisfaction, pleasure, engagement, meaning, and calling (Harzer & Ruch, 2012, 2013). The current study was the first to reveal the mechanisms through which the frequency of weekly strengths use is related to organizational behaviour. Specifically, we found that weekly strength use was positively related to proactive behaviour, through weekly self-efficacy and work engagement, thereby providing further support for the broaden-

and-build theory of positive emotions (Fredrickson, 1998, 2001; Vacharkulksemsuk & Fredrickson, 2013) in the context of work.

Proactive behaviour has proven to be an important aspect of job performance (Belschak & Den Hartog, 2009; Crant, 2000; Porath & Bateman, 2006). Proactive workers perform better because they create favourable conditions while preventing negative events from occurring, they plan better, and are more active in acquiring useful information (Baer & Frese, 2003; Crant, 2000; Frese & Fay, 2001). In the current study, the respondents were civil engineers who work on the design, construction, and maintenance of roads, bridges, canals, dams, and buildings. In collaboration with public, private, and international partners, and facing financial, social, economic, and policy issues, these engineers need to come up with solutions for complex problems like flood management, urban run-off, air pollution from transport systems, and the protection of animal habitat. Needless to say, these engineers cannot be successful by being passive implementers of orders from above, waiting for information and opportunities to come to them and giving up in the face of difficulties.

Because, like many other professionals, the success of these engineers is to a large degree dependent on their proactivity, it is important to uncover the underlying processes that motivate proactive behaviour (Fritz & Sonnentag, 2007). Although older research has defined proactivity as a relatively stable trait (Bateman & Crant, 1993), more recent research has already shown that proactive behaviour is a discretionary activity that takes additional effort and that people need enough resources to make this effort (Sonnentag, 2003). Our study builds on these insights by showing that regular strengths use may facilitate personal resources like self-efficacy that makes employees more engaged and more likely to engage in proactive behaviour. For example, when a civil engineer can use her strength in active listening in a project where she needs to collaborate with different parties who have different interests, this may make her feel successful and foster her self-efficacy. As a result, her levels of energy and dedication to the project may increase and these positive emotional states will provide her with the resources to be more actively involved in the project and to do more than she is formally asked to do. This is an important finding that contributes to our knowledge about the antecedents of proactive behaviour.

### *Limitations and future research*

This study has certain strengths, but also some limitations. One possible limitation is the use of self-report measures only. Although perceptions may be more important than objective reality in terms of understanding what people feel, think, and do (Wood et al., 2011), future research

should try to include more objective indicators of proactive behaviour, and possibly also more objective indicators of organizational support for strengths use. Moreover, our sample consists of engineers—an occupational group that is predominantly male and highly educated, and has a high level of task autonomy. Although we mainly studied mechanisms at the within-person level, and we have no reason to believe that these mechanisms will be different in other samples, the relationship between strengths use support and strengths use at the between-person level might be stronger in populations of professionals with relatively high levels of autonomy. This could limit the generalizability of our findings, suggesting that future research that aims to replicate our findings in different work settings and with different types of employees would be valuable. Also, we found a rather high correlation between strengths use and engagement at the within-person level. Although work engagement refers to a person's well-being and strengths use is a behavioural measure, and both MLCFAs and our general model clearly indicated that strengths use and work engagement are separate constructs, future research should investigate to what extent strengths use and engagement can indeed be differentiated empirically.

Future research could also explore other factors that may explain strengths use at work. One possible example of such a factor is the individual's level of strengths knowledge. Possibly, employees who know their strengths well may have less difficulty with integrating these strengths into the sense of self and as a result of that employ them more frequently in their work (Biswas-Diener et al., 2011). Furthermore, although our findings indicated that more than half of the variance in weekly strengths use resides on the within-person (week) level, we were not able to explain this within-person variance with the current dataset. Future research could investigate the factors that explain these weekly variations in strengths use, for instance by including variables related to the weekly strengths use support from the supervisor or from colleagues, or weekly levels of task characteristics such as task autonomy and feedback.

### *Practical implications*

Empirical evidence supporting the supposed beneficial effects of applying positive psychology principles to the workplace is still sparse, which may inhibit practitioners to implement these practices more often. Our study suggests that strengths use is indeed beneficial for employees and organizations. Moreover, our results indicate that organizations can help employees to use their strengths more often by providing strengths support. One way to do this could be by making sure that HR practices such as training and development, appraisal and reward, and job design and task allocation are



based on employees' strengths and by integrating the use of instruments such as the strengths-finder (Rath, 2007), feed-forward interviews (Bouskila-Yam & Kluger, 2011), and reflected best self-exercises (Roberts et al., 2005) in these practices. Another influential factor in creating organizational strengths support is the line manager who needs to develop sensitivity for the strengths of subordinates, and who has an important role in the implementation of strengths-based HR practices. Line managers who are used to applying a deficit approach may need to be convinced of the benefits of employee strengths by arguing that providing support for strengths use does not mean that problematic performances should no longer be addressed or that subordinates are allowed to do whatever they like. However, instead of automatically translating employees' weaknesses to learning goals, discussions about employee development can also focus on the question of how to develop towards an ideal level. Our results suggest that such an approach may not only lead to more efficacious but also to more engaged employees.

#### Disclosure statement

No potential conflict of interest was reported by the authors.

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