



The VIVA Sustainable Work Engagement Model: A Conceptual Introduction and Preliminary Test Over Three Years

Cedomir Ignjatovic¹ · Margaret L. Kern¹ · Lindsay G. Oades¹

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Abstract

Vital engagement has been described as a focused, meaningful, and active relationship with work across one's lifetime (Nakamura, 2001, 2014). Theoretically, vital engagement goes beyond short-term interest and engagement in one's work, representing instead an ongoing, homeostatic sense of engagement that sustainably occurs across years and decades. However, it is unclear how vital engagement manifests in the modern workplace. In the footsteps of Nakamura (2014), we present the VIVA model, which conceptualizes sustainable work engagement as comprised of four mutually reinforcing elements: virtue, involvement, vitality, and acceptance. We first describe the rationale and conceptual underpinnings of the model. Then, we provide a preliminary empirical test of the model using archival data collected from a panel of school staff ($N=327$) assessed five times over a three year period. Based on available data, the VIVA domains were operationalized as strengths use, work-related flow experiences, subjective vitality, and a sense of meaning in life. Using structural equation modelling, results provided preliminary support for the hypothesized model, which was relatively stable over time despite changes and challenges occurring in the school. The construct was strongly correlated with but distinct from other wellbeing measures. Although additional testing with measures that specifically align with the four theoretical dimensions is needed, the results support the relevance of the VIVA model in defining specific domains that can be supported in the workplace to help employees sustainably thrive.

Keywords Workplace engagement · Flow at work · Strengths use · Meaning in life · Subjective vitality · Employee wellbeing

✉ Cedomir Ignjatovic
c.ignjatovic@student.unimelb.edu.au

¹ Melbourne Graduate School of Education, The University of Melbourne, Parkville, VIC, Australia

1 The VIVA Sustainable Work Engagement Model: a conceptual introduction and preliminary test over three years

Numerous studies have examined definitions, operationalizations, and applications of engagement across the organizational literature (e.g., Bakker & Demerouti 2007; Langford, 2009; Schaufeli & Bakker 2003; Sonnentag et al., 2010; Stairs & Galpin, 2010). Although these studies have clearly documented indicators of engagement, conceptualizations of work engagement as a construct, and benefits and predictors of engagement (e.g., Schaufeli & Bakker 2003; Stairs & Galpin, 2010), comparatively fewer studies have focused on the process through which workplace engagement unfolds as part of adult development and how it can manifest as a virtuous process (cf. Nakamura & Condren, 2018). This matters because many employees worldwide not only want “good” jobs – steady employment with reliable remuneration – but many also want “great” jobs – occupations that provide a sense of meaning and engagement (Gallup, 2015; Gardner et al., 2001).

It is thus critical for scholars and practitioners to understand the process of what Kahn (1990) described as bringing one’s full self into one’s work. Nakamura (2001) named such a process as *vital engagement*, which she defined as an ‘absorbing and meaningful relationship between self and world, [which] can be found in any sphere of life’ (p. 5). Vital engagement incorporates subjective feelings of engagement and the conditions under which engagement occurs, which transpire dynamically over time (Nakamura, 2001, 2011, 2014; Nakamura et al., 2009) further suggested that vital engagement can occur across multiple inter-related domains of life, which unfold as a person navigates between the self and the environment in ways that are personally meaningful and socially beneficial. Nakamura (2014) illustrated how vital engagement appeared across a number of domains through a series of case studies, providing support for the general concept, though clarity around how the concept of vital engagement manifests in specific life domains remains unclear.

Here we focus on the workplace domain, introducing the *VIVA sustainable workplace engagement model*. We begin by identifying the role of work within human development. We next introduce the VIVA model. We then use archival data to provide a preliminary test of the VIVA model. As a whole, we aim to advance the understanding of how vital engagement can be fostered in sustainable ways, informing opportunities for supporting optimal development across adults’ working lives.

2 Work Engagement versus Vital Engagement

Vital engagement involves aligning the true self with one’s world (Nakamura, 2001; Csikszentmihalyi, 1990) conceived of the self as a developmental entity that is homeostatic in nature – the self unfolds through a process that is highly fluid and accepting of information as it occurs throughout the day and keeps up with challenges as they occur, in meaningful and character-enhancing ways. That is, the engaged person is authentic to themselves in an ongoing and reinforcing manner, despite dynamic changes constantly occurring in and around that person. Indeed, qualitative studies of individuals who exhibit a capacity to remain vitally engaged with their work through-

out their careers show who, in addition to being excellent and ethical performers, experience an unwavering sense of authenticity and meaning in their work. (Gardner, 2001; Nakamura & Csikszentmihalyi 2003, Nakamura et al., 2009).

These studies suggest an important distinction between vital engagement – a dynamic, ongoing alignment of one’s true self with one’s work and other models of work engagement. For instance, Schaufeli & Bakker (2003) suggest that when engaged in good work, employees will have a sense of vigor, be dedicated to their work, and be absorbed in the tasks at hand. A person might be good at their work and appreciate the stimulation and income that it provides, despite the work not aligning with their true self. They give their energy and attention in the short term, but ongoing engagement through struggle and conflict becomes more challenging. In contrast, we suggest that vital engagement is a value-laden construct, occurring when the person is driven by and living according to their deepest values. It arises when the person feels fully aligned with their work. It is their profession and passion. It is not simply good work – it is great work, arising from the person’s values, involvement in the organization, and acceptance of one’s true self, and provides an ongoing sense of vitality, in an ongoing, dynamic manner.

3 The VIVA Model

A model or framework can be helpful for making abstract ideas more tangible and accessible (Kern et al., 2020). In the footsteps of Nakamura (2014) we propose the VIVA model, suggesting that vital engagement emerges from the combination of Virtuous, Involved, Vital, and Accepting (see Fig. 1). As emergent factors, each are

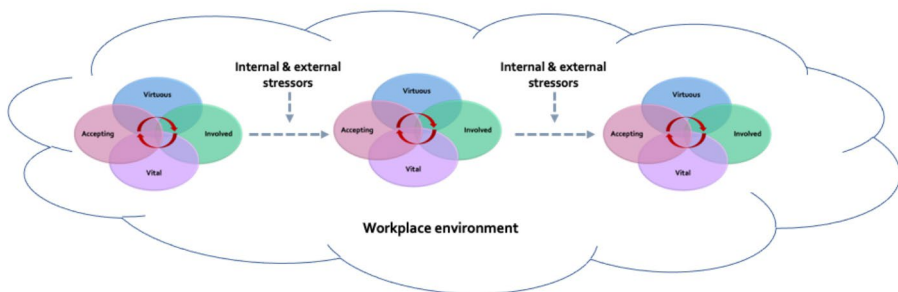


Fig. 1 The VIVA model of sustainable workplace engagement

necessary but not sufficient conditions for vital engagement to sustainably occur over time.

The original vital engagement concept proposed by Nakamura (2001) described vital engagement as an outcome comprised of flow experiences and a sense of meaning or purpose, reflecting passion for one's work (see also Nakamura & Csikszentmihalyi 2003). Considering that measures of flow at work and meaning exist, this provides one way in which vital engagement could be operationalized. However, we suggest that these elements alone are insufficient. Workplaces are dynamic, with ongoing stressors and challenges; some employees thrive through pressures, whereas others are less resilient. As such, it is necessary to identify how these elements unfold and are maintained over time. Prior studies suggest that prolonged engagement arises in part from meaningful participation in a one's world, enabled through authentic felicitous action and acceptance of both individual and cultural needs, which produces an ongoing sense of energy and enthusiasm (Little, 2014; Nakamura & Csikszentmihalyi, 2003). We thus suggest two additional necessary elements: working in a manner that aligns with and is authentic to one's values (i.e., virtuous), and a subjective sense of vitality. In addition, we specifically focus on the workplace domain, rather than broader domains of life. Thus, the VIVA model builds upon and extends Nakamura's vital engagement model to represent sustainable workplace engagement.

We suggest that these four emergent factors dynamically reinforce one another to sustain workplace engagement over time. Importantly, when repeatedly reinforced over time, although theoretically this could lead to positive spirals of positive growth and development, from a systems perspective, optimal functioning occurs through homeostasis rather than uninhibited growth (e.g., Csikszentmihalyi, 2014; Kern et al., 2020; Rathunde & Csikszentmihalyi, 2006). Because of the way in which the self is realized via the 'transaction with the environment' (Nakamura & Csikszentmihalyi, 2003, p. 88), we suggest that internal and external stressors and challenges that occur in the work environment act to balance uninhibited growth. Thus, vital engagement is conceived of as a being homeostatic in nature, maintaining functioning within one's optimal range, balancing the four elements to adjust and adapt to the dynamic work environment. Here we unpack these four elements, before turning to a preliminary empirical test of the VIVA model.

3.1 Virtuous

The first VIVA component – virtuous – represents being authentic to one's true self. Aristotle (1976) considered a virtuous action as one that balances the demands of the context and the strengths which are employed. A 'strength is a pre-existing capacity for a particular way of behaving, thinking, or feeling that is authentic and energizing to the user, and enables optimal functioning, development and performance' (Linley, 2008, p. 9). Ruch and colleagues (Giuliani et al., 2020; Harzer & Ruch, 2012; Ruch & Proyer 2015) have demonstrated that the skillful enactment of one's strengths reveals virtues – results that are aligned with Aristotle's notions of eudaimonia. That is, frequently harnessing one's strengths within a meaningful path and with a sense of enjoyment and enthusiasm enables an individual to optimally negotiate everyday challenges whilst applying the best of oneself (cf. Nakamura & Condren, 2018). The

diverse and unique ways of applying one's strengths appears to influence wellbeing not only in the short term, but also across longer periods (Linley, Nielson, Gillet, & Biswas-Diener, 2010; Wood et al., 2011). We suggest that optimal development occurs as a person flexibly fits themselves to their environment in virtuous ways (Csikszentmihalyi & Rathunde, 2014; Nakamura & Condren, 2018), applying one's best self to manage the processes required of the developing adult in their life and work during periods of both growth and loss (Tse et al., 2019).

3.2 Involved

The second VIVA component – involved – aligns with Schaufeli and Baaker's (2003) workplace engagement domains of dedication and absorption. Csikszentmihalyi (1990) termed such involvement as *flow*, a largely cognitive construct (e.g., effortless attention; Csikszentmihalyi & Nakamura 2010), around which affective, motivational, and volitional experiences arise, depending on the contextual factors present (Delle Fave et al., 2011; Ignjatovic et al., 2021). Nakamura & Csikszentmihalyi (2003) described the flow experience as 'enjoyed absorption' (p. 88). Existing evidence supports the influential impact of flow at work on employee performance, sense of personal growth and expansion, and their sense of wellbeing Bakker, 2008; Delle Fave & Massimini, 2003; Fullagar & Delle Fave, 2017). We suggest that flow emerges from a sense of meaningful involvement within one's environment (cf. Delle Fave, 2009), which creates psychic energy (Csikszentmihalyi, 1990), but also requires energy and investment in activities that provide graduated opportunities for self-development (Demerouti et al., 2012; Nakamura & Csikszentmihalyi, 2005).

3.3 Vital

The third VIVA component – vital – reflects an ongoing sense of feeling energized by one's work, with an ongoing sense of subjective enjoyment, including a sense of alertness, feelings of aliveness, and energy for one's self (Ryan & Frederick, 1997). When engaged in intense and meaningful work experiences, individuals show they can engage in their work tirelessly for long hours and enjoyed their profession for the opportunities for optimal experience over the status and financial benefit it provided (Csikszentmihalyi, 1990; Nakamura & Csikszentmihalyi, 2003). Vitality is dynamic in nature, requiring an ongoing balancing, integrating, and differentiating modes of information processing as the person navigates the environments and experiences of life (Nakamura & Csikszentmihalyi, 2005; Rathunde & Csikszentmihalyi, 2006; Tse et al., 2019). That is, vitality arises through a combination of seeking novelty (i.e., differentiation) and creating order (i.e., integration), within the continuous interaction that occur with one's context and environment.

3.4 Accepting

The fourth VIVA component – accepting – reflects the sense of meaning that occurs when an individual perceives that 'life and existence feel important and significant' (Steger & Frazier, 2005, p. 579). One has an existential acceptance of the self, with

a sense of understanding of how one fits within their environment and life experiences and circumstances (Kaufman, 2020; Csikszentmihalyi 1990; Delle Fave, 2009). Meaning is not simply something that occurs, but rather evolves on an ongoing basis (Delle Fave, 2009), within important domains of life such as the workplace and home. A sense of meaning arises as individuals engage in activities that are often commonplace yet autotelic, accompanied by contentment with and integration of oneself and one's actions in culturally adaptive ways (Csikszentmihalyi, 1990; Nakamura & Csikszentmihalyi, 2005; Rathunde & Csikszentmihalyi, 2006; Steger, 2012). Ongoing acceptance and energy are required to continue to persist on an optimal trajectory over a person's working career (Gardner et al., 2001; Nakamura, 2014; Nakamura et al., 2009), such that an ongoing relationship occurs between meaningful or good work and optimal experiences (Csikszentmihalyi, 2003; Gardner et al., 2001; Salanova et al., 2006).

3.5 The Fluid and Contextual Nature of Vital Engagement

We suggest that the four VIVA components dynamically influence and impact upon one another, synergistically reinforcing one another to provide multiple pathways to successfully navigate the stressors and challenges that one encounters on an ongoing basis, maintaining homeostatic functioning within one's optimal range. Vital engagement is a contextually bounded construct (cf. Nakamura, 2014), with the focus of the VIVA model being specifically on the work domain. Individuals are continually interacting with, impacted by, affecting, and learning from the environments surrounding them, circumstances they encounter, and their perceptions and interpretations of those environments and circumstances. Vital engagement does not occur in the absence of stress, but rather arises as individuals embrace their experiences, adapting their behaviors, cognitions, and/or emotions to fit the challenges, needs, and opportunities before them in an authentic manner (Tse et al., 2019).

In contrast to constructs such as work engagement that are often measured and conceptualized as one's subjective status at a particular state in time (Bakker & Demerouti, 2007; Stairs & Galpin, 2010), we suggest that vital engagement incorporates the impact of important work experiences occurring over months, years, and decades (Csikszentmihalyi & Rathunde, 2014; Nakamura et al., 2009). For instance, Nakamura et al., (2009) utilized qualitative methods to demonstrate that mentors that exhibit vital engagement over their working careers can be influential not only to the field of science but also subsequent scientists for up to two generations later. Thus, while we would expect vital engagement to correlate with subjective markers of well-being and job satisfaction, we expect the measurable impact on objective measures of success would be equivocal. Vital engagement is more about the experience and subjective perception of one's work that enables an employee to enjoy and be committed to their work (Nakamura & Csikszentmihalyi, 2003), rather than being about one's performance or achievements at work.

4 A preliminary test of the VIVA Model

To provide a preliminary empirical test of the VIVA model, we drew upon archival data consisting of five measurement occasions collected over a three-year period from a group of school staff (Green, Oades, & Robinson, 2011). Between 2011 and 2013, a private K-12 school in New South Wales, Australia aimed to sustainably increase the wellbeing of students, staff, and parents through a series of programs and interventions. As part of the wellbeing program, staff received training in positive psychology principles, including strategies to improve wellbeing in themselves and their students. The training focused on the Values in Action approach to strengths (Peterson & Seligman, 2004), where staff received feedback about their character strengths, and techniques to putting them into play on a daily basis. A broad range of organizational and wellbeing assessments were undertaken twice per year for the first two years (T1-T4) and once in the third year (T5). Participants were informed about the details of the study and provided consent to be a part of the research. All procedures were approved by the University of Melbourne's ethic review board (protocol #1,750,027).

Of the available measures collected through the larger study, we focused here on questions intended to assess general strengths use (to represent Virtuous), work related flow (to represent Involved), subjective vitality (to represent Vital), and meaning in life (to represent Accepting). We acknowledge that these scales are imperfect representations of the VIVA constructs but identified these scales as the closest representations of the VIVA components described above.

We expected that the vital engagement construct to be relatively consistent over time, despite the changes occurring at the school, reflecting the homeostatic nature of the construct. We also examined associations between the latent vital engagement and available measures of wellbeing, passion, work climate, and work engagement. We expected vital engagement to strongly correlate with but still be distinctive from wellbeing, passion, and work engagement, with weaker correlations with work climate.

5 Method

5.1 Participants

The full study included 327 school staff. Of these, 150 participants completed the measures used in the current study on one occasion, 65 completed two occasions, 41 completed three occasions, 31 completed four occasions, and 28 completed all five occasions. Consideration of missing patterns (see Supplement 1 available at OSF site) did not reveal any systematic patterns of missingness within or across occasion, although with the large amounts of missing data, care should be taken in generalizing results.

5.2 Measures

Most measures were included at each measurement occasion which occurred at six- to 12-month intervals. However, meaning in life and work engagement were later additions, such that meaning in life was only available at T3-T5, and work engagement was only available at T4 and T5. While the measures that we included have demonstrated evidence of validity and reliability in other studies, we were limited by the measures available, and thus report on the reliability of the measures as manifested in the current study.

Strengths Use Scale (SUS) The Strengths Use Scale (Govindji & Linley, 2007) includes 14 items that measure the extent to which participants use their strengths in various situations and challenges both on a daily basis and over time (1=strongly disagree, 7=strongly agree), with items such as: ‘I am able to use my strengths in lots of different situations’ and ‘Most of my time is spent doing things that I am good at doing’. In the current sample, Cronbach’s alphas ranged from .89 to .97.

Work-Related Flow scale (WRF) The Work-Related Flow scale (Bakker, 2008) includes 13 items that assess the frequency that employees experience flow at work. The scale has three subscales: absorption (4 items), work enjoyment (4 items), and intrinsic work motivation (5 items). The measure has frequently been used in studies over the past 15 years, but has also been criticized for including work enjoyment as part as part of the flow experience at work along with missing other important components of flow (Schiepe-Tiska & Engeser, 2017). The enjoyment component also overlaps more with the VIVA component of vital. As such, we included the absorption and intrinsic work motivation subscales and excluded the work enjoyment subscale. Considering the past two weeks, participants indicated on a 7-point scale (1=never and 7=always) the extent to which statements such as ‘I am totally immersed in my work’ (absorption) and ‘I get motivation from the work itself, and not from the reward for it’ (intrinsic work motivation) describe their experiences. In the current sample, Cronbach’s alphas ranged from 0.71 to 0.88 for absorption and 0.61 and 0.75 for intrinsic motivation.

Subjective vitality scale (SVS) The Subjective Vitality Scale was originally developed by Ryan and Fredrick (1997), and was subsequently refined by Bostic et al., (2000). Six items assess a person’s subjective experience of being full of energy and alive and a 7-point scale (1=not at all, 7=very true) with statements such as ‘I have energy and spirit’ and ‘I look forward to each new day’. In the current sample, Cronbach’s alphas ranged from 0.83 to 0.87.

Meaning in Life Questionnaire (MLQ) The Meaning in Life Questionnaire is a 10-item measure that assesses both the presence of (5 items) and search for (5-items) meaning in life (Steger et al., 2006). In the current study, we used the presence of meaning subscale. Participants responded to questions such as ‘makes your life and existence feel important and significant to you’, on a 7-point scale (1=absolutely untrue, 7=absolutely true). In the current sample, Cronbach’s alphas ranged from 0.82 to 0.88.

Warwick-Edinburgh Mental Wellbeing Scale (WEMWEBS) The Warwick-Edinburgh Mental Wellbeing Scale (Tennant et al., 2007) was developed to enable the monitoring of mental wellbeing in general populations and the evaluation of projects, programs, and policies which aim to improve mental wellbeing. The scale includes 14 items which assess general wellbeing over the past two weeks on a 5-point scale (1 = none of the time, 5 = all of the time), on items such as ‘I’ve been feeling useful’ and ‘I’ve been feeling close to other people’. In this current sample, Cronbach’s alphas ranged from 0.86 to 0.91.

Voice Climate Survey- Passion Subscale (VCS-P): The Voice Climate survey is an opinion survey that measures work practices and outcomes (Langford, 2009) across 7 domains: purpose, property, participation, people, peace, progress, and passion. The survey consists of 102 items, rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree). The current study utilized the 10-item passion subscale, which included the combination of organizational commitment (e.g., “I feel a sense of loyalty to this organization”), job satisfaction (“Overall I’m satisfied with my job”), and intention to stay (“I can see a future for me in this organization”). In the current study, the internal consistency ranged between .71 and .82.

Work Climate Questionnaire (WCQ) The WCQ assesses the sense of managerial support within a working context (Baard et al., 2004). The questionnaire includes 15 items rated on a 7-point scale (1 = not at all true, 7 = very true), including items such as ‘I feel that my manager provides me choices and options’, and ‘my manager conveyed confidence in my ability to do well at my job. In the current sample, Cronbach’s alphas ranged from .80 to .86.

Utrecht Work Engagement scale (UWES): The Utrecht Work Engagement scale (Schaufeli & Bakker, 2003) includes 17 items designed to measure how an employee feels about their work. The scale includes three dimensions: vigor (six items; e.g., “When I get up in the morning, I feel like going to work”), dedication (five items; e.g., “I am enthusiastic about my job”), and absorption (six items; “when I’m am working, I forget everything else around me”), rated on a 7-point scale (0 = never, 6 = every day). In the current sample, Cronbach’s alphas ranged from 0.82 to 0.90.

5.3 Data analyses

As the current study took advantage of existing archival data collected across five measurement occasions over a three-year period, participation varied across assessments periods, resulting in a considerable missing data within and across the five measurement occasions (see Supplement 1 for details on missing data percentages and patterns). To take advantage of all available data, we included the 327 participants with responses on at least one of the included measures on at least one measurement occasion. We imputed missing values, using multiple imputation by chained equations (Raghunathan, Lepkowski, Van Howewyk, & Solenbeger, 2001; Van Buuren 2007). Multiple imputation allows all participants to be included, avoiding bias that occurs in using only complete cases, and accounts for the statistical uncertainties that

occur with imputing missing values (Azur et al., 2011; Schafer, 1999). We imputed values using the mice package (version 3.14, van Buuren & Groothuis-Oudshoorn 2011) in R (version 4.1.2), using the variables described above, along with age, gender, and years at the school. We generated 10 multiply imputed datasets using predictive mean matching.

Using the imputed data, we then tested a structural equation model using the lavaan package (Rosseel, 2012), with maximum likelihood (ml) estimation. We used the runMI() function available through the mice package, which runs the structural model with each of the 10 imputed datasets, and then pools the results together, providing both the model estimates as well as an indication of the variability of those estimates. For our primary model, we tested vital engagement as a latent factor comprised of the manifest indicators (computed as the average of constituent items) of the absorption and intrinsic work-related flow facets, strengths use, subjective vitality (at T1-T5), and presence of meaning in life (at T3-T5) across the five measurement occasions. We evaluated model fit with the Root Mean Square Error of Approximation (RMSEA), the Tucker Lewis Index (TLI), and the Comparative Fit Index (CFI), with good fit indicated by an RMSEA smaller than 0.06, and TLI and CFI values greater than 0.90 (Hu & Bentler, 1999).

We also examined correlations between vital engagement (as a manifest variables based upon the average of constituent items) and wellbeing (WEMBS), passion for work, work climate (WCQ), and work engagement (UWES, T4 and T5 only), considering correlations within and across measurement occasions.

6 Results

Table 1 summarizes descriptive information across the measures for the original and imputed data. We first tested the hypothesized vital engagement model (see Fig. 2), which demonstrated good fit with the data (RMSEA=0.01, 90% confidence interval=0.00, 0.03; CFI=0.92, TLI=0.92). The manifest variables loaded significantly on their expected factor, with MLQ having the weakest loadings. The vital engagement factor was relatively stable over time, with cross time correlations ranging from 0.27 to 0.54.

We then considered correlations between vital engagement with wellbeing, passion, work climate, and work engagement. Table 2 summarizes within and cross time correlations. Within time points, vital engagement was strongly related to wellbeing ($r=.35$ to $r=.52$) and work engagement ($r=.57$ to $r=.63$). Passion inconsistently correlated with vital engagement, with weak to strong within time correlations ($r=.09$ to $r=.53$). Work climate was weakly to moderately correlated with vital engagement ($r=.02$ to $r=.33$). Cross time correlations demonstrated a simplex relationship, with stronger correlations for closer time points, and weaker correlations across time. As expected, the weakest correlations occurred with work climate, suggesting that the VIVA model is capturing a psychological process rather than aspects of the environment.

Table 1 Descriptives for the non-imputed and imputed data across five measurement occasions

	Original dataset					Combined Imputed Data						
	n	mean	sd	median	min	max	n	mean	sd	median	min	max
Age (T1)	327	2.88	1.11	3.00	1.00	5.00	327	2.88	1.11	3.00	1.00	5.00
Gender	327	1.47	0.50	1.00	1.00	2.00	327	1.47	0.50	1.00	1.00	2.00
Years Employed at school (T1)	326	2.60	1.10	3.00	1.00	4.00	327	2.59	1.11	3.00	1.00	4.00
Absorption T1	199	4.54	1.34	4.50	1.50	7.00	327	4.55	1.32	4.75	1.50	7.00
Absorption T2	134	4.71	1.23	4.88	2.25	7.00	327	4.72	1.20	4.75	2.25	7.00
Absorption T3	90	4.83	1.24	5.00	2.00	7.00	327	4.84	1.30	5.00	2.00	7.00
Absorption T4	114	4.93	1.21	5.00	2.25	7.00	327	4.88	1.27	5.00	2.25	7.00
Absorption T5	133	4.76	1.28	5.00	1.25	7.00	327	4.62	1.28	4.75	1.25	7.00
Intrinsic motivation T1	199	4.35	1.15	4.40	2.00	7.00	327	4.35	1.15	4.40	2.00	7.00
Intrinsic motivation T2	132	4.48	1.25	4.40	1.60	7.00	327	4.45	1.21	4.40	1.60	7.00
Intrinsic motivation T3	90	4.51	1.10	4.60	2.20	6.60	327	4.41	1.10	4.40	2.20	6.60
Intrinsic motivation T4	114	4.62	1.11	4.80	2.20	7.00	327	4.75	1.11	4.80	2.20	7.00
Intrinsic motivation T5	133	4.51	1.02	4.60	1.80	6.80	327	4.49	0.98	4.40	1.80	6.80
Strengths use T1	197	5.67	0.72	5.86	2.85	7.00	327	5.69	0.68	5.79	2.85	7.00
Strengths use T2	131	5.65	0.88	5.86	3.36	7.00	327	5.62	0.79	5.71	3.36	7.00
Strengths use T3	90	5.74	0.88	5.93	3.07	7.00	327	5.70	0.90	5.93	3.07	7.00
Strengths use T4	113	5.75	0.85	5.93	3.00	7.00	327	5.67	0.90	5.93	3.00	7.00
Strengths use T5	132	5.81	0.73	5.93	3.43	7.00	327	5.79	0.71	5.93	3.43	7.00
Subjective vitality T1	197	5.01	1.29	5.17	1.00	7.00	327	5.04	1.21	5.17	1.00	7.00
Subjective vitality T2	114	5.10	1.28	5.33	1.50	7.00	327	5.27	1.16	5.33	1.50	7.00
Subjective vitality T3	87	5.11	1.30	5.33	1.67	7.00	327	5.00	1.18	5.33	1.67	7.00
Subjective vitality T4	110	5.17	1.27	5.33	1.00	7.00	327	5.08	1.20	5.17	1.00	7.00
Subjective vitality T5	112	5.16	1.24	5.50	1.67	7.00	327	5.29	1.17	5.50	1.67	7.00
Meaning in Life T3	95	5.70	1.01	6.00	2.60	7.00	327	5.64	1.04	6.00	2.60	7.00
Meaning in Life T4	103	5.03	0.65	5.00	2.00	6.20	327	5.04	0.61	5.00	2.00	6.20
Meaning in Life T5	122	5.06	0.67	5.20	1.60	6.00	327	5.06	0.61	5.20	1.60	6.00
Wellbeing T1	207	3.77	0.56	3.86	1.64	4.93	327	3.78	0.53	3.79	1.64	4.93

Table 1 (continued)

	Original dataset					Combined Imputed Data						
Wellbeing T2	139	3.83	0.56	3.93	1.50	4.86	327	3.89	0.52	4.00	1.50	4.86
Wellbeing T3	97	3.80	0.56	3.86	2.21	4.86	327	3.81	0.48	3.79	2.21	4.86
Wellbeing T4	122	3.84	0.47	3.93	2.50	4.93	327	3.84	0.42	3.93	2.50	4.93
Wellbeing T5	146	3.75	0.57	3.86	1.93	4.93	327	3.71	0.58	3.79	1.93	4.93
Passion T1	200	4.16	0.66	4.20	2.20	5.00	327	4.22	0.63	4.30	2.20	5.00
Passion T2	130	4.29	0.65	4.40	2.00	5.00	327	4.23	0.60	4.30	2.00	5.00
Passion T3	89	3.93	0.75	4.00	1.30	5.00	327	3.79	0.79	3.80	1.30	5.00
Passion T4	120	4.05	0.65	4.00	1.70	5.00	327	4.04	0.66	4.00	1.70	5.00
Passion T5	136	4.16	0.81	4.30	1.50	5.00	327	4.13	0.76	4.20	1.50	5.00
Work Climate T1	206	5.33	1.45	5.79	1.14	7.00	327	5.36	1.42	5.79	1.14	7.00
Work Climate T2	137	5.04	1.72	5.43	1.00	7.00	327	5.10	1.67	5.54	1.00	7.00
Work Climate T3	94	5.24	1.55	5.50	1.00	7.00	327	5.25	1.55	5.50	1.00	7.00
Work Climate T4	122	5.23	1.61	5.79	1.00	7.00	327	5.27	1.56	5.79	1.00	7.00
Work Climate T5	145	5.03	1.79	5.50	1.00	7.00	327	4.90	1.80	5.38	1.00	7.00
Work engagement T4	117	5.81	0.70	5.88	3.59	7.00	327	5.76	0.67	5.88	3.59	7.00
Work engagement T5	133	5.78	0.78	5.94	2.82	7.00	327	5.78	0.65	5.88	2.82	7.00

Note. Imputed values are the pooled average estimates across 10 imputed datasets. T= time point

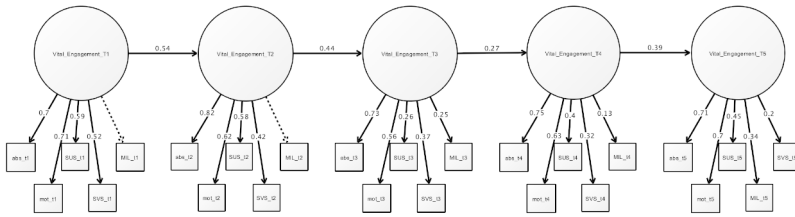


Fig. 2 Vital engagement structural model across five measurement occasions. Standardized loadings are provided, based on the fitted model (N=327, with missing data imputed using multiple imputation with chained equations). abs=absorption subscale of work related flow measure, mot=intrinsic motivation of the work related flow measure, SUS=strengths use survey, SVS=subjective vitality scale, MIL=meaning in life questionnaire

7 Discussion

In this paper, we introduced the VIVA model of sustainable work engagement, comprised of Virtuous, Involved, Vital, and Accepting components, which we conceptualize as a dynamic construct that emerges from these four components being fulfilled within the work environment. We then provided a preliminary test of the model, taking advantage of an archival dataset that followed school staff over a three year period, operationalizing the four components as strengths use, work-related flow, subjective vitality, and meaning in life. We also considered cross-sectional and cross-lagged correlations with workplace wellbeing, work climate, and work engagement, based on variables that were available in the dataset. Although additional testing with measures that specifically align with the four theoretical dimensions is needed, the results support the relevance of the VIVA model in defining specific domains that can be supported in the workplace to help employees sustainably thrive.

Unlike other engagement constructs, we suggest that vital engagement includes not only cognitive and attentional elements, but also a deeper sense of why one is engaging at work, namely an overall sense of meaning. The word *professional*, according to Csikszentmihalyi (1982) and from lifespan developmental point of view, can be defined as a strong allegiance to a body of information or knowledge and behavioral expression of professing this knowledge for the benefit of others across the career lifespan. A sense of meaning adds an element of sustainability and reason to keep engaging in work, despite changes that might occur within the work context or circumstances that arise that otherwise make work feel less engaging. Engagement research has primarily devoted attention to the structure of the activities that promote optimal experiences, often defined as feelings (e.g., excited, interested), and the goal pursuits they facilitate, but miss the longer term process of meaning making that is necessary for such experiences to be perceived as optimal to one’s develop-

Table 2 Correlations between vital engagement and wellbeing, passion, work climate, and work engagement, across five time points

	Vital Engagement T1	Vital Engagement T2	Vital Engagement T3	Vital Engagement T4	Vital Engagement T5
Wellbeing T1	0.46	0.34	0.11	0.31	0.09
Wellbeing T2	0.23	0.52	0.25	0.35	0.22
Wellbeing T3	0.01	0.11	0.44	0.08	0.23
Wellbeing T4	0.18	0.18	0.15	0.35	0.25
Wellbeing T5	0.23	0.05	0.19	0.16	0.41
Passion T1	0.53	0.25	0.13	0.16	0.29
Passion T2	0.22	0.46	0.15	0.16	0.24
Passion T3	0.10	0.18	0.09	0.08	0.27
Passion T4	0.29	0.16	0.24	0.14	0.21
Passion T5	0.15	0.06	0.20	0.01	0.45
Work Climate T1	0.21	0.23	-0.05	0.11	0.06
Work Climate T2	0.13	0.27	0.04	0.2	0.17
Work Climate T3	0.15	0.16	0.02	0.24	0.35
Work Climate T4	0.20	0.18	0.14	0.06	0.14
Work Climate T5	0.14	0.14	0.01	0.04	0.33
Work engagement T4	0.44	0.41	0.09	0.57	0.31
Work engagement T5	0.28	0.16	0.27	0.23	0.63

Note. Within time point correlations are bolded for emphasis

mental narrative and capabilities Bauer et al., 2008; Delle Fave, 2009; McAdams & Olsen, 2010; Tse et al., 2019). Our results suggest that hedonic sides of wellbeing and behavior that work requires are necessary but insufficient, lacking the deeper “why” when considering involving the ‘full self’ (Kahn, 1990) of the employee. In other words, organizations know about how to get people to complete tasks and understand the ‘what’ and ‘how’ of completing daily tasks. Yet these models lack the question of ‘why engage’- on a broader level and in which other positive individual wellbeing and passion factors of work are also a key part (see Lavigne, Forest, & Crevier-Braud, 2012).

The VIVA model adds the recognition of work aligned with one’s authentic self as the person navigates life’s experiences. A sense of engagement may be experienced as a state in time, unfolding over time, and impacted upon by aspects and perceptions of the person, combined within constantly evolving workplace contexts (see Csikszentmihalyi 2003; Gardner et al., 2001). Multiple components might interact with

and balance one another to create stability over time, especially through periods of change that might be occurring in one's environment. Some support for this appeared in the relative stability of the vital engagement factor across the five time points, despite the number of changes that were occurring within the school environment during the course of the study.

7.1 Considerations, Limitations, and future directions

In this study, we proposed and provided an initial test of a four-factor model of vital engagement. While we benefited from panel data collected over five measurement occasions, we were also limited by the data that were available. We used secondary data as a first step to provide evidence for the four-factor vital engagement concept but were unable to fully test the model as a dynamic system, based on cross-sectional *snapshots*. In operationalizing a model, there is a need to find a balance between creating a study specifically to test a conceptual model cross-sectionally or over a short length of time, versus using imperfect measures to capture phenomena occurring over long periods of time. As we specifically conceptualize VIVA as an adult developmental construct, we prioritized the longitudinal perspective to gather initial evidence for the underlying theory of a sustainable construct. Future studies should further test the conceptual model with measures specifically aligned with the VIVA dimensions, considering both short term and longitudinal manifestations.

Further, we used a confirmatory model, rather than exploring what emerges from the data. Exploratory analysis could indeed be useful, but also risks adjusting the conceptual model in such a way that it fits the sample and measures available, while losing the conceptual underpinnings of the VIVA model. With theory development, it becomes questionable whether there is a misfit between the theoretical and statistical models, which can only be determined through additional tests with different measures and different samples. We contend that there still could be value of the theoretical model we have suggested, along with the arguments that we developed in the introduction and walking in the footsteps of Nakamura's conceptualizations, and thus recommend further tests of the model with different measures over both long and short time periods, before abandoning the theoretical underpinnings of the VIVA model. Future studies will benefit from a study design appropriate for systems dynamic modeling approaches and developing specific measures of vital engagement.

As part of our operationalization, we used a measure of strengths use to represent virtue. While it is true that the strengths use scale is not specific to character strengths, it is likely that when asked about using their strengths, staff conceptualized the VIA character strengths, due to the training that was delivered at the school at the time. At the school, staff were encouraged to discuss and incorporate the VIA character strengths with their students. We thus assume that in asking about strengths use, participants referenced the VIA model, even as the measure itself is not a virtue-based measure. Future tests of the model would need to consider the context in which measurement occurs, and ideally use measures that better align with a virtue-based concept of values in action. Similarly, even as we suggest that the VIVA model represents sustainable workplace engagement, the measures used were not specific to the workplace. We suggest that VIVA is a work-based construct, which captures the

reality that work plays a significant role in the modern adult life, such that thriving in life is questionable without careful consideration of the either life enhancing or life depleting role that work plays in one's life. Future studies should consider the extent to which the VIVA components are specific to the workplace versus representative of more general experiences of and approaches to other life domains.

The VIVA construct was positively associated with other workplace wellbeing measures, with strong correlations with the Utrecht work engagement scale, although with correlations of $r = .57$ (at T4) and $r = .63$ (at T5) suggests that at least some degree of distinction between the constructs exist. It is questionable whether the extent to which strong correlations are due to overlap of the constructs versus a function of the measures that were available in the current dataset. We specifically see VIVA as a dynamic systems-based construct that requires four components to fully manifest. Yet at the same time, we were limited by the measures that were available. As noted above, our intention is more about proposing the VIVA construct and providing a preliminary albeit imperfect test of the construct. We acknowledge that full testing of the construct, including divergent validity from the work engagement construct, is a necessary future direction.

We tested the model as a reflective model, in which a latent construct results in several correlated factors, due to the data available in the archival dataset. Yet theoretically we conceptualize vital engagement as an emergent factor, arising from the reinforcing combination of the four elements. Statistically, emergent (or formative) factors are harder to test (Bollen & Lennox, 1991). Confirmatory factor analysis, which we used here, assumes that there is an underlying latent construct which causes (or is indicated by) a set of highly correlated observed items. The underlying construct is not dependent upon the items that are measured, as each is simply an imperfect indicator of the underlying construct. In contrast, an emergent or formative construct arises from the items or constructs that are included, and thus are dependent upon and change according to the constructs that are assessed (Bollen & Lennox, 1991; Diamantopoulos & Siguaw, 2006). These measured items may be minimally correlated with each other, and if one is removed the emergent construct changes. Indeed, the model shifted as a sense of meaning was added in the latter time points, aligning with an emergent rather than reflective construct. Future studies should consider the extent to which vital engagement is indeed a reflective versus emergent construct, using measures specifically aligned to the four VIVA components.

8 Conclusions

In this paper, we suggested that vital engagement represented the subjective element of a thriving working adult across their careers, which emerges from the combination of a subjective sense of vitality, virtue-based action, grounded in a sense of acceptance, and experienced through involvement in work. Our model contributes to conceptualizing and operationalizing the process of involving individuals in a 'good work life' in a sustainable way, and the study provides initial albeit imperfect support for the VIVA model. These findings point to a type of optimal work process that results from a continuous inter-relationship between the best of the individual

towards virtuous ends both at work and life in general. The VIVA model and initial test provides one step towards understanding the processes involved in optimal functioning within the workplace environment.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent Informed consent was obtained from all individual participants included in the study. All procedures were approved by the University of Melbourne's ethic review board (protocol #1750027).

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