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The energy and identification continua of burnout and work engagement: Developmental profiles over eight years



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ABSTRACT

Understanding of the mutual developmental dynamics between burnout and work engagement is limited due to the lack of longitudinal studies with long follow-ups and multi-wave data. This study sought to identify subgroups of employees characterized by long-term exhaustion-vigor (energy continuum) and cynicism-dedication (identification continuum). A further important aim was to investigate differences between the identified subgroups in their experiences of progress in their personal work goals. Five-wave, eight-year follow-up data among Finnish white-collar professionals ($n = 168$) were studied using Latent Profile Analysis (LPA). The analysis yielded three exhaustion-vigor subgroups: 1) “Low stable exhaustion – high stable vigor” ($n = 141$), 2) “Fluctuating exhaustion and vigor” ($n = 19$), and 3) “Stable average exhaustion – decreasing vigor” ($n = 8$). Three subgroups were also found for cynicism-dedication: 1) “Low stable cynicism – high stable dedication” ($n = 124$), 2) “Increasing cynicism – decreasing dedication” ($n = 27$), and 3) “Decreasing cynicism – increasing dedication” ($n = 17$). Exhaustion and vigor were found to be stable and mutually exclusive experiences for the great majority of the participants. However, mean changes were also detected – especially in vigor – but these were rare. A notable finding was that the levels of and changes in cynicism and dedication showed opposite trends in each subgroup: among the majority of the participants (74%), the levels of cynicism and dedication were stable and inversely related, while among one-third their levels simultaneously changed in the reverse direction. The most successful progress in personal work goals was found in the groups described by the identification continuum, i.e., in the groups of “Low stable cynicism – high stable dedication” and “Decreasing cynicism – increasing dedication”.

1. Introduction

During recent decades, increasing attention has been paid to the relation between job burnout and its opposite positive pole work engagement (for meta-analyses, see Cole, Walter, Bedeian, & O’Boyle, 2012; Crawford, LePine, & Rich, 2010). Despite several years of progress in this research domain, little is known about their mutual relation in the long term, as the few existing longitudinal studies have utilized rather short follow-up periods. In addition, the previous research has offered a rather static and generic perspective of the development of burnout and work engagement which, theoretically, should instead be regarded as progressive and dynamic (Bakker & Demerouti, 2007; Leiter, 1993; Maslach, 1982; Shirom, 2003) and individualized (Leiter & Maslach, 2016; Mäkikangas, Feldt, Kinnunen, & Tolvanen, 2012). These features of the current burnout-work engagement literature prompt a call for more research on the long-term developmental profiles of burnout and work engagement.

This study sought to deepen understanding of the connection between burnout and work engagement by investigating their relation over an eight-year period, using a statistically innovative person-centered approach (Bergman, Magnusson, & El-Khoury, 2003; Mäkikangas & Kinnunen, 2016) which captures burnout and work engagement experiences simultaneously *within* the individual over time. Investigation of change and stability profiles yields a more realistic view of the temporal and developmental dynamism of an employee’s experience of well-being. This approach also leads to a better theoretical understanding, as it enables us to identify typical and atypical long-term developmental paths and directions of change in burnout and work engagement.

This study makes three primary contributions to the existing person-centered burnout-work engagement studies (Mäkikangas et al., 2012). First, we examine the long-term development of burnout and work engagement by using a dataset with more measurements and a longer follow-up than previously. Thus, the recommended criterion for a longitudinal study, i.e., three or more measurements, is

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met (Kelloway & Francis, 2013). Second, instead of investigating the interconnections of separately analyzed burnout and work engagement profiles, long-term profiles of burnout and work engagement are assessed simultaneously (cf. Mäkikangas et al., 2012). Consequently, the present study produces a better understanding of the different naturally occurring longitudinal burnout-work engagement profiles in a given study population. Third, this study contributes to the literature by showing for the first time how employees' appraisals of their goal progress vary over time in different longitudinal burnout-work engagement profiles. Personal work goals are important from both the individual and organizational perspectives since goals guide the behavioral orientations of individuals (Pomaki, Maes, & ter Doest, 2004). Personal work goals can also reflect how employees adjust to changing work contexts, which require increasing proactivity and adaptability (e.g., Briscoe & Hall, 2006; Hyvönen et al., 2016; Inkson, 2006).

In this section, the concepts of burnout and work engagement are introduced along with empirical and statistical evidence, based on both variable- and person-centered research, on their relationship. As the topic of this study is on the *long-term development* of work engagement and burnout, both the theoretical views and empirical findings relating to their separate and simultaneous long-term development are in focus. Finally, we investigate differences between the burnout-work engagement profiles in employees' appraisals of their personal work goal progress. Progress in personal work goals refers to the extent to which an individual perceives that their meaningful, personally salient work-related goals are progressing and will be realized over time (Klug & Maier, 2015; Wiese & Freund, 2005). Thus, the last part of this introduction will focus on the personal work goal literature.

2. Burnout and work engagement: concepts and associations

Job burnout has several definitions, of which the most utilized and prominent in the work psychological literature conceptualizes job burnout as a work-related stress syndrome comprising three dimensions: exhaustion, cynicism and reduced professional efficacy (see Leiter, Bakker, & Maslach, 2014; Maslach, Jackson, & Leiter, 1996; Schaufeli, Leiter, & Maslach, 2009). Exhaustion is characterized by feelings of being depleted of one's emotional and physical resources and feelings of fatigue; cynicism is characterized by distancing oneself from one's work and holding a negative view of one's job, and reduced professional efficacy is characterized by the belief that one is incapable of fulfilling one's tasks and responsibilities at work (Maslach et al., 1996).

Several definitions have also been offered for work engagement (see e.g., Mäkikangas et al., 2012). The most commonly used of these conceptualizes work engagement as a positive, fulfilling work-related cognitive-affective state of mind, characterized by the dimensions of vigor, dedication and absorption (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor refers to a high level of energy and mental resilience at work; dedication refers to a sense of meaningfulness and enthusiasm towards one's job, and absorption is characterized by a state of full concentration and immersion in one's job (Schaufeli et al., 2002).

As work engagement was conceived as the opposite pole to burnout and as a theoretical tool for understanding work-related well-being as a positive experience (Maslach & Leiter, 1997; Schaufeli et al., 2002), they share similar definitional roots and thus can be considered "fellow-travelers". In the circumplex model of employee well-being (Bakker & Oerlemans, 2011; see also Mäkikangas et al., 2015), in accordance with their levels of pleasure and activation, burnout and work engagement are classified as opposite states of well-being. That is, job burnout is characterized by low activation and displeasure, and work engagement by high activation and pleasure. Consequently, in the theoretical sense, burnout and work engagement are seen as representing the reverse sides of employee well-being.

During the last ten years, the theoretical interest has turned to the core dimensions of burnout and work engagement and their relationship. In this more fine-grained theoretical approach – which is nevertheless rooted in empirical findings – exhaustion and vigor are seen as the two poles of the *energy* continuum, and cynicism and dedication as the two poles of the *identification* continuum (Demerouti, Moster, & Bakker, 2010; González-Romá, Schaufeli, Bakker, & Lloret, 2006; Mäkikangas et al., 2012). In practice, positioning cynicism and dedication as polar opposites indicates that employees can hold either negative or positive attitudes, but not both simultaneously, towards their work, whereas the energy continuum indicates that mental energy and resiliency and feelings of fatigue cannot be experienced at the same time.

Empirical findings have largely supported these theoretical perspectives. Total scores for burnout and work engagement have shown a negative correlation ($r = -0.55$ and -0.48) (for meta-analyses, see Cole et al., 2012; Crawford et al., 2010) and existence of the energy and identification continua has been demonstrated (Demerouti et al., 2010; González-Romá et al., 2006). However, the relationships within these continua have showed somewhat differing results. That is, the identification continuum has been found to form a strong scale (scaling coefficient 0.50 in three samples) whereas the energy continuum formed only a weak to moderate scale (coefficients 0.36, 0.39 and 0.40) (González-Romá et al., 2006). Similar conclusions could also be drawn from confirmatory factor analysis (Demerouti et al., 2010). These CFA results showed that cynicism and dedication formed a bipolar dimension, and thus represented the opposite ends of the same continuum. The results for the energy dimension, however, imply that exhaustion and vigor represented more independent states, and thus not pure opposites. That is, although they were highly negatively correlated, suggesting that employees scoring high on exhaustion, typically score low on vigor, they were not mutually exclusive in other combinations. Consequently, the research evidence suggests that the energy-identification dimension is a valuable tool in burnout-work engagement research, and thus it was also used in the present study.

However, the cross-sectional and variable-oriented investigations presented above are not informative about the possible longitudinal relation between burnout and work engagement, and how it manifests at the intra-individual level, issues which will be discussed next.

3. Theoretical and empirical perspectives for long-term development of burnout and work engagement

Despite decades of research, the temporal and developmental aspects of burnout and work engagement, that is, whether they are stable or change over time, remain controversial. Below, longitudinal perspectives on burnout and work engagement are first presented separately, after which their possible simultaneous development is discussed.

Theoretically, burnout is seen as a progressive and dynamic psychological response to job stress (Maslach, 1982; Shirom, 2003). Consequently, change patterns indicating a constant rate (i.e., linear increase or decrease), a variable rate (i.e., curvilinear pattern) or displaying combinations of rates of change and direction are all theoretically possible (see Dunford, Shipp, Boss, Angermeier, & Boss, 2012). The temporal process could also manifest as stability. Such temporal variety has been demonstrated by burnout trajectory studies (Evolahiti, Hultell, & Collins, 2013; Hultell, Melin, & Gustavsson, 2013; Mäkikangas et al., 2012; Rudman & Gustavsson, 2011). However, a recent systematic review mapping the findings of the burnout trajectory studies indicates that burnout typically develops along a stable path. Between one-third and three-quarters of the individuals studied belonged to stable burnout trajectories while only a minority experienced changes in burnout (Mäkikangas & Kinnunen, 2016).

Work engagement, in turn, was originally defined as a relatively stable affective-cognitive state, rather than a momentary experience

or a state dependent on any particular object, person or event (Schaufeli et al., 2002). Rank-order stability findings have supported this view of work engagement (for a review, see Mäkikangas, Kinnunen, Feldt, & Schaufeli, 2016). A recent longitudinal study further demonstrated that, for work engagement, the proportion of the variance of stability is larger than the proportion of the variance of change (Seppälä et al., 2015). However, the mean levels of work engagement are not fixed (Mäkikangas et al., 2016; Seppälä et al., 2015) and diary research has indicated day-to-day fluctuations in its level (Mäkikangas et al., 2014; Xanthopoulou & Bakker, 2012). Over longer time periods, several trajectories for work engagement have been found (Mäkikangas et al., 2012; Mäkikangas, Schaufeli, Tolvanen, & Feldt, 2013). However, the results of these trajectory studies resembled those of the burnout trajectory research: work engagement was typically stable in its development, as stability was observed in 61–68% of the employees studied, whereas patterns of change occurred in the remaining one-third.

While studies on the separate development of burnout and work engagement utilizing a person-centered approach are rare, studies investigating their simultaneous development within individuals are even rarer (Mäkikangas et al., 2012; Mäkikangas et al., 2014). Based on the circumplex model (Bakker & Oerlemans, 2011) and theorizing on the energy-identification continua (Demerouti et al., 2010), burnout and work engagement can be expected to be developmentally the opposite, particularly in the case of cynicism and dedication.

The findings of the two previous person-centered studies have supported these perspectives. First, in the study by Mäkikangas et al. (2012), the patterns of exhaustion and vigor (the energy continuum) and cynicism and dedication (the identification continuum) and the associations between the two hypothesized opposites were investigated over two years. The results showed no statistical dependency between the exhaustion and vigor trajectories. However, closer inspection of the results demonstrated that over one-third of the participants belonged simultaneously to the groups of low stable exhaustion and high stable vigor (Mäkikangas et al., 2012). Furthermore, the results revealed that the mean levels and changes in cynicism and dedication over time were in opposite directions at the individual level. For example, when an employee's cynicism increased over time, the levels of dedication simultaneously decreased and vice versa. Later, in a diary design (Mäkikangas et al., 2014), the development of exhaustion and vigor was investigated simultaneously during one working week. This study – which cannot, however, be considered a proper longitudinal study – showed that while day-level experiences of exhaustion and vigor were mainly mutually exclusive, a small proportion of the respondents reported experiencing exhaustion and vigor simultaneously throughout the working week, but only on average levels. Consequently, based on both the theoretical (Bakker & Oerlemans, 2011) and empirical evidence (Demerouti et al., 2010; González-Romá et al., 2006; Mäkikangas et al., 2012; Mäkikangas et al., 2014) presented above, it is expected that:

Hypothesis 1. A long-term profile exists in which the mean levels of exhaustion and vigor (energy continuum) are inversely related. This profile comprises the majority of employees.

Hypothesis 2. A long-term profile exists in which the mean levels of cynicism and dedication (identification continuum) are inversely related. This profile comprises the majority of employees.

Hypothesis 3. Long-term change profiles in energy and identification continua exist but these profiles will comprise a small minority of employees.

4. Goal progress and the long-term development of burnout and work engagement

In line with Austin & Vancouver (1996), we consider personal work

goals as internal representations of desired states, which can be outcomes, events, or processes. These desired states can range from biological needs to complex cognitive aspirations (e.g., promotion). The two primary approaches to personal goals are 1) analysis of goal contents and 2) goal appraisals (Little, 2007). The contents of personal goals describe an individual's orientation towards the future, revealing their wants, wishes, concerns and the intentions. In the work context, employees' personal work goals have been found to be related to their competence, progression, well-being at work, job change, job security, finance and success of the organization (Hyvönen, Feldt, Salmela-Aro, Kinnunen, & Mäkikangas, 2009). Goal appraisals, in turn, refer to cognitive and affective dimensions such as progression, importance, commitment, or difficulty of goal contents (for a review, see Austin & Vancouver, 1996). Both the contents and appraisals of personal work goals have shown associations with work-related well-being and attitudes, even after controlling for factors related to the psychosocial work environment (Hyvönen et al., 2009; Maier & Brunstein, 2001; Pomaki et al., 2004; ter Doest Maes, Gebhardt, & Koelewijn, 2006), thus demonstrating their relevance in the occupational health psychology context.

In this study, we focused on employees' goal appraisals, and particularly on goal progress, since it has shown a stronger association with low burnout and high work engagement (Hyvönen et al., 2009), and with subjective well-being (for a review, see Klug & Maier, 2015), than the other dimensions of goal appraisal. As the content of personal work goals have shown change over time (Hyvönen, Feldt, Tolvanen, & Kinnunen, 2010), appraisals of personal work goal progress offer a more meaningful research target in the long-term perspective adopted here.

Previous research has also reported that, besides a lower level of burnout and higher level of work engagement, positive appraisals of goal progress were related to higher job satisfaction (Maier & Brunstein, 2001; Wiese & Freund, 2005), organizational commitment (Maier & Brunstein, 2001) and positive affect (Wiese & Freund, 2005). These findings are in line with the social cognitive career theory which postulates that goals and goal-directed behaviors are likely to lead to job and life satisfaction (Lent & Brown, 2006; Lent & Brown, 2008). Goal-directed behavior not only provides structure and meaningful activities in life but also brings people into contact with others. More specifically, the social cognitive career theory suggests that asserting personal agency through goal setting, being committed to these goals, and making progress in one's personally salient goals are central in promoting work and life satisfaction (Lent & Brown, 2008).

However, the direction of the relationship between progress in personal work goals and work-related well-being is not theoretically clear cut, as their association can be explained in two ways. On the one hand, favorable appraisals of goal progress may sustain well-being at work because an employee who progresses towards the attainment of personal goals has less to process cognitively and emotionally, less concerns about unfinished tasks, and fewer discrepancies in goal attainment (Syrek & Antoni, 2014; Syrek, Weigelt, Peifer, & Antoni, 2017). All these experiences decrease ruminative thoughts and thus foster the employee's well-being at work. On the other hand, the association between goal progress and well-being may work the other way around. Lower well-being (e.g., high burnout, low work engagement) may tax an employee's energy and motivation to pursue his or her personal work goals, which in turn hinders progress towards valued personal work goals. Therefore, we investigated the differences between burnout-work engagement profiles in employees' appraisals of their personal work goal progress at each measurement point without positing any causal direction between them. Based on the theoretical (Lent & Brown, 2006; Lent & Brown, 2008) and empirical research on goal progress (e.g., Hyvönen et al., 2009; Maier & Brunstein, 2001), we expected that:

Hypothesis 4. Employees in the profiles representing high well-being

in the energy and identification continua will report positive appraisals of goal progress across the study period.

Hypothesis 5. Employees in the profiles representing changes in well-being in the energy and identification continua will show also changes in goal progress; i.e., those in the increasing well-being profiles appraisals of goal progress will show an increase whereas those in the decreasing well-being profiles appraisals of goal progress will show a decrease.

5. Method

5.1. Participants and procedure

This questionnaire study utilized five measurement points: spring 2006 (T1), spring 2008 (T2), spring 2010 (T3), spring 2012 (T4) and spring 2014 (T5). The sample was selected from the membership registers of two Finnish national trade unions (Trade Union Pro and the Union of Professional Engineers). The original sample contained 1 904 members, all of whom were below age 36 and whose professional title indicated a management or leadership position. The initial target of the research project was to investigate young managers' occupational well-being in the early stages of their careers. Questionnaires were sent to participants' home addresses and 933 were returned. The 186 respondents who turned out not to be in management or in employment were excluded from the final sample ($N = 747$). The response rate was 43.4% in 2006 (for more detail and attrition analyses, see Feldt et al., 2016; Hyvönen et al., 2009).

At T2 in 2008, questionnaires were sent to 621 of the 747 participants who had participated at T1. The remaining 126 participants had indicated at T1 that they wished to withdraw from the research and were therefore excluded from the T2 follow-up. At T2, 433 questionnaires were returned, yielding a response rate of 69.7% of the available sample and 58.0% of the initial 2006 sample ($N = 747$). At T3 in 2010, as 26 participants had declined further participation at T2, questionnaires were sent to 595 participants, of whom 380 responded, yielding a response rate of 63.9% of the available sample and 50.8% of the initial sample. At T4 in 2012, as 20 participants had indicated at T3 that they no longer wished to be contacted, questionnaires were sent to 575 participants, of whom 333 responded, yielding a response rate of 57.9% of the available sample and 44.6% of the initial sample. At T5, as 13 participants had indicated at T4 that they no longer wished to be contacted, the questionnaire was sent to 562 participants, of whom 289 participants responded, yielding a response rate of 51.4% and 38.7% of the initial sample.

The present participants ($n = 168$; 85.1% men) include all those respondents who were employed and responded to both the burnout and work engagement scales at each of the five measurements. Participants were on average 31.1 years old when the study started at T1 (range 25–36 years; $SD = 3.2$ years). At T1, the majority had a lower university degree in engineering (67.1%) and 2.3% had a higher university degree. Technicians formed 6.6% of the participants and 22.8% had other technical training. Only 1.2% of participants had no professional training. The majority of participants (94%) were in permanent employment. At T1, 6.7% were in top management, 53.7% in middle management and 39.6% in lower management. At T5, 69% of participants reported continuing to work in a management or leadership position.

5.2. Measures

Burnout was measured using the Bergen Burnout Indicator (Näätänen, Aro, Matthiensen, & Salmela-Aro, 2003; see also Feldt et al., 2014), which is based on the same definition of job burnout as the MBI (Maslach et al., 1996). The present study used the 9-item version, which has been shown to have better validity than the original

15-item scale (Salmela-Aro, Rantanen, Hyvönen, Tillemann, & Feldt, 2011). The BBI-9 consists of three subscales; here, however, only the dimensions measuring exhaustion (three items; e.g., “I am snowed under with work”) and cynicism (three items; e.g., “I feel that I have gradually less to give”) were used. Responses were rated on a six-point response scale ranging from 1 (*completely disagree*) to 6 (*completely agree*).

Work engagement was measured with the Utrecht Work Engagement Scale-short form (UWES-9; Schaufeli, Bakker, & Salanova, 2006). In this study, the three items measuring vigor (e.g., “At my job, I feel bursting with energy”) and the three measuring dedication (e.g., “My job inspires me”) were used. The items were scored on a 7-point rating scale (1 = *never*, 7 = *daily*).

Personal work goals were asked at each measurement time with an open-ended item: “Write down your most important personal goal relating to your work or career” (Hyvönen et al., 2009; Hyvönen et al., 2010). The item was followed by a blank space where participants could write down their goal. The written goals were related to competence, progression, well-being, job change, job security, organization, and finance at each measurement point (Anonen & Hemilä, 2017; Hyvönen et al., 2009; Hyvönen et al., 2010; Hyvönen et al., 2016). Next, again at each measurement point, participants were asked to appraise their goal progress with the single-item question “How far have you progressed in reaching this goal?” (see Hyvönen et al., 2009). Answers were given on a 5-point scale from 1 (*not at all*) to 5 (*very much*). The appraisal of personal work goal progress was analyzed in this study. The present study focused solely on appraisals of goal.

The correlations between the study variables together with the Cronbach alphas and descriptive information on the variables are presented in Table 1.

5.3. Attrition analyses

The baseline attrition analysis showed that, at T1, participants ($N = 747$) did not differ in gender from non-respondents ($N = 971$), $\chi^2(1) = 0.70$, *ns.* (for more details, see Hyvönen et al., 2009). Data on the age of non-respondents was only available for the members of Trade Union Pro; these respondents ($n = 331$) did not differ in age from non-respondents ($n = 379$) as determined by independent samples *t*-test, $t(708) = 1.53$, *ns.* Next, the final participants ($n = 168$) were compared to the participants who did not complete all the questionnaires ($n = 579$) in background variables (gender, age) and in the variables of exhaustion, cynicism, vigor and dedication at T1. The χ^2 tests indicated no differences in the gender distribution, $\chi^2(1) = 0.03$, *ns.* Similarly, the independent *t*-test indicated no differences in age, $t(738) = 0.17$, *ns.* No differences were found in relation to either exhaustion, $t(740) = 0.01$, *ns.*, or cynicism, $t(740) = 1.17$, *ns.* Slightly higher values for vigor were reported among participants ($M = 5.71$) than non-participants ($M = 5.51$) at T1, $t(742) = 4.52$, $p < 0.05$, but no differences were found for dedication, $t(742) = 0.35$, *ns.*

5.4. Statistical analysis

Latent profile analysis (LPA), which is a type of finite mixture modeling (Muthén & Muthén, 1998–2012; Sterba, 2013), was used to investigate profiles based on the levels of and changes in both burnout and work engagement from Time 1 to Time 5. LPA identifies latent profiles (e.g., subpopulations) from the observed data and estimates the parameters for these profiles (Muthén & Muthén, 1998–2012). In this study, the parameters of the profile solutions were estimated using the maximum likelihood estimation with robust standard errors (MLR) (Muthén & Muthén, 1998–2012). The within-profile model was specified so that variances of burnout and work engagement were constrained to be equal across the profiles. Furthermore, burnout and work engagement were allowed to correlate with one another. The LPAs were performed using Mplus (version 7) (Muthén & Muthén, 1998–2012).

Table 1
Correlations of the Study Variables.

| | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | |
|-------------|------|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|---|
| 1. Ex 1 | 2.86 | 1.03 | .70 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Ex 2 | 2.86 | 1.08 | .38 | .71 | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Ex 3 | 2.84 | 1.06 | .33 | .61 | .71 | | | | | | | | | | | | | | | | | | | | | | |
| 4. Ex 4 | 2.82 | 1.06 | .32 | .50 | .57 | .70 | | | | | | | | | | | | | | | | | | | | | |
| 5. Ex 5 | 2.83 | 1.16 | .40 | .56 | .53 | .56 | .77 | | | | | | | | | | | | | | | | | | | | |
| 6. Cy 1 | 2.50 | 0.91 | .52 | .34 | .26 | .24 | .29 | .82 | | | | | | | | | | | | | | | | | | | |
| 7. Cy 2 | 2.55 | 1.11 | .31 | .54 | .34 | .19 | .37 | .69 | .83 | | | | | | | | | | | | | | | | | | |
| 8. Cy 3 | 2.62 | 1.18 | .21 | .41 | .54 | .22 | .23 | .45 | .54 | .86 | | | | | | | | | | | | | | | | | |
| 9. Cy 4 | 2.46 | 1.17 | .15 | .34 | .35 | .44 | .25 | .39 | .32 | .47 | .84 | | | | | | | | | | | | | | | | |
| 10. Cy 5 | 2.44 | 1.19 | .17 | .28 | .25 | .14 | .38 | .33 | .40 | .42 | .47 | .86 | | | | | | | | | | | | | | | |
| 11. Vi 1 | 5.71 | 0.97 | -.22 | -.03 | .02 | .04 | -.01 | -.43 | -.21 | -.10 | -.10 | -.20 | .82 | | | | | | | | | | | | | | |
| 12. Vi 2 | 5.79 | 0.98 | -.15 | -.23 | -.13 | -.01 | -.24 | -.36 | -.57 | -.24 | -.24 | -.40 | .42 | .86 | | | | | | | | | | | | | |
| 13. Vi 3 | 5.66 | 1.12 | -.11 | -.20 | -.25 | -.07 | -.08 | -.27 | -.31 | -.54 | -.44 | -.33 | .39 | .52 | .88 | | | | | | | | | | | | |
| 14. Vi 4 | 5.54 | 1.26 | -.09 | -.13 | -.15 | -.17 | -.08 | -.23 | -.21 | -.31 | -.68 | -.39 | .34 | .46 | .68 | .90 | | | | | | | | | | | |
| 15. Vi 5 | 5.53 | 1.26 | -.10 | -.21 | -.16 | -.13 | -.27 | -.21 | -.27 | -.26 | -.40 | -.72 | .35 | .52 | .52 | .62 | .91 | | | | | | | | | | |
| 16. De 1 | 5.64 | 1.16 | -.15 | .04 | .02 | .10 | .04 | -.44 | -.20 | -.08 | -.05 | -.12 | .79 | .36 | .29 | .27 | .22 | .87 | | | | | | | | | |
| 17. De 2 | 5.78 | 1.15 | -.07 | -.24 | -.13 | -.02 | -.19 | -.32 | -.57 | -.27 | -.23 | -.34 | .33 | .86 | .49 | .43 | .45 | .33 | .89 | | | | | | | | |
| 18. De 3 | 5.58 | 1.24 | -.06 | -.18 | -.22 | -.06 | -.07 | -.26 | -.32 | -.56 | -.47 | -.37 | .35 | .48 | .85 | .63 | .48 | .32 | .53 | .91 | | | | | | | |
| 19. De 4 | 5.49 | 1.45 | -.08 | -.15 | -.18 | -.16 | -.10 | -.29 | -.26 | -.37 | -.73 | -.45 | .29 | .45 | .67 | .90 | .62 | .29 | .46 | .70 | .93 | | | | | | |
| 20. De 5 | 5.45 | 1.40 | -.06 | -.10 | -.06 | -.03 | -.13 | -.22 | -.24 | -.20 | -.38 | -.71 | .42 | .53 | .49 | .61 | .88 | .35 | .500 | .54 | .66 | .94 | | | | | |
| 21. Prog. 1 | 3.48 | 0.92 | -.12 | -.05 | .08 | .06 | .05 | -.29 | -.14 | -.08 | -.09 | -.09 | .38 | .18 | .22 | .15 | .05 | .33 | .13 | .18 | .18 | .07 | – | | | | |
| 22. Prog. 2 | 3.47 | 0.85 | -.04 | .00 | .03 | .07 | .03 | -.09 | -.13 | -.01 | -.09 | -.11 | .22 | .28 | .24 | .25 | .20 | .13 | .32 | .22 | .23 | .28 | .07 | – | | | |
| 23. Prog. 3 | 3.34 | 0.89 | -.02 | -.10 | -.20 | -.06 | .01 | -.24 | -.25 | -.29 | -.37 | -.20 | .13 | .28 | .43 | .40 | .19 | .10 | .32 | .43 | .44 | .20 | .31 | .32 | – | | |
| 24. Prog. 4 | 3.46 | 0.99 | .01 | -.09 | -.01 | -.05 | -.11 | -.16 | -.19 | -.21 | -.46 | -.32 | .23 | 0.35 | .42 | .49 | .35 | .19 | .32 | .47 | .52 | .39 | .32 | .24 | .29 | – | |
| 25. Prog. 5 | 3.48 | 1.01 | -.08 | -.01 | -.03 | -.01 | -.10 | -.16 | -.06 | -.05 | -.29 | -.36 | .23 | 0.31 | .31 | .42 | .45 | .16 | .26 | .28 | .39 | .46 | .11 | .27 | .41 | .35 | – |

Note. $r = .15 - .19, p < .05$; $r = 0.20 - .26, p < .01$; $r > .27, p < .001$.

Ex = Exhaustion, Cy = Cynicism, Vi = vigor, De = Dedication, Prog. = Progress in work goals. The numbers 1–5 refer to the measurement times. The Cronbach's alphas are shown on the diagonal (bold face).

Various criteria were used to determine the adequate number of latent profiles (Muthén, 2003; Nylund et al., 2007): (a) the Akaike Information Criterion (AIC); (b) the Bayesian Information Criterion (BIC); (c) the Bootstrap Likelihood Ratio Test (BLRT). The model with the smallest AIC and BIC values is considered to be superior. The BLRT test compares solutions with different numbers of latent profiles. For the test, a p -value lower than 0.05 suggests that the solution with k profiles fits the data better than the solution with $k-1$ profiles. Furthermore, the distinctiveness of the profiles was assessed using entropy and average latent class posterior probabilities (AvePP). Entropy illustrates how accurate the overall classification is, and AvePP evaluates the certainty of placing an observation in a particular class using posterior probabilities. Using the most likely latent membership, AvePP is calculated for each of the classes. Both the entropy and AvePP values range from 0 to 1; for entropy, values close to 1 indicate a clear classification (Celeux & Soromenho, 1996). For the cases in the most likely latent class, an AvePP of greater than .70 indicates that the solution found can be interpreted using the mean trajectories (Nagin, 2005). When determining the number of profiles, the theoretical interpretability of the solution was also considered.

A General Linear Model (GLM) for repeated measures was used to test whether the burnout-work engagement profiles differed in personal work goal progress across time. In these analyses, the profile solution of the exhaustion-vigor/cynicism-dedication was treated as a fixed factor and time as a repeated measure. The GLM and preliminary analyses, i.e., the means, standard deviations, correlations and reliabilities (Cronbach's alphas) of the study variables, were performed using IBM SPSS Statistics 22.

6. Results

6.1. Profiles of burnout and work engagement

The results of the latent profile analysis for the simultaneously estimated burnout and work engagement profiles are presented in Table 2. As shown, for the *energy continuum* (i.e., exhaustion-vigor), the

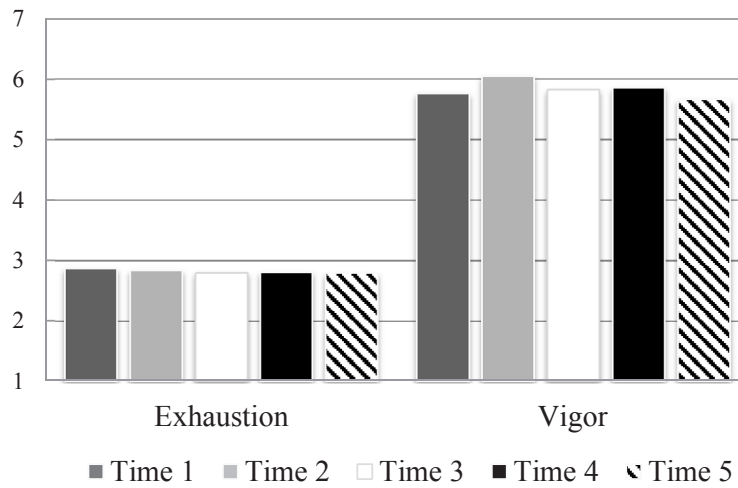
Table 2
Fit Indices for Latent Profile Models of Burnout and Work Engagement with Different Numbers of Latent Profiles.

| Number of latent profiles | logL | AIC | BIC | Entropy | BLRT p value | Latent profile proportions |
|----------------------------|---------|--------|--------|---------|--------------|----------------------------|
| Exhaustion-vigor | | | | | | |
| 1 | -2189.6 | 4509.3 | 4712.3 | – | – | 168 |
| 2 | -2150.7 | 4453.4 | 4690.9 | 0.97 | 0.001 | 149/19 |
| 3 | -2122.1 | 4418.2 | 4690.0 | 0.98 | 0.001 | 141/19/8 |
| 4 | -2097.6 | 4391.2 | 4697.3 | 0.98 | 0.001 | 137/19/9/3 |
| Cynicism-dedication | | | | | | |
| 1 | -2188.3 | 4506.6 | 4709.7 | – | – | 168 |
| 2 | -2150.6 | 4453.2 | 4690.7 | 0.96 | 0.001 | 143/25 |
| 3 | -2119.4 | 4412.9 | 4684.7 | 0.96 | 0.001 | 27/124/17 |
| 4 | -2095.3 | 4386.7 | 4692.8 | 0.98 | 0.001 | 133/23/6/6 |

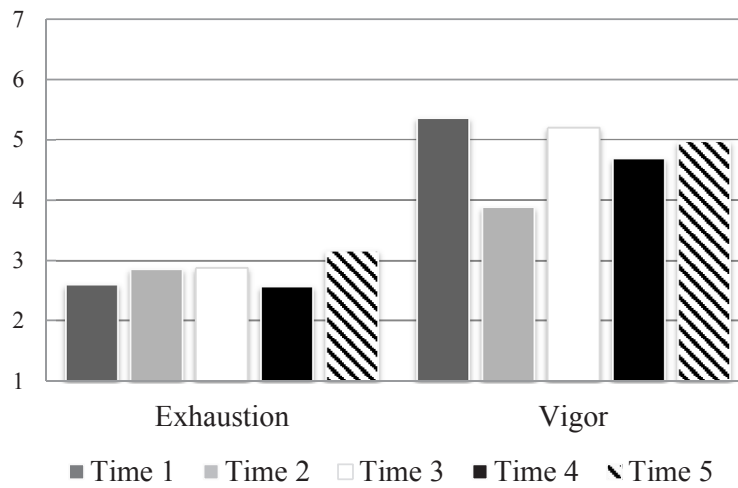
Note. logL = Log likelihood; AIC = Akaike Information Criterion; BIC = Bayesian information criterion; BLRT = Bootstrap-Likelihood-Ratio Test.

three-profile solution was supported by the BIC value, which has proven to be the most consistent goodness-of-fit indicator of latent profiles (Nylund et al., 2007; Muthén, 2006). In addition, both the entropy value (.98) and the AvePPs (range .98–.99) were very high, illustrating the distinctiveness of the profiles in the three-profile solution. The same solution was also replicated, indicating that the solution was global instead of local (see Jung & Wickrama, 2008). The four-profile solution, which also showed a good entropy value, did not, however, replicate and one of the four profiles was small, comprising only 1% of the participants. Therefore, the three-profile solution was chosen for the subsequent analyses. Fig. 1 shows the three profiles for simultaneously estimated exhaustion and vigor at the five measurement points.

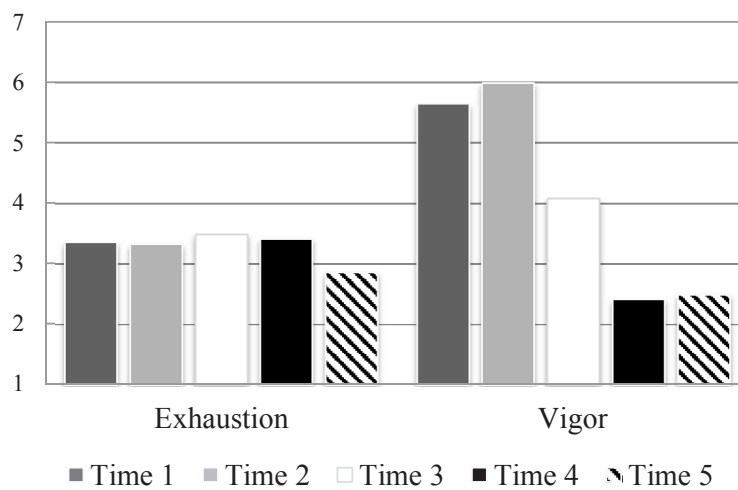
Profile 1, labeled “Low stable exhaustion – high stable vigor”, was the largest of the profiles and contained 84% of the participants (AvePP = .99). This profile showed stable low levels of exhaustion and stable high levels of vigor across the five measurements. Profile 2, titled “Fluctuating exhaustion and vigor” (AvePP = .98), accounted for 11%



Profile 1: “Low stable exhaustion - high stable vigor” ($n = 141, 84\%$)

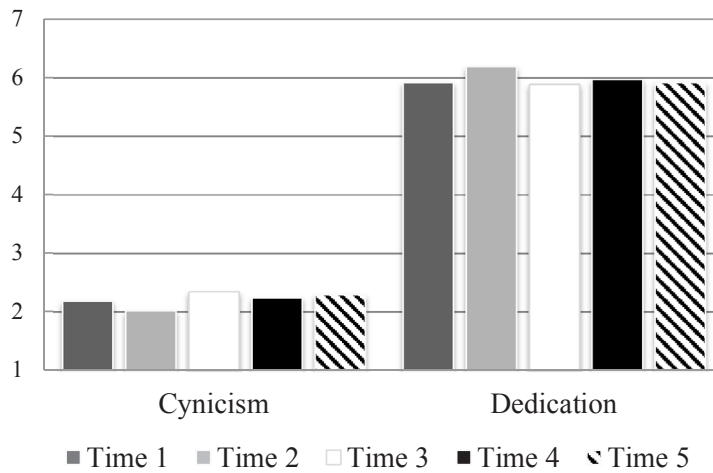


Profile 2: “Fluctuating exhaustion and vigor” ($n = 19, 11\%$)

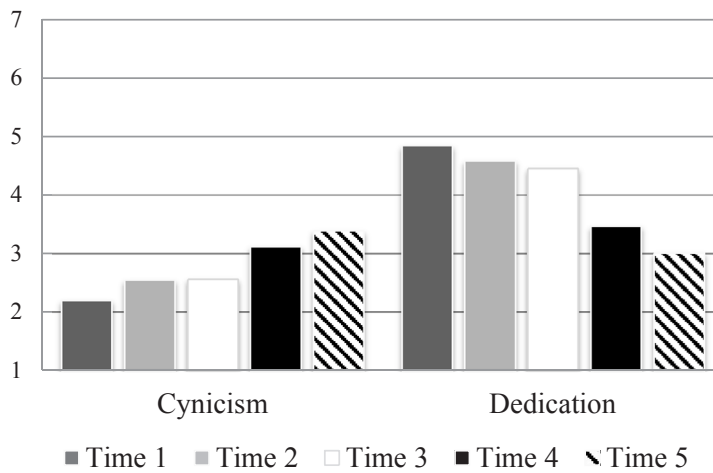


Profile 3: “Stable average exhaustion - decreasing vigor” ($n = 8, 5\%$)

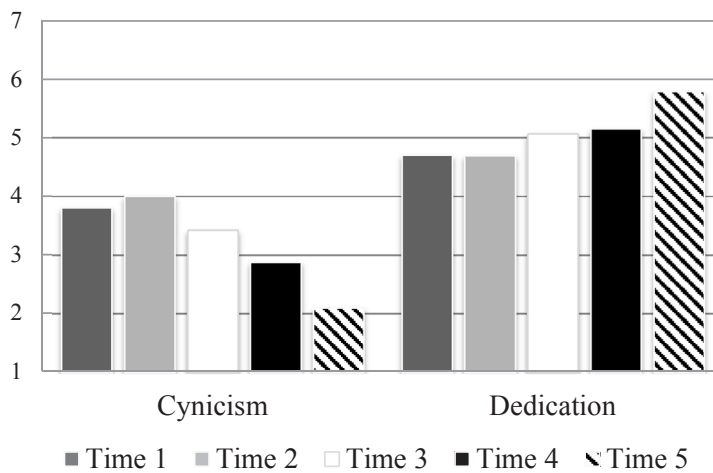
Fig. 1. Estimated means for the latent profiles of exhaustion and vigor.
 Note. Scale for exhaustion: 1 = completely disagree, 6 = completely agree; for vigor: 1 = never, 7 = daily.



Profile 1: “Low stable cynicism - high stable dedication” ($n = 124, 74\%$)



Profile 2: “Increasing cynicism - decreasing dedication” ($n = 27, 16\%$)



Profile 3: “Decreasing cynicism - increasing dedication” ($n = 17, 10\%$)

Fig. 2. Estimated means for the latent profiles of cynicism and dedication.

Note. Scale for cynicism: 1 = completely disagree, 6 = completely agree; for dedication: 1 = never, 7 = daily.

of the participants. In this profile, the levels of exhaustion were low, but slightly fluctuating (i.e., increasing or decreasing depending on the measurements). Vigor was at mean levels, but also to some extent unstable. Profile 3, labeled “Stable average exhaustion – decreasing vigor” (AvePP = .99), comprised 5% of the participants. This profile showed a considerable decrease in vigor during the follow-up, as the levels of exhaustion – which were higher than in the other two profiles – remained rather stable over time.

For the identification continuum, i.e., for simultaneously estimated cynicism and dedication, the criteria used also supported a three-profile solution (see Table 2). First, and most importantly, the three-profile solution was supported by the BIC value. The entropy value (.96), together with the AvePPs (range .96–.99), were also high, indicating good classification quality and accuracy. The four-profile solution was not trustworthy as the best log likelihood value was not replicated, implying problems in convergence (Jung & Wickrama, 2008).

(Jung & Wickrama, 2008). In light of all this evidence, the three-profile solution was selected for the subsequent analyses.

Fig. 2 shows the results for the three-profile solution in more detail. Profile 1, titled “Low stable cynicism – high stable dedication” was the largest of the three cynicism-dedication profiles and contained 74% of the participants (AvePP = .99). These respondents showed low stable levels of cynicism and high stable levels of dedication. Profile 2, labeled as “Increasing cynicism – decreasing dedication” (AvePP = .96), included 16% of the participants. These participants showed an increase in cynicism and a simultaneous decrease in dedication over time. Profile 3, named “Decreasing cynicism – increasing dedication” (AvePP = .99) comprised 10% of the participants and showed development over time contrary to that in Profile 2: cynicism decreased and dedication increased.

To summarize, our Hypotheses 1 and 2 were supported since the levels of exhaustion and vigor were inversely related, as also were the levels of cynicism and dedication. Hypothesis 3 was also supported as long-term changes in both the energy and identification continua long-term changes were detected, although only among a minority of employees.

6.2. Profiles of burnout and work engagement: differences in goal progress

GLM for repeated measures was used to test whether the burnout-work engagement profiles differed by progress in personal work goals across time. The GLM results are presented in Table 3. As shown, the interaction effect between the latent exhaustion-vigor profiles and time did not reach significance, however, both the profile and time effects were significant. Consequently, the profiles differed significantly in goal progress at the overall mean level. This difference was seen at each measurement point: employees in the profiles “Fluctuating exhaustion

and vigor” and “Stable average exhaustion – decreasing vigor” reported less progress in their personal work goals than those in the profile “Low stable exhaustion – high stable vigor” (see Table 3). The time effect indicated that a statistically significant decrease in goal progress occurred between Time 1 and Time 3 at the overall mean level. Interestingly, however, the mean levels of goal progress decreased among employees in the “Stable average exhaustion – decreasing vigor” profile, while remaining relatively stable among those in the other two profiles (see Table 3). Nevertheless, the relatively large mean level changes were not statistically significant, probably owing to the small size of the profile ($n = 8$) in comparison with the other profiles.

The interaction effect between the cynicism-dedication profiles and time was significant, suggesting differences between the profiles in their changes in goal progress over time (see Table 3). Among employees in the profile “Increasing cynicism – decreasing dedication”, goal progress showed a decreasing trend. Conversely, in the profile “Decreasing cynicism – increasing dedication”, an increase in goal progress was observed, especially between Time 3 and Time 5. In turn, employees in the profile “Low stable cynicism – high stable dedication” reported high levels in goal progress across the study period.

To summarize, Hypothesis 4 was supported, as progress in personal work goals was associated with high stable levels of both the energy and identification continua. Hypothesis 5 was partially supported, as changes in goal progress were evident only with changes in cynicism and dedication (i.e., the identification continuum).

7. Discussion

This study augments knowledge on the burnout-work engagement relationship *longitudinally* on the *within-person level*. As burnout and work engagement display both dynamic and static qualities over varying time frames (for a review, see Mäkikangas et al., 2016), the person-centered approach applied here can yield unique insights. Specifically, we found three intra-individual developmental profiles for both the energy and identification continua. In line with the earlier research (for reviews, see Mäkikangas & Kinnunen, 2016; Mäkikangas et al., 2016), employees typically reported stable low levels of exhaustion and cynicism and stable high levels of vigor and dedication throughout the eight-year time span. This indicates that the energy (i.e., exhaustion-vigor) and identification (i.e., cynicism-dedication) continua display an inverse relationship. Alongside these stable oppositions, so-called atypical (i.e., found among a small minority of participants) developmental profiles were also observed for both continua. Namely, for the identification continuum, two linearly changing developmental profiles were detected in which the levels of and changes in cynicism and dedication showed simultaneous, but inverse changes. For the energy continuum, two atypical profiles were mainly due to

Table 3
Differences in Goal Progress in the Burnout-Work Engagement Profiles: GLM for Repeated Measures.

| Burnout-work engagement profiles | Time 1 M (S.E.) | Time 2 M (S.E.) | Time 3 M (S.E.) | Time 4 M (S.E.) | Time 5 M (S.E.) | Profile Effect F | Time Effect F | Profile × Time Effect F |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|---------------|-------------------------|
| | | | | | | 12.90*** | 3.04* | 1.69 ns. |
| 1. Low stable exhaustion – high stable vigor | 3.53 (0.08) | 3.57 (0.07) | 3.42 (0.07) | 3.65 (0.08) | 3.61 (0.09) | > 2, 3 | | |
| 2. Fluctuating exhaustion and vigor | 3.46 (0.24) | 2.80 (0.22) | 2.73 (0.22) | 2.93 (0.24) | 2.86 (0.26) | | | |
| 3. Stable average exhaustion – decreasing vigor | 3.17 (0.38) | 3.00 (0.34) | 2.50 (0.35) | 2.17 (0.38) | 2.67 (0.42) | | | |
| | | | | | | 19.67*** | 2.18 ns. | 2.76** |
| 1. Low stable cynicism – high stable dedication | 3.62 (0.09) | 3.63 (0.08) | 3.48 (0.08) | 3.72 (0.09) | 3.65 (0.09) | > 2, 3 | | |
| 2. Increasing cynicism – decreasing dedication | 3.29 (0.20) | 2.81 (0.18) | 2.91 (0.19) | 2.67 (0.20) | 2.52 (0.21) | | | |
| 3. Decreasing cynicism – increasing dedication | 3.07 (0.24) | 3.27 (0.21) | 2.73 (0.22) | 3.20 (0.24) | 3.73 (0.25) | | | |

Note. Pairwise comparisons made by Bonferroni post hoc tests. * $p < .05$. ** $p < .01$. *** $p < .001$

changing or fluctuating levels of vigor. Moreover, we observed meaningful differences in personal work goal progress between the identified profiles. Goal progress was perceived as most successful in the groups described by the identification continuum, i.e., the groups of “Low stable cynicism – high stable dedication” and “Decreasing cynicism – increasing dedication”. Below, these findings and their possible implication for the burnout-work engagement literature are described in detail.

Although earlier research has questioned the antipodal nature of exhaustion and vigor (Demerouti et al., 2010; González-Romá et al., 2006) and shown their possible co-occurrence on average levels (Mäkikangas et al., 2012; Mäkikangas et al., 2014), the present findings revealed that, among the great majority of employees (84%), stable low levels of exhaustion combined with high levels of vigor were evident in the long-term. A similar antipodal developmental relationship was also observed in the profile labeled “Fluctuating exhaustion and vigor”, where the levels of exhaustion and vigor were largely inversely related and thus, typically, exclusive experiences.

This study also revealed a small, atypical exhaustion-vigor profile, i.e., “Stable average exhaustion – decreasing vigor”. In this profile, the levels of exhaustion were slightly higher than in other two profiles, and the levels of vigor showed a sharp downturn over time. This long-term developmental profile offers evidence that even slightly elevated, but prolonged exhaustion can lead to the erosion of vigor. This developmental profile was not evident over a shorter time span, i.e., two years (Mäkikangas et al., 2012), suggesting that the slow process of energy overconsumption only becomes visible over a long interval. This so called risk profile, accounting for 5% of the participants, adds to our understanding of the unfavorable development of the energy continuum in the long term. It is an example of a particular combination of exhaustion and vigor, which we were now able to demonstrate empirically in the long-run via a person-oriented approach.

The results for the identification continuum not only confirmed earlier findings (Demerouti et al., 2010; González-Romá et al., 2006; Mäkikangas et al., 2012) but also elaborated them further. That is, among the majority of participants (74%), the levels of cynicism and dedication were stable and inversely related, and among one-third of the participants their levels simultaneously changed in the reverse direction. Therefore, the results clearly showed that cynicism and dedication were mutually exclusive well-being states; i.e., employees can hold either negative or positive attitudes towards their work, but not both. This relationship has been established in both variable-centered (Demerouti et al., 2010; González-Romá et al., 2006) and person-centered studies (Mäkikangas et al., 2012) and using a variety of burnout scales (e.g., OLB, MBI, BBI). Thus, the findings relating to the identification continuum seems to be rather conclusive.

Overall, the developmental profiles obtained here offer a clearer picture of the stability and change in burnout and work engagement than has been reported by previous long-term person-centered studies (e.g., Evolahti et al., 2013; Hultell et al., 2013; Mäkikangas et al., 2012; Rudman & Gustavsson, 2011). There are many reasons for this: first, the time span was longer than previously used, in fact long enough for clear changes in well-being to be detected. Second, studies have typically focused on employees in the early career stage (Hultell et al., 2013; Rudman & Gustavsson, 2011), a time known to be a turbulent in many respects and also a cause of changes in levels of well-being (for review, see Mäkikangas et al., 2016). The developmental profiles identified in the present study captured employees in early mid-career, that is, between ages 30–40. Third, our statistically innovative method enabled us to investigate burnout and work engagement simultaneously at the within-person level, an approach which potentially clarifies the content and number of the profiles found. Previously, developmental trends have been investigated separately (Mäkikangas et al., 2012).

Our results also showed that the employees in the different long-term development profiles of burnout and work engagement differed in their progress towards attainment of their personal work goals across

the eight-year period. Progress in personal work goals was most closely related to the constructs pertaining to the identification continuum. That is, progress in personal work goals was reported throughout the eight years among those who reported low stable levels of cynicism and high stable levels of dedication. Moreover, lower goal progress was evident among the participants in the profile “Increasing cynicism – decreasing dedication”, whereas higher goal progress was characteristic in the profile “Decreasing cynicism – increasing dedication. High progress in personal work goals was also evident in the energy continuum profile ‘Low stable exhaustion – high stable vigor’.

Overall, these results suggest that when employees are able to advance in their personally meaningful strivings, they feel motivated and willing to invest even more effort in their work. On the contrary, if their personal strivings are not greeted with some measure of success, they are likely to question the value and meaning of work, and lose their work motivation. The association between personal goal progress and well-being is likely to be reciprocal: progress fuels well-being, but well-being also determines how much energy is invested in goal pursuit. It is also likely that progress in personal work goals increases person-job fit, thereby facilitating positive attitudes towards work, such as the feeling that work is meaningful (for a meta-analysis, see Kristof-Brown, Zimmerman, & Johnson, 2005). In sum, progress in work goals offers a fruitful perspective from which to understand the long-term development of burnout and work engagement. Consequently, it is worth purposefully incorporating personal work goals and progress towards their attainment into job appraisals and professional development plans.

7.1. Limitations

This study has its limitations. First, all the participants were employed on each measurement occasion. This selection criterion may, however, have biased the findings on the development of burnout and work engagement in a more positive direction and also biased the result of the attrition analysis (i.e., vigorous employees were overrepresented in the longitudinal sample). Second, the present sample consisted mostly of men who were typically employed in managerial duties, which clearly limits the generalizability of the results. Since managers typically have a high level of job-related well-being (Kinnunen, Feldt, & Mäkikangas, 2008; Mäkikangas et al., 2012), the present results, indicating very positive developmental trends for work engagement and burnout, cannot be applied to all occupational status groups. Hence, the long-term development of burnout and work engagement should also be investigated with samples drawn from a wider variety of occupations and industries. The longitudinal developmental profiles found in this study also need to be tested and replicated in other contexts, as during the study period many other labor market-related changes occurred. For example, an economic downturn began in Finland during the second half of 2008 and subsequently intensified. Burnout-work engagement development should be also investigated across other age ranges, as the present profiles were investigated when the participants were aged between 30 and 40. Finally, it has to be remembered that the results on goal progress and developmental profiles of burnout-work engagement do not imply causal relations; they only show simultaneous associations and parallel changes.

7.2. Conclusions

The main results verified the earlier results by showing that cynicism and dedication manifest opposite states of well-being also over the long term. The implications for practice of the present findings thus concur with those of previous studies (Demerouti et al., 2010; Mäkikangas et al., 2012), indicating that valid measurements of the identification dimension could be made by using a single scale. Our results further clarified the development of the energy continuum: typically, exhaustion and vigor represented opposite well-being states. A

further important finding was that divergent developmental trends are also possible, although they were atypical in the present study: among a small minority of employees (5%) long-term exhaustion was associated with lowered experiences of vigor. Our results also showed that changes in the identification continuum, either unfavorable or favorable, are simultaneously reflected in changes in personal work goal assessments. This result suggests that progressing in personal work goals may be more closely related to the levels of and changes in the identification than energy continuum constructs.

To set the results against a larger backdrop, it could be argued that they portray long-term development among relatively healthy employees located in a western welfare state with well-developed programs for promoting work ability. Since the rise of the so called positive psychology movement, interest has focused on the relation between positive and negative states of well-being. It is now time to take one step further and investigate the causes and consequences of diversified well-being states; for example, are high stable levels of vigor more beneficial than average and fluctuating levels of vigor and in what way, i.e., what are their consequences at the individual and organizational level? Furthermore, while we already have considerable knowledge about “causes” of burnout and work engagement based on correlational studies, more intervention-based understanding is called for that is, what are the best ways to alter and intervene in unfavorable well-being development? And, conversely, how might it be possible to maintain or even increase an already high level of well-being?

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