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Exploring daily patterns of work engagement among teachers: A Latent Growth Modeling approach

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Abstract

Background: Starting from the Demands-Resources model, our aims through this diary research were to explore daily diary fluctuations in work engagement in a sample of teachers and to look for the effects of that on affect and satisfaction at home. **Method:** Several Latent Growth Curve (LCGA) models were run on two dimensions of work engagement (vigor and dedication) with an exploratory focus, to look for different grouped oscillation patterns. Then, several repeated measures MANCOVA explored whether those patterns were related to affect and satisfaction at night. **Results:** Two distinct latent trajectories were found for work engagement dimensions. However, neither of them showed any notable development over time. Furthermore, our latent classes were found to be related to inter-individual differences in positive and negative affect, and the satisfaction at home domain, but no interesting within-subjects (overall time) effects were found. **Conclusions:** Contrary to our expectations, we provide some evidence of the stability of work engagement over the working week. In addition, following previous results, work engagement levels across the working week were found to be related to levels of affect and satisfaction at home, adding evidence to the spillover potential of work engagement on individuals' key personal resources.

Keywords: Latent Growth Curve Analysis, longitudinal Analysis, Work-Home Resources, engagement, occupational health.

Resumen

Explorando patrones diarios de engagement en docentes: una aproximación mediante Modelos de Crecimiento Latente. **Antecedentes:** partiendo del modelo de demandas y recursos, este estudio pretende explorar distintos patrones semanales de oscilación en el compromiso laboral de una muestra de maestros, y observar cómo dichos patrones se relacionan con los niveles de afecto y satisfacción en su ámbito extralaboral. **Método:** las trayectorias se fijaron mediante varios modelos de curva latente (LCGA) en dos dimensiones del compromiso laboral (vigor y dedicación). Luego, una serie de MANCOVA de medidas repetidas exploraron la relación entre dichas trayectorias y los niveles de afecto y satisfacción extra laboral. **Resultados:** se localizaron dos trayectorias distintas para ambas dimensiones. No obstante, no se observaron grandes oscilaciones temporales. Asimismo, las trayectorias se relacionaron con diferencias individuales en los niveles de afecto y satisfacción en contexto extralaboral. No se apreciaron efectos intra-sujeto (tiempo) reseñables. Conclusiones: a pesar de evidencias previas, los análisis parecen indicar que el compromiso laboral se comporta de forma estable. Por otro lado, se observó un efecto de contagio entre el nivel de compromiso laboral, el afecto y la satisfacción en el contexto extralaboral, añadiendo evidencia a la relación entre el compromiso y los recursos personales de los trabajadores.

Palabras clave: Modelos de Curva Latente, análisis longitudinal, Modelo de Recursos Trabajo-Casa, compromiso, salud laboral.

Work engagement is a motivational component of employees' attachment to their working roles (Kahn, 1990). One of its most popular formulations states that "work engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al., 2002). Vigor (energetic component) is characterized by "high levels of energy and mental resilience", dedication (emotional component) by "being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge" and absorption (behavioral component) by "being fully concentrated and happily engrossed in one's work, whereby times passes quickly and one has difficulties with detaching oneself from work" (Bakker & Demerouti, 2008). Work engagement has been widely studied as a potential predictor of performance (e.g. Lisbona et al., 2018), innovation (Gawke et al., 2017) or positive affect (Demerouti et al., 2001). Over the last years, longitudinal models have become the quintessence of psychological research (Little et al., 2015). Longitudinal studies may cover two basic aims: a) modeling the time-course evolution of target constructs, and b) discover subpopulations based on changing patterns on target variables. Longitudinal models are an inspiring source of knowledge for organizational psychology, due to the importance of time periods in this context and its relationship with many motivational factors. Since Kahn (1990) stated that work engagement was a daily fluctuating construct rather than a static or long-term state, many attempts to model its oscillation

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have been made (e.g. Bakker, 2014; Bakker & Xanthopoulou, 2009; Sonnentag, 2003; Tims et al., 2011).

Longitudinal work engagement has been tested in various time-lags, relying either on daily or weekly measurement of work engagement. First, among daily studies, Sonnentag (2003) was one of the first ones to operationalize this idea, and Xanthopoulou and Bakker (2012) found that within-person variance explained about 42% of the total variance in work engagement. Second, weekly diary studies have modeled work engagement (Bakker & Sanz-Vergel, 2013; Sonnentag et al., 2010; van Woerkom et al., 2016), showing that about 47% of the engagement total variance was due to within-person fluctuations (Bakker & Bal, 2010). Within this line of research, the *Job Demands-Resources Model* (D-RM; Demerouti et al., 2001a) raises the question of whether job demands have different everyday implications for employees' health and well-being. Consistent with this idea, several antecedents of daily work engagement have been tested, such as leadership styles (Breevaart et al., 2014; Breevaart & Bakker, 2018; Breevaart et al., 2016), organizational support (van Woerkom et al., 2016), positive emotional experiences (Green et al., 2017; Ouweneel et al., 2012), job resources (Kühnel et al., 2012; Xanthopoulou et. al., 2009), or organizational contexts (Lieke et al., 2012). Finally, self-regulation strategies (Bakker & Oerlemans, 2019) or recovery (Venz et al., 2018) were proposed as possible mechanisms of those effects. Parallel to this, other studies have focused on the consequences of longitudinal work engagement over performance (Bakker et al., 2008) or commitment (Hakanen et al., 2008).

Some professional groups, like educational workforces, have been used in many studies about burnout and work engagement (e.g. Hakanen et al., 2006; Høigaard et al., 2012; Skaalvik & Skaalvik, 2014) and also from the longitudinal perspective (Bakker, Hakanen et al., 2007; Garrick et al., 2014; Tadic et al., 2015). Concerning the teaching staff, most studies have been conducted over new teachers. For example, Bakker and Bal (2010) studied work engagement and resources for starting teachers, and Høigaard et al. (2012) studied the relationship between work engagement and job satisfaction.

Summing up, although several longitudinal studies have indicated work engagement as a fluctuating construct (Bakker & Bal, 2010; Kahn, 1990; Sonnentag, 2003; Xanthopoulou & Bakker, 2012), they are still limited and not varied enough. Most of them have focused on antecedents of work engagement (e.g. Breevaart et al., 2014; Green et al., 2017; Lieke et al., 2012; Prieto et al., 2008; van Woerkom et al., 2016), but not on its effects (except for Bakker et al., 2008; Hakanen et al., 2008). In particular, applied studies working with particular professional groups are lacking. Here we aim to present another contribution to this growing literature, focusing on an educational staff sample.

Following the core assumption of the *Job Demands-Resources Model* (Demerouti et al., 2001a), several authors (Bakker & Geurts, 2004; Demerouti et al., 2004) have pointed out to the fact that psychological resources and mechanisms are exchanged between the workplace and the home domain. Some recent evidence has started to explore work engagement spillover effects, to answer how this work-related construct may affect psychological well-being at the home domain. Hence, some studies showed that work engagement was related to higher work-family facilitation and family satisfaction (Bakker et al., 2014), higher reported happiness (Rodríguez-Muñoz et al., 2014), positive mood (Culbertson et al., 2012) and work-family enrichment (Siu et al., 2010).

Although Kahn (1990) argued that engagement has within-person daily fluctuations, up to now not many studies have addressed Latent Growth Modeling for the search on work engagement different temporal trajectories. Scarce exceptions that have address latent classes (Mäkikangas et al., 2012) have followed data-driven approaches to determine the number of trajectories to retain.

Additionally, due to the importance of relational aspects for motivation and success within educational contexts (Skinner & Belmont, 1993; Wang & Eccles, 2013) and its particularly demanding and stressful environment (Travers & Cooper, 1996), teachers engagement have been signaled as a key to foster performance (Bakker & Bal, 2010) and buffer stress (Hakanen et al., 2006).

Therefore, our main goals are, a) to explore daily changes of work engagement on a diary-source sample of teachers, and b) to gain more knowledge on spillover relationships between UWES (Utrecht Work Engagement Scale; Schaufeli et al., 2006) trajectories at the workplace and affect or satisfaction at home. As we don't expect a concrete number of trajectories, our approach will be mostly exploratory. Nevertheless, as Mäkikangas et al. (2012) have identified different trajectories, we will expect to identify, at least, two meaningful classes for both dimensions.

Hypothesis 1. Among engagement dimensions (vigor and dedication) we will find significantly distinct grouped trajectories.

Hypothesis 2. Higher and increasing trajectories of vigor and dedication will be related to an increase of positive affect (at both afternoon and night measurements along the week), decreasing trajectories of negative affect and higher satisfaction at home.

Hypothesis 3. We will find significant interaction effects between vigor and dedication intra-individual time growth and between-subjects class differences in affect and satisfaction.

To fulfill the study purposes, we chose LGM (Latent Growth Modeling), a variant of Longitudinal Structural Equation Modeling (LSEM) that aims to classify individuals on the basis of their change functions in a given target variable as our analytic strategy. These models, following Mc Ariel and Bell's (in Little et al., 2015) classification of the main goals in longitudinal research, help to describe a) intra-individual change, and b) to identify inter-individual differences in intra-individual change. They are based on latent category formation, which are unobserved patterns that the researcher needs to fix as a result of a theoretical-empirical balanced reflection (Berlin et al., 2013).

Method

Participants

Participants were 60 teachers (from an initial number of 165) from four Spanish provinces (Madrid, Lugo, Guipúzcoa, and Toledo), who were performing their work in primary (from 4th course) and high school levels (60% of them in public institutions). 31.7% of the sample was composed of men with a mean age of 37.9 (SD = 9.94). 34 of them had open-ended contracts (56.7%), 21 were interims (32%), 2 had temporary contracts (3.33%), 1 had a trainee contract (1.66%), 1 reported having another unspecified type of contract and 1 participant did not report any information. Weekly working hours ranged from 10 to 40 (M = 31.67, SD = 6.22). All teachers reported having additional roles or tasks apart from giving lectures (such as being coordinators, headteachers or tutors).

Instruments

Engagement was measured through the *Utrecht Work Engagement Scale* (UWES), which covers the three dimensions of the construct (vigor, dedication, and absorption). We chose the 9-items short version (Schaufeli et al., 2006), which has shown good psychometrical properties also for diary purposes (ICC = 43.5%, α_{daily} = .80 - .96; Breevaart et al., 2014). Items were transformed into a diary version and, response scales were presented in a 6-point format, ranging from 1 (*totally false*) to 6 (*totally true*). In our sample, we found alpha scores ranging from .70 and .81, fluctuating over the course of the working week. Although the construct of work engagement is modeled with three subscales, the absorption dimension (frequently criticized in the literature, see Kulikowski, 2017) did not show acceptable reliability and we removed those three items from analyses.

Positive and negative affect were measured twice a day (related either to work or family contexts) through the *Positive and Negative Affect Scale* (PANAS; Thompson, 2007; Watson et al., 1988). We used 10 items from Thompson's shorter version, following López-Gómez et al. (2015) Spanish translation. Both the original and its shorter version found a two-factor structure, corresponding to the Negative Affect (NA) and Positive Affect (PA) dimensions (Thompson's version comprises 5 items of each). Items were formulated in a diary format, with 6-point Likert answers ranging from 1 (*totally false*) to 6 (*totally true*). The selected adjectives for the measurement of positive affect were "during today I felt… enthusiastic… motivated… decided… inspired… proud", and for negative affect "during today I felt… bad mood… fussy… uncomfortable… aggressive… agitated". We obtained oscillating alpha scores (depending on the weekday and the two contexts in which it was measured): while positive affect related to work achieved levels between .85 - .92 and between .89 - .93 for home, negative affect achieved scores between .78 - .91 for work measurement and between .75 - .92 for home. Overall, internal consistency was ranging between acceptable and good levels.

Satisfaction at home was assessed focusing on two targets: relatives and free time. During nightly data collection, participants were asked to rate their daily levels of satisfaction towards their relatives (1 self-made item) and with their free time (1 self-made item). Responses during the five working days were recorded in a 6-point Likert scale format. Items were "During today, how you would rate your level of satisfaction with your inner circle" and "During today, how you would rate your level of satisfaction with the free time you have had after work".

Workload was measured by taking three items from two organizational and role stress measures (Beehr et al., 1976; Schaubroeck et al., 1989). The items were formulated in a diary version, with a 6-point Likert scale ranging from 1 (*totally false*) to 6 (*totally true*). We then computed average workload and used that score as control for our analysis. We obtained daily alpha values ranging between .69 and .84. An example of item is "during your working day… you had to attend several tasks simultaneously".

Procedure

Participants were engaged in a daily diary study which consisted of 10 data collections over the course of one working week. Every day, participants received two questionnaires (one just after the workday, and the second one at night). Data was collected through paper-pencil (n = 88) and online surveys (n = 77). For all our questionnaires, we obtained an average response rate of 47,87%. Among the resulting 79 subjects, we retained 60 valid responses as our final sample size. Over the period of one working week, participants were asked to answer concerning their working hours (afternoon data collection) and free time (night data collection). Prior to the start of the daily surveys, a single general questionnaire was sent to measure some baseline, trait and demographic information (baseline engagement, work workload, age, and sex, among others).

Data analysis

Analyses were performed in Mplus 8.2 (Muthén & Muthén, 1998 - 2010), R Studio version 1.2.1335 and SPSS version 25. Preliminary analyses were conducted in order to ensure the suitability of our data for the techniques we performed. After, we conducted a latent growth curve analysis with the three engagement subscales and their overall scores (all of them measured in the afternoon data collection). During the first step, we assessed whether the five-point engagement trajectories fitted a linear, quadratic or cubic shape (that were the. Three models we could test with 5 time-point to model). Following Hu and Bentler's (1998) recommendations, we compared the fit of the resultant competing models by looking at several different indexes, which are: a) Root Mean Squared Error of Approximation (RMSEA), which is one of the most reported indexes (based on non-centered chi-square), with values below .06 indicating a good fit, and between .06-.07 being acceptable, b) Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), frequently used to compare different models (lower values indicate better model fit), c) relative fit indexes, Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI), whose recommended values are greater than .95, e) Comparative Fit Index (CFI), with values greater than .95 indicating a good fit, d) ratio between chi-square and degrees of freedom, which is an absolute fit measure with values smaller than 3 indicating good fit, and e) the Standardized Root Mean Square Residual (SRMR), another absolute fit measurement whose recommended values are close to .08 (0 would indicate a perfect fit) (Hu & Bentler, 1999).

During the second step, we selected the best fitting trajectory shape, and then we estimated models composed by the different number of classes (from 1 to 5) with Mplus' mixture analysis procedure and maximum likelihood (ML) estimation method. The final number of classes was selected as a result of the balance between fit indicators and theoretical reflection. Finally, once the best number of classes was selected, several repeated measures MANCOVAs were performed in order to assess whether were differences in affect and satisfaction at home among members from different vigor, dedication and absorption classes.

Results

Descriptive statistics

Table 1 presents means, standard deviations, reliability values, skewness, kurtosis and product-moment correlations among study variables. To ensure that our data fulfilled the minimum required assumptions for conducting our analyses, we explored normality by looking at skewness and kurtosis values.

Table 1
Mean, standard deviation, alpha, skewness, kurtosis and correlations among study variables

	M (SD)	*α*	Skewness	Kurtosis	Product-moment correlations											
					1	2	3	4	5	6	7	8	9	10	11	12
1- Age	37.9 (9.94)	–	0.54	-0.87	–											
2- Sex	–	–	–	–	-0.26*	–										
3- Workload	4.24 (1.05)	.69 - .84	-0.52	0.05	0.15	0.11	–									
4- Trait Vigor	5.51 (0.94)	.66	-0.49	0.20	0.20	-0.16	0.10	–								
5- Trait Dedication	6.02 (0.66)	.50	-0.54	-0.36	0.04	0.04	-0.13	0.60***	–							
6- Diary Vigor	4.26 (0.89)	.70 - .80	-0.32	-0.27	0.13	-0.18	-0.04	0.63***	0.46***	–						
7- Diary Dedication	4.56 (0.82)	.77 - .81	-0.17	-0.88	-0.00	-0.11	-0.29*	0.42**	0.57***	0.76***	–					
8- Afternoon Pos. Affect	3.88 (1.05)	.85 - .92	-0.11	-0.60	0.12	-0.07	-0.18	0.35**	0.58***	0.67***	0.84***	–				
9- Afternoon Neg. Affect	1.55 (0.62)	.78 - .91	1.69	3.37	0.03	-0.03	0.16	-0.33**	-0.27*	-0.52***	-0.36**	-0.26*	–			
10- Night Pos. Affect	3.62 (1.11)	.89 - .93	-0.13	-0.48	0.06	-0.06	-0.16	0.24	0.58***	0.53***	0.72***	0.90***	-0.22	–		
11- Night Neg. Affect	1.43 (0.61)	.75 - .92	2.33	6.24	0.07	0.04	0.23	-0.23	-0.19	-0.53***	-0.40***	0.27*	0.88***	-0.24	–	
12- Satisfaction Relatives	4.11 (0.67)	.79	-0.35	-0.74	-0.11	0.01	0.02	0.19	0.00	0.27*	0.22	0.22	-0.11	0.23	-0.04	–
13- Satisfaction Free Time	3.55 (0.70)	.66	-0.63	0.52	-0.25*	-0.21	-0.25	0.05	-0.01	0.23	0.27	0.20	-0.15	0.32*	-0.25*	0.34**

Note: $N = 60$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
M = Mean*; SD* = Standard Deviation*;* α = Cronbach Alpha Reliability

Cluster membership

Several LCGA models were applied to vigor and dedication. The standard procedure in Mplus follows two steps.

Step 1

According to Gross et al. (2013), the aim during this phase is twofold: to ensure that our data matches a structured trajectory course and, if affirmative, setting its best fitting shape (e.g. linear or quadratic). For this purpose, we run several initial models in Mplus without specifying any number of clusters and, as we had 5 time-point measurements, we settled three shapes of trajectory for every engagement dimension (lineal, quadratic and cubic). Table 2 reports fit indexes for all models. For vigor, just the linear and quadratic model were identified. Thus, we selected the lineal trajectory shape due to its appreciable better fitting values. For dedication, also the cubic model was not identified, but we retained the quadratic trajectory due to its better fit, even if RMSEA and SRMR values were not optimal at all.

Table 2
Fit values for all competing models during LCGA steps

		STEP 1					
	Model	***RMSEA***	***SRMR***	***CFI***	***TLI***	BIC_{adj}	**□2 (df)**
Vigor	**Lineal**	.04	.15	.99	.99	698.66	11.28 (10)
	Quadratic	.06	.14	.99	.98	698.75	7.57 (6)
Dedication	**Lineal**	.08	.10	.97	.97	601.06	14.71 (10)
	Quadratic	.07	.08	.99	.98	597.95	7.79 (6)
		STEP 2					
		N classes	***LRMT***	***LRT***	***Entropy***	BIC_{adj}	
Vigor		**1**	–	–	–	880.87	
		2	.00	.00	.89	756.26	
		3	.17	.00	.92	717.57	
		4	.21	.01	.87	706.53	
		5	.22	.03	.84	698.72	
Dedication		**1**	–	–	–	715.34	
		2	.00	.00	.86	625.88	
		3	.34	.00	.88	592.81	
		4	.33	.34	.91	580.98	
		5	.36	.50	.96	584.78	

Note: $N = 60$; $^{*}p < .05$; $^{**}p < 0.01$; $^{***}p < 0.001$
CFI = Comparative Fit Index; *TLI* = Tuckey-Lewis Index; *RMSEA* = Root Mean Squared Error of Approximation; *SRMR* = Standardized Root Mean Squared Residual; *RMT* = Lo-Mendell-Rubin Test; *LRT* = Likelihood Ratio Test; BIC_{adj} = adjusted Bayesian Information Criterion

Step 2

Our goal during step two was to run several model estimations with different number of classes and to compare its fit according to: empirical indexes and previous theoretical orientations. Although Mäkikangas et al. (2012) found 5 latent classes for vigor and 6 for dedication among young managers, we couldn't retain those numbers due to the occurrence of empty classes in our data. Thus, due to the lack of previous studies, we looked for the best fitting balance. Following Nylund et al. (2007) recommendations, we checked goodness of fit by primarily looking at the Likelihood Ratio Test (LRT), followed by Lo-Mendell-Rubin Test (LMRT) and BIC values, controlling for acceptable intra-class sample sizes. Finally, we carried out from 1 to 5 class models. We must note that LCGA models fix all intraclass variances to 0, thus not allowing for variability within every cluster.

Having this guidance in mind, Table 2 reports fit values in all models and Table 3 shows selected classes for every dimension and its growth parameters. First, we chose 2 classes for vigor, named higher decreasing and lower vigor. While both class-intercept parameters turned out to be significant, just the higher class had a significantly decreasing slope. Second, two classes were fixed for dedication, named lower curve and higher dedication, both with significant intercepts, but just for the lower class we found a significant decreasing slope and quadratic parameters.

Figure 1 shows trajectory classes. All selected class models were transformed into membership variables reflecting individuals classified into them.

Relationship of work engagement with affect and satisfaction

Several repeated measures MANCOVA models were performed in order to check whether the formed trajectory classes variables were linked to differences in affect (measured after the working day and during the night) and anxiety symptoms. Workload and baseline work engagement were used as controls. No significant main effects of time were found across analyses (within-subject effects).

Overall, vigor trajectory classes showed significant relationships with both positive affect measurements. So, high vigor class members showed average high levels of positive affect after the working day [$F(1,56) = 13.93$, $p = .00$, $\omega^2 = .17$] and at night [$F(1,56) = 6.95$, $p = .01$, $\omega^2 = .09$] over the course of the week. No differences were found for satisfaction (either with relatives or free time) and negative affect.

In the case of dedication, significant differences between class members were found for both measurements of positive affect, during afternoon [$F(1,56) = 34.87$, $p = .00$, $\omega^2 = .36$] and night [$F(1,56) = 18.56$, $p = .00$, $\omega^2 = .24$]. Concretely, high dedication class members showed average higher positive affect. No between-subject differences were found for negative affect and both types of satisfaction. Nevertheless, a significant interaction time x class appeared for satisfaction towards relatives [$F(4,204) = 3.16$, $p = .01$, $\omega^2 = .11$]. However, just time 5 showed significant differences in satisfaction towards relatives ($M_{diff} = -0.93$, $p = .00$), being subjects within the higher dedication class those who presented higher average on satisfaction. In all models, following Pardo and Castellanos' (2004) recommendations, ω^2 effect size estimator was

Table 3
Vigor and dedication class sample sizes, growing estimated parameters and its significance

Classes	Growth factor means							
	Intercept factor		Slope factor		Quadratic factor			
	Estimate	*SE*	Estimate	*SE*	Estimate	*SE*	*N*	*p*
1- High decreasing Vigor	5.23***	0.13	-0.09*	0.03	–	–	27	.45
2- Low Vigor	3.73***	0.14	-0.07	-1.87	–	–	33	.55
1- Low curve Dedication	4.15***	0.15	-0.36**	0.11	0.06**	0.02	26	.43
2- High dedication	5.23***	0.11	-0.06	0.08	0.01	0.01	34	.56

Note: $N = 60$; $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$
SE = Standard Error; *p* = proportion of sample within each class

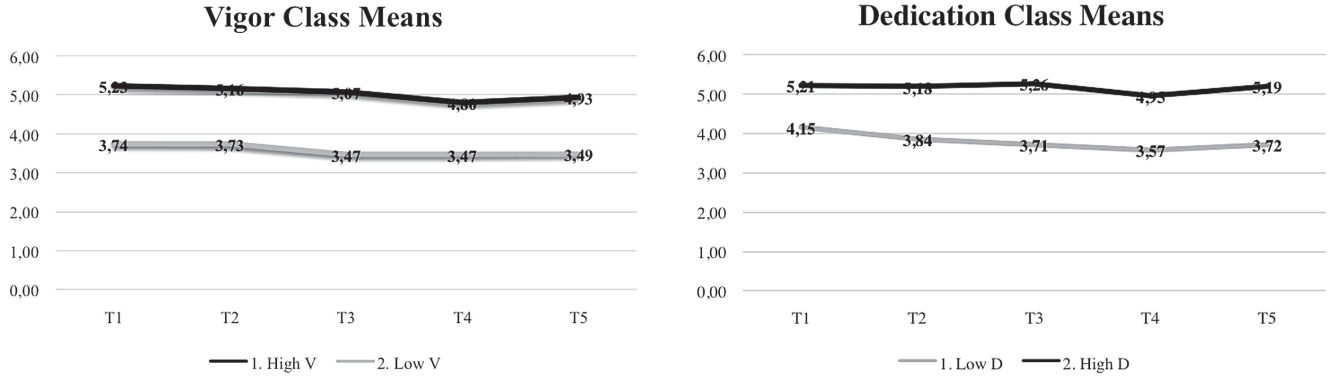

Figure 1. Vigor and dedication mean scores (Y axis) for both classes across the five time-point measurements (X axis)

reported. It is a robust estimator, based on Cohen's d, which can be interpreted as the proportion of the dependent variable variance explained by the factor.

Discussion

Following Kahn's idea that engagement is not a static construct (1990), our aims were to a) perform several latent growth models over two out of the three UWES dimensions, to explore different trajectories of change in work engagement levels across the week, and b) to examine the relationship between trajectory classes, affect and satisfaction measures.

Through our analyses, we found different identifiable classes for both dimensions. We found a two-class linear trajectory for vigor and a two-class quadratic model for dedication. Nevertheless, in those cases where growth parameters were proved to be significant (vigor and dedication class 1), no pronounced time trajectories were drawn along the week. Thus, hypothesis 1 was not totally supported due to the absence of real growth trajectories. This suggests that we found inter-individual differences, but no intra-individual meaningful changes.

Concerning our second hypothesis, we found: a) significant between-person differences for vigor and positive affect at both domain-measurements (work and home), but no between-subjects differences for negative affect or satisfaction, and b) significant between-subjects differences for dedication and positive affect at both domain-measurements, but no between-subjects differences for negative affect or satisfaction. Thus, our second hypothesis received just partial support, as no real growing trajectories were found, and no differences in negative affect or satisfaction were observed.

Finally, our third hypothesis stated that we would find interaction effects between intra-individual time growth and between-subject differences. This hypothesis was not supported for vigor and received partial support for dedication, where we obtained a significant interaction between dedication and satisfaction towards relatives. However, there were just meaningful differences at the end of the working week.

To summarize, high vigor and dedication were related to higher positive affect. Also, those subjects with higher dedication reported higher satisfaction towards their relatives on the fifth day. Contrary to previous diary studies (Sonnentag, 2003), no meaningful direct time effects were found when we explored affect and satisfaction depending on trajectories' membership, suggesting that just overall differences between engagement classes were taking place, but without marked day-by-day differences. Further research must be done in order to confirm or reject the stability of engagement dimensions with Latent Growth Modeling. Maybe different and broader samples would deliver different results. Overall, we add more evidence about the spillover potential of work engagement over affect and satisfaction at the home domain.

Theoretical and practical implications

From the theoretical side, as far as we know, little research has addressed the study of daily oscillations in work engagement. Contrary to expectations (Bakker, 2014; Sonnentag, 2003) and considering all sample and analytical limitations in our study, our results suggest that engagement is more stable than it has been figured out in past studies. On the practical side, we hope to have contributed a bit to underscore the importance of relational and motivational factors at the educational system, and especially, how work resources foster more satisfactory personal lives. Literature about teaching staff and educational contexts has focused a lot on students' motivation but has forgotten the importance of commitment and engagement among teachers.

Before concluding, several limitations must be underlined. First, we used self-assessed scales. Second, our sample was too small and not fully representative of its population (teaching staff). Also, our sample was collected with a snow-ball method, adding possible bias that is meaningful for the study of engagement (maybe those who freely joined the study were the most engaged at work). Third, diary studies present several advantages, but also some limitations: they are more demanding for participants (due to the high number of responses dilated for a certain time), response rates usually limit sample sizes, there is a higher possibility of missing not at random data and online data collections sometimes carry technical problems, to name a few. Finally, our approach turned out to be almost exploratory due to both the lack of previous studies addressing this question and our sample size limitations (due to the fact that multiple empty classes appeared during LGM class estimation).

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