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Directed Research on

DANCING AS PREDICTOR OF EMPLOYEES' WORK ENGAGEMENT

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Dancing as predictor of employees' work engagement

Abstract

This paper studies the impact of time spent in dancing on next day work engagement through increased morning vigor, sense of mastery, happiness and daily recovery mechanisms (mediators). A field study conducted with 34 respondents answering 3 daily questionnaires during 10 consecutive working days led to a two-level days-within-individuals model. Though positive, the direct relationship between time in dancing and work engagement reported statistically non-significant. However, a mediation analysis resulted in statistically significant and positively-related mediation paths between the aforementioned variables, suggesting that dancing has a positive impact in vigor through recovery and in work engagement through vigor as hypothesised.

Key words: daily recovery, dancing, off-job activities, work engagement

Introduction

The number 43.4% illustrates the portion of Portuguese adults whose physical activity falls below sufficient, according to a study from the *World Health Organization* (WHO) this September 2018 (Portugal only, sample size: 2261) (Guthold et al. 2018), summed to the fact that more than 70% of the Portuguese people in the study who were above 40 years old declares not exercising at all (Observador 2018). Another recent headline on the national newspapers referred to the high levels of employees' stress and exhaustion in Portugal. In a study conducted by the *Associação Portuguesa para a Defesa do Consumidor* (Deco) during January and February of the past year of 2018 (sample size: 1146), results showed that 3 out of 10 employees state being emotionally tired from work more than once per week and 35% revealed feeling exhausted with the same frequency (Observador 2018). In addition, almost half of the 71% that complains about the lack of support from the Human Resources Department show signs of chronic stress. Particularly in Portugal, numerous examples can be added to the list, leading one to conclude about the urgency of healing this issue, rapidly and successfully. The need of daily recovery from work is imminent.

Relatively recent studies in this field look for the effects of off-job activities on the process of relaxation and psychological detachment from work, which ultimately allows for recovery (Brummelhuis and Bakker 2012; Demerouti et al. 2009; Fritz and Sonnentag 2007). Moreover, some relate the daily recovery to higher levels of energy in the following day, also known as morning vigor, promoting higher work engagement and, consequently, job performance (Brummelhuis and Bakker 2012; Binnewies, Sonnentag and Mojza 2009). Among these positive off-job activities, social and physical ones are the most effective (Bakker et al. 2013). Notwithstanding, these studies on impact of recovery in morning vigor do not reveal which off-job activities enable this recovery,

causing their specific nature to remain unknown (Brummelhuis and Bakker 2012; Sonnentag, Kuttler and Fritz 2010; Sonnentag, Binnewies and Mojza 2008). The present study is intended to start filling that gap in literature, proposing a specific activity – Dancing – that may have a positive impact on the aforementioned variables.

In this sense, the aim of this study is exclusively to find out whether or not this specific off-job activity – dancing – has a positive impact in recovering, and, consequently, in feeling more engaged at work, controlling for the general categories of off-job activities (i.e. without comparing). In the end, this study is intended to help in the understanding of what Human Resources strategies could be included in the corporate world to mitigate the stress levels mentioned above and improve engagement at work.

Literature Review

Findings on Dancing benefits

Why dancing in the first place? Besides being an activity very close to the author's heart, dancing as a therapy has been defined by the American Dance Therapy Association (ADTA) as "a form of creative body-oriented psychotherapy that uses movement, dance, and verbal intervention to further the emotional, cognitive, physical and social integration of the individual" (cited in Koch et al. 2014). In line with this, various studies have taken place in discovering the benefits of dancing in declared health problems.

To illustrate, in a study, conducted in Germany in 2012, which finality was to understand the effect of a dance movement therapy (DMT) group intervention in stress treatment (sample size: 162), a surprising finding was that violent impulses, social isolation, mental retention, resignation, self-pity and self-blame were largely reduced in the half that received DMT sessions, indicating a positive evolution regarding problem-oriented coping strategies, contrary to the other non-exposed half where these negative strategies remained. Moreover, analysing the within-group effect of time, the people

under DMT intervention reduced emotional distress, which included, among others, obsessive-compulsive behaviour, interpersonal sensitivity, depression and hostility, after the 10 sessions, compared to the pre-treatment status. These short-term effects showed to last over the next 6 months after the DMT was concluded (last point of measure), supporting an idea of the existence of long-term effects from DMT (Bräuninger 2012).

Similarly, in a meta-analysis that reviewed studies from 1996 to 2014 on the effects of DMT on health-related psychological outcomes, results showed that the use of DMT led to improvement in well-being, mood, affect, quality of life, interpersonal competence, among others, as well as to reduction of anxiety, of stress, of depression, and so on (Koch, Kunz, Lykou and Cruz 2014). Additionally, the authors feel that the type of activity, be it dance or other, is relevant to obtain these results, arguing that several studies contrasting dance or DMT with alternative activities for the control groups, dance was consistently more effective.

The Model

The need of recovery from work makes daily recovery, as discussed, important to maintain work engagement (Brummelhuis and Bakker 2012) and performance (Binnewies et al. 2009) and most studies, based on Effort-Recovery Model, present the relationship between off-job activities and recovery as a mediation process, where the first ones lead to the second one through psychological detachment and relaxation during these activities (Sonnentag and Fritz 2007). In this study, daily recovery will be considered as a combination of four components: psychological detachment from work, sense of mastery of skills, happiness experienced in dancing and, lastly, relaxation, all explained below. Furthermore, Conservation of Resources (COR) theory proposes that individuals that have better personal resources are capable to better cope with stressors, thus maintaining a more vigorous style in the morning. In turn, this positive emotion,

according to Broaden-and-build (B&B) theory from Fredrickson (2001), translates into more engaged working style (cited in Brummelhuis and Bakker 2012). Therefore, morning vigor is seen also as a consequence of recovery from off-job activities as well as a mediator between recovery and work engagement.

Psychological detachment

Psychological detachment from work is most likely to happen when an individual engages in fascinating activities (Kaplan 1995), in which dancing can have a role by contrasting with low-effort activities such as watching TV at night. In turn, a more effective detachment has been proven to origin more positive affect and less fatigue before going to sleep (Sonnentag and Bayer 2005). These findings suggest the first hypothesis of the study.

Hypothesis 1: Dancing will be positively related to next morning vigor through increased psychological detachment.

Mastery of Skills

It has been discussed in literature that, against other off-job activities, physical activities (such as sports, where dancing is inserted in) promote better daily recovery from work since they bring about a sense of mastery or achievement and self-efficacy beliefs, which, in turn, increases positive mood and well-being (Demerouti et al. 2009; Waterman 2005; Sonnentag 2001). Moreover, in a study with 166 administration employees as participants, findings showed that mastery experiences in the evening predicted positive activation in the next morning (Sonnentag et al. 2008). With this said, the second hypothesis is made.

Hypothesis 2: Dancing will be positively related to next morning vigor through increased mastery of skills.

Impact of Happiness

In 2014, a study was conducted (sample size: 384; Oerlemans et al. 2014) to understand some inconsistent conclusions resulted from the fact that, contrary to what was previously found in the majority of studies, work-related off-job activities would sometimes reduce the negative influence of job demands on psychological well-being (Bakker, Demerouti and Euwema 2005), while social activities would sometimes have a negative impact on daily recovery (Sonnentag and Natter 2004). Consequently, the study focused on the importance of the level of involvement in such activities, meaning on the subjective experience of the respondents, by measuring the happiness felt in each activity. It was concluded that momentary happiness in the activity affects the way in which off-job activities contribute to daily recovery from work (Oerlemans et al. 2014). As a consequence, it was found important to include the variable happiness during dancing in the present study in order to control for the potential unexpected relationships in the results that can emerge from individual subjectivity. This leads to the third hypothesis of the study.

Hypothesis 3: Dancing will be positively related to next morning vigor through happiness in dancing.

Relaxation

One of the principles that COR theory defends is that "people must invest resources in order to protect against resource loss, recover from losses, and gain resources" (Hobfoll 2011) so that, for instance, they can prevent themselves from burnouts and voluntary turnover due to high stress levels. Therefore, relaxation plays an important role in daily recovery in two ways: not only by returning people's psychological system to the pre-stressor state, but also by building resources when the off-job activity is pleasurable and creates positive emotions (Sonnentag and Fritz 2007). Moreover,

dancing as a physical activity is expected to enhance, according to Cox (2002), the production of noradrenalin, serotonin and dopamine, which are hormones that act as anti-depressants (cited in Demerouti et al. 2009). Moreover, dancing is also expected to produce also endorphins in the central nervous system, which may contribute again to the continuation of positive emotions in the next morning. This expectation comes in the form of following hypothesis.

Hypothesis 4: Dancing will be positively related to next morning vigor through increased relaxation.

Work Engagement and Relationship with Job-performance

The importance of organisations taking action on trying to enhance work engagement of their employees is explained by Demerouti and Bakker (2006), where work engagement is shown to have a positive relationship to job performance (cited in Bakker and Demerouti 2008). This relationship is believed to be driven by positive emotions, good health, crossover of engagement and ability to mobilize resources, being these ones characteristic of engaged workers, at least more often than non-engaged workers (Bakker and Demerouti 2008). Work engagement can be defined as a combination of dedication, vigor and absorption (Schaufeli et al. 2002), which, in short, means that engaged employees are proud and happy about their work (dedication), show high levels of energy (vigor), and often lose perception of time as they feel fully concentrated in their work (absorption).

Furthermore, in line with the Job-Demands and Resources (JD-R) theory (Bakker and Demerouti 2007), in an article regarding organisational dynamics (Bakker 2017), two approaches to develop work engagement are presented: strategic approach (top-down) – HR management implements and provides more effective job resources along with daily transformational leadership; and proactive approach (bottom-up) – HR management

facilitates employees in mobilizing resources themselves, which include self-management, job crafting (i.e. self-initiated changes in the type of work), strengths use and, lastly, mobilizing ego resources. The latter refers to employees proactively mobilizing their own affective and cognitive resources in order to achieve a better physical and psychological state and, consequently, impacting positively their job performance. Recalling the expansion perspective of the Effort-Recovery model by Meijman and Mulder (1998) (cited in Brummelhuis and Bakker 2012), this specially relates to activities through which they can either replenish depleted ego resources (through recovery mechanisms) or obtaining new ones (through mastery of skills). In the same article, it is argued that a clear HR strategy is more likely to improve work engagement. As such, adapting to the present case, it would be ideal that HR management promoted dancing as an activity that employees could voluntarily join, fitting in the category of mobilizing ego resources of proactive HR strategy. In line with this idea, Gagné and Deci (2005) showed that self-concordant motivation is a crucial factor in doing the proposed activities since, otherwise, it may lead to the opposite result (cited in Oerlemans et al. 2014).

Furthermore, according to the JD-R theory, work engagement, measured as a function of job demands and job and personal resources, is the mediator of the relationship between these demands and resources (predictors) and job performance (outcome). Adapting the JD-R theory to the present study, work engagement was modelled as a function of personal resources, particularly, mobilizing ego resources through the self-concordant activity of dancing, implemented by the study (simulating as if it was implemented by the company itself – registration survey was sent through company's e-mail, although regarded as an independent study from the company). As mentioned above, this change in the type of off-job activities of the employee's daily routine will

allow for changes in daily recovery mechanisms that include psychological detachment, relaxation, mastery of skills and, also, the subjective opinion measured by happiness. Inspired also by the study of Brummelhuis and Bakker in 2012, morning vigor is used as a mediator between these mechanisms and work engagement. This model construction is illustrated in Figure 1, where the dashed line represents the part of the model empirically tested in the present study. This leads to the last hypothesis.

Hypothesis 5: Dancing will be positively related to next day work engagement through increased next morning vigor.

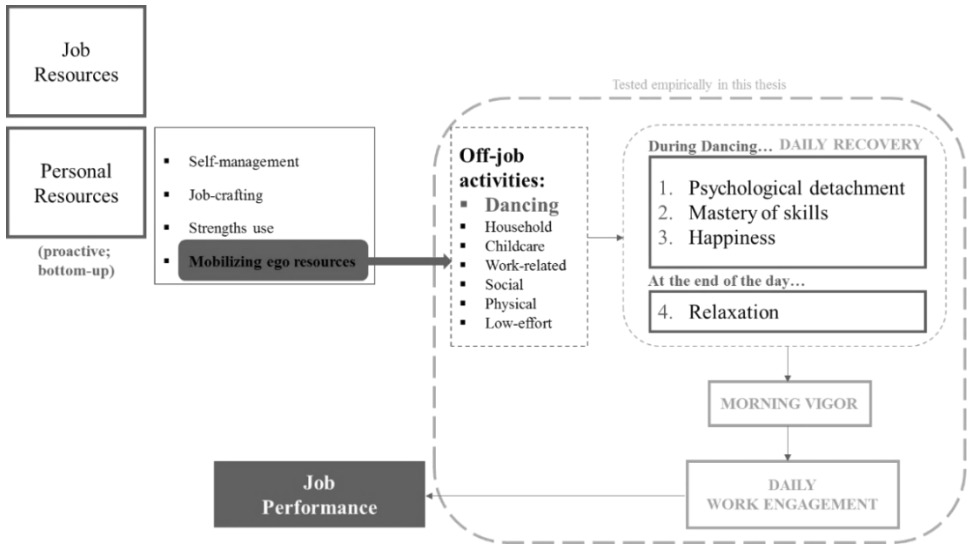

Figure 1 – *JD-R theory adapted to recovery mechanisms and morning vigor as mediators to work engagement, and implementing dancing as an off-job activity inserted in mobilizing ego resources strategy*

Method

Sample and Procedure

The present study was conducted among full-time contract employees working in Portugal, whose majority is working in the private sector (94%) and in large global corporations (91%). After the author had personally contacted the Human Resources Department of various corporations to explain the concept of the field study, the ones that showed interest in collaborating informed via company's e-mail or online internal newsletter their respective employees by sending the author's invitation document (see

Appendices). It is estimated that more than 5000 employees had access to the registration survey for this field study, where each could volunteer to participate by filling in the survey, providing their e-mail address and choosing the language of preference – between Portuguese and English. Through a partnership intended exclusively to help the study, a dancing school offered the respondents two weeks of free classes in the period that the field study would occur, which meant when questionnaires were to be sent. For each participant, the field study had the duration of two full calendar weeks, with 10 consecutive working days of 3 daily questionnaires, phone- and user-friendly, built in Qualtrics platform (see Appendices). Not only taking in consideration the risk of lacking the complete set of responses from each participant by the end of the collection, but also trying not to considerably interfere the natural people's flow in the dancing school, two rounds of participants were required, adjacently done, leading to a full month of data collection. Summing the registrations from the two rounds, 77 employees submitted their e-mail to be contacted with the next steps, such as the demographics questionnaire and the information on how the field study would be proceeded. Here, each participant was asked to create a personal evolution-tracking code (ET code) that would identify each questionnaire as theirs, allowing for tracking within-person evolution on the variables being measured throughout the days. As mentioned above, in each day of the 10 working days (i.e. weekend-free), participants received three different e-mails with a link, each corresponding to one questionnaire that should be completed at different times of the day: 1st – before start working, the Morning Questionnaire, measuring daily morning vigor, 2nd – as soon as they finished work, the After-work Questionnaire, measuring daily work engagement and number of hours worked, and 3rd – before going to sleep, the Night Questionnaire, asking a day reconstruction model of the off-job activities, and measuring recovery mechanisms, mastery of skills and happiness during dancing. Needless to say,

the daytime of the responses to the three different daily questionnaires were at the responsibility of the participants.

Going everyday dancing was not a requirement neither desirable so that differences between going and not going could be incorporated in the dataset. In other words, participants were free to go to dancing classes as many days and classes as they wished. By the end of the two rounds, naturally, some people did not follow this experience until its end and other lacked some middle questionnaires. Although, with repeated measures data, the same number of measurement occasions per individual subject is not required (Rasbash et al. 2012), it would not make sense to include too many missing days for this case, since this study intends to follow the impact of some variables on other variables in the exact following day. In this sense, two sequential filters were created to select the observations to include in the dataset: (1) the individual had filled in all 3 daily questionnaires during the 10 consecutive working days (or 8 or 9 working days for the participants from round 2, due to national holiday on Thursday, Nov 1st, and depending also on taking Friday off); and (2) having gone at least one time to a dancing class, excluding the last day of the field study (since impact in the next day could not be measured). Done these selection, 34 respondents included the sample, which translated into 317 cases.

From the selected sample of 34 participants, the number of days per person resulted in 8 days for 5 persons (due to the national holiday on Thursday and subsequent Friday off, from round 2), 9 days for 13 persons (only national holiday off, from round 2) and 10 days for 16 persons (complete field study period, from round 1). The sample is also characterized by 29 women (85%) and 5 men, averaging 28 years old (SD = 0.2735; range 21 to 45), and with a mean job tenure of 5 years (SD = 4.8174, range 0 (“less than 1 year”) to 19). The sample incorporates both Portuguese and non-Portuguese

nationalities, where Portuguese people represent 68% of the selected respondents. The most common job functions in the sample are Consultant, Project manager and IT developer (53%). The less numbered functions are HR manager, designer, sales person, architect, accountant, among others. In the demographics' questionnaire, the stated daily average working hours has got a mean of 8.47 hours (SD = .6970352, from 7 to 10).

Diary Measures

All variables were measured by methods already tested from previous studies to assess the exact same variables, methods which were stated as reliable. Nevertheless, Cronbach's alpha was computed for each of the following in order to assess the reliability, in the present study, of the following summative rating scales composed of the items specified below (StataCorp 2013).

Work Engagement

Besides assessing the number of hours worked in each day, the After-work questionnaire assessed work engagement (WE) as well. Daily work engagement was measured using the reduced version of Schaufeli's Utrecht Work Engagement Scale (UWES, 2006) (adaptation taken from Brummelhuis and Bakker 2012), with 9 items, each triplet assessing one of the three components – dedication, vigor and absorption – which has already been validated by Breevaart et al. (2012) (cited in Brummelhuis and Bakker 2012). The sentences related to how participants had felt at work on that day. Examples from the 9-items list are "My job inspired me today" (dedication), "I felt bursting with energy at work today" (vigor), and "I got carried away when I was working today" (absorption), which were rated with a 7-point rating scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Cronbach's alpha was 0.88, indicating good reliabilities.

Morning Vigor

The Morning questionnaire only assessed morning vigor (MV). Morning vigor measurement was composed by 3 items from the 9-version UWES that refer to the component vigor (Cronbach's $\alpha = 0.90$). However, the sentences were adapted to ask about the participants' feelings at the moment of response (adaptation taken from study Brummelhuis and Bakker 2012). A respondent would find the following phrases: "Right now, I feel strong and vigorous", "Right now, I am enthusiastic", and "Right now, I am inspired by the activities I am going to undertake", which were scored with a 7-point rating scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Dancing and other off-job activities

In the Night questionnaire, participants systematically reconstruct how they had spent their time on that day on activities after and beyonde their work. This method, known as the Day Reconstruction Method (DRM; Kahneman et al. 2004), included two questions, being the first with regard to time spent in dancing and the second to time spent in other categories of activities.

In this respect, the first one asked to indicate the number of dancing classes the person had taken that day, ranging from 0 to 4 (being 4 the maximum offer by the school at after-work schedule per day), where each class corresponds to one-hour time, thus making hours this variable unit.

In what concerns to the other off-job activities (moderators), commonly used in the literature (having as example the description of the categories in Brummelhuis and Bakker article 2012), the following categories were presented in the second question along with the respective examples in brackets: household tasks (e.g. cleaning, cooking, buying groceries), childcare tasks (e.g. picking up, dressing children), work-related tasks (e.g. continuing some work, preparing some material for work), social activities (e.g.

visiting family, phone calls or dinner with friends, cocktail with work colleagues), physical activities other than dancing classes (e.g. jogging, going to the gym, cycling, doing other sport), and low-effort activities (e.g. reading book, watching TV, sitting on the couch). Here, it was provided a time bar ranging from 0 to 6 hours, where the respondents would select the most accurate estimate, by sliding their finger across it.

Happiness during Dancing

Next, happiness question would only appear in the questionnaire if, at least, one dancing class had been taken on that day. Happiness during dancing was measured with one item, where respondents selected, by clicking on a bar, the level of happiness that they thought most accurately described how they felt during dancing class(es) taken on the respective day. It was informed that the scale ranged from 0 ("extremely unhappy"), passing through the neutral 5 ("Neither happy nor unhappy"), to 10 ("extremely happy") (Oerlemans et al. 2014).

Psychological Detachment

Still in the Night questionnaire, psychological detachment (PD) question would show in the questionnaire in one of the two forms, one would be directing the respondent to their feelings during the dancing class(es) if they had taken at least one on that day, or, in the case they had not, it would be instead directing to their feelings during the other off-job activities. Psychological detachment was assessed with four items on a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree") (Cronbach's $\alpha = 0.83$). From an article intended to develop and validate recuperation questionnaire measures (Sonnentag and Fritz 2007), it was used the following four-item list: "I forgot about work", "I didn't think about work at all", "I distanced myself from my work", and "I got a break from the demands of work".

Mastery of Skills

After and similarly to psychological detachment, mastery of skills (MoS) would always appear in the questionnaire, where the question formulation would differ depending on two cases. The question would be directed to how participants felt during dancing classes in the case they had been to, at least, one dancing class on that day. Otherwise, the question would be directed to their feelings during other off-job activities on the same day. This feature was also rated with four items on a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree") (Cronbach's $\alpha = 0.77$). From the same article mentioned above (Sonnentag and Fritz 2007), it was used the following four-item list to assess mastery of skills: "I learnt new things", "I sought out intellectual challenges", "I did things that challenge me" and "I did something to broaden my horizons".

Relaxation

The final question of the Night questionnaire related to relaxation (R), which was assessed with regard to how the participant felt about the day itself as a whole. To keep consistency, from the aforementioned article (Sonnentag and Fritz 2007), it was used the following four-item list to measure relaxation: "I kicked back and relax", "I did relaxing things", "I used the time to relax", and "I took time for leisure", using a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree") (Cronbach's $\alpha = 0.88$).

General Measures

Demographical information was asked to the participants previous to the start of the field study period, which led to control variables named gender (male = 0, female = 1), age (in years) and job tenure (also in years; "less than 1 year" was coded as 0).

Although considered controls in a way, the reason why trait morning vigor and trait work engagement do not appear separated in the model as different variables lies on

the fact that these were assessed on day 1 as part of the 30 questionnaires to fill in during the 10 days. At this point, participants had still not taken any class in the dancing school, since their free pass would start on the evening of that first day.

Moreover, the number of hours worked was asked in a daily basis, in the After-work questionnaire, functioning in the model as a possible moderator in the way that work engagement as well as recovery mechanisms are rated by the participants.

Analysis Strategy

When having repeated measurements data, a multilevel analysis is the most appropriate one. Notwithstanding, before beginning the analysis, the organisation of the dataset needed to be done. The data collection resulted in 120 separate Excel documents (3 daily questionnaires × 10 consecutive working day × 2 idioms PT and ENG × 2 rounds), which had to be organized in only one Excel spreadsheet with the appropriate layout to perform the aforementioned analysis. Performing manually this data organization would be most likely impossible and surely ever-lasting, thus the author used Stata programme and created a do-file for each of the three types of questionnaires, where the author wrote a list of commands to automatically organize and merge the datasets. Regarding adjustments needed, for the two-level analysis, predictors variables at the day-level (level 1), such as psychological detachment, were centred to the individual mean, while person-level (level 2) predictor variables, such as job tenure, were centred to the grand mean.

Having this step completed, various analysis attempts were performed in different programmes such as Stata, SPSS and MLwiN. The final analysis was performed using `runmlwin`, which is a program to run the MLwiN multilevel modelling software from within Stata (Leckie and Charlton 2012). Multilevel models are presented in terms of their fixed part (which are the coefficients fixed across the entire sample) and random part

(related to the random effects and residual error). In this sense, the multilevel analysis was divided into three phases: (1) multilevel random intercept model without predictors (also called variance components model) vs. single level analysis, (2) multilevel random intercept model with predictors, and, lastly (3) multilevel random slope and random intercept model with predictors (Leckie and Charlton 2012). The analysis was carried out for seven different models (displayed on Table 3), varying the dependent variable and the number of covariates in the model. As such, the analysis process with work engagement as the dependent variable is the only one that is described in detail in the following subsections. In addition, the last subsection describes one more analysis performed regarding the bootstrap intervals of mediation tests.

Variance Components model vs. Single Level model

Starting with the simplest multilevel model, a two-level days-nested-within-persons (i.e. days at level 1, individuals at level 2) random intercept model was built, with work engagement as dependent variable and only a generated constant (equal to 1 for each day and used as intercept term) on the right-hand side of the equation. The importance of this first step lies on the fact that this model decomposes the response variation into distinct level-specific variance components, which, in turn, informs about the suitability of choosing the multilevel model for this type of data.

Through `runmlwin` in Stata, MLwiN was used to fit a normal response model using IGLS algorithm. The persons-level variance, σ_u^2, was estimated to be 0.472, while the day-level variance, σ_e^2, to be 0.892. Knowing that the intraclass correlation coefficient (ICC) as well as the variance partition coefficient (VPC) indicate the degree of clustering (dependence) and calculating the formula (that coincides for both indicators in this case), the value obtained was 0.346. When interpreting as an ICC, this means that the correlation in work engagement between days for the same person is 0.346. On the other hand, taking

the value as a VPC, it shows that 34.6% of the variation in work engagement lies between persons. The latter is a respectful amount to consider that the sample has a high degree of clustering if the between-persons variance turns out to be statistically significant. For purposes of testing its significance, since variances are known to have positively skewed sampling distributions, a likelihood ratio test was performed to compare this model to a single-level model with no persons effects. Doing this confirms that there are indeed significant differences between persons (χ_1^2= 76.01, p < 0.001); meaning that the days from the same person are significantly more alike than days from different persons. This finding allows for the conclusion that a multilevel approach to analyse the data, in a model with work engagement as dependent variable, is clearly favoured over a single-level approach.

As stated above, the same approach was performed for other day-level variables (as dependent ones in the model) and computed the respective ICC in order to take conclusions about clustering too. Table 1 shows that the variation of MV explained by between-person variance is 35.34%. Moreover, the recovery measures and mastery of skills also show coefficients numbering between 6% to 12%. Thus, since these do not represent trivial amounts and all showed to be statistically significant, it suggests, once again, that multi-level modelling is the most suitable analysis to do for this dataset.

Table 1
Intraclass correlation coefficients of day-level variables

			95% confidence interval	
	ICC	SE	Lower level	Upper level
Work engagement (WE)	.3464	.069	.225	.492
Morning Vigor (MV)	.3534	.069	.230	.499
Psychological Detachment (PD)	.1254	.054	.051	.276
Relaxation (R)	.1063	.051	.039	.257
Mastery of Skilss (MoS)	.0662	.045	.016	.232

Note. Level: IDcode

Multilevel random intercept model with predictors

The third model for work engagement consists is adding the 16 new covariates to the fixed part of the model – number of working hours, time in dancing, time spent in the other six categories of off-job activities, happiness in dancing, psychological detachment in the previous day, mastery of skills in the previous day, relaxation in the previous day and, lastly, morning vigor. The intercept term continues to be allowed to vary between individuals, whereas the slope of the covariates are not. By adding all the covariates to the model, it is possible to examine the empirical Bayes estimates of the persons random effects. Shown in Figure 2, a quantile-quantile plot was created to check whether the random effects are normally distributed. If so, all the data is expected to appear along the 45-degree line (Leckie and Charlton 2012). Despite not all the 34 individuals are lying on this line, all lie close enough, which suggests that the predicted effects have an approximate normal distribution. This is important to assure the suitability of a normal response model using IGLS algorithm to this dataset.

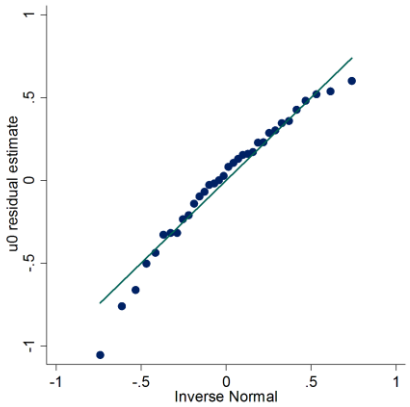

Figure 2 - *Quantile-quantile plot of the individual effects*

Multilevel random slope and random intercept model with predictors

The last models analysed were two-level random slope models, where all 16 covariates were kept in the fixed part with the novelty that the coefficient of dancing (i.e. time spent in hours) was allowed to vary randomly across individuals. In the model where work engagement is the dependent variable, this meant that the relationship between time in dancing and work engagement could be steeper for some individuals compared to others (Leckie and Charlton 2012). A likelihood ratio test was performed to compare this

Table 2

Means, Standard deviations, and Pearson correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Work engagement (T3)	4.54	1.17																
2. Morning Vigor (T2)	4.64	1.24	.499**															
3. Gender (female)	0.85	0.35	-0.021	-.192**														
4. Age	27.59	5.04	0.075	0.099	-.347**													
5. Job Tenure	4.91	4.81	0.06	0.096	-0.094	.919**												
6. Happiness in Dancing (T1)	7.38	0.18	0.093	.194**	-0.089	-0.114	-.164**											
7. Dancing (T1)	0.58	0.85	0.105	.160*	-0.069	-0.068	-0.106	.883**										
8. Household tasks (T1)	0.72	0.76	.134*	0.123	-0.036	.143*	.156*	-0.007	0.009									
9. Childcare tasks (T1)	0.04	0.23	-.167**	-0.062	0.073	.322**	.363**	-0.089	-0.09	0.1								
10. Work-related tasks (T1)	0.36	0.78	0.007	0.111	0.01	-.193**	-.172**	-0.056	-0.086	0.087	-0.085							
11. Physical activities (T1)	0.34	0.77	-0.063	0.036	-.149*	0.079	0.088	-0.042	-0.009	0.033	.175**	-0.023						
12. Social activities (T1)	0.95	1.12	-0.04	-0.012	-0.002	-0.017	0.023	-0.076	-0.114	-0.051	-0.058	0.026	0.096					
13. Low-effort activities (T1)	0.96	0.88	0.07	0.115	-0.044	-0.037	-0.116	-.167**	-.161*	.209**	-0.02	-0.074	0.04	-.139*				
14. Psychological Detachment (T1)	3.87	1.39	.174**	.160*	-0.049	0.043	-0.006	.461**	.431**	.176**	0.043	-.163**	.143*	.166**	.270**			
15. Mastery of Skills(T1)	3.51	1.46	.142*	.163**	-0.01	-0.081	-0.102	.665**	.594**	0.036	-0.056	0.074	0.114	0.074	-0.048	.641**		
16. Relaxation at end of day (T1)	3.38	1.34	.215**	.243**	-0.048	0.082	0.057	.378**	.358**	0.107	-0.002	-.126*	.128*	.267**	.232**	.752**	.581**	
17. Daily working hours (T3)	8.35	1.78	0.071	-0.096	.122*	0.052	0.041	0.007	-0.023	0.002	-0.004	-0.02	-0.057	-.144*	-0.027	0.062	0.088	-0.001

Note. N = 34 respondents

* $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed test)

model to the previous multilevel random intercept model, which showed that allowing the effect of dancing to vary across individuals leads to a non-significant improvement in the model fit ($\chi_1^2 = 2.73$, $p < 0.2554$). Therefore, one cannot infer on the relationship between dancing and work engagement to be stronger in some individuals than others. This might mean that time in dancing has essentially the same impact for different people in the sample. Given these results, new random slope models were performed, however, this time, using age coefficient as the one allowed to vary. It was found that clustering could be explained by the fact that, in some individuals, age had a greater impact on work engagement than in others, suggesting the use of the random slope analysis. The final results regarding these last models are displayed on Table 3.

Mediation tests

Alongside with the study of the direct relationship between the variables, 95% bias-corrected bootstrap confidence

Table 3

Multi-level Analyses of Dancing against other off-job activities on Daily Recovery, Morning Vigor on the next day, and Work Engagement on the Next Workday

	Psychological Detachment (T1)		Mastery of Skills (T1)		Relaxation (T1)		Vigor (T2)		Vigor (T2)		Work Engagement (T3)		Work Engagement (T3)	
x, m → y	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Intercept	3.651959***	.3214647	3.046345***	.2577892	2.971398***	.3012349	5.003176***	.469312	5.053834***	.5001874	3.863091***	.4156244	3.675403***	.5687061
Gender (female)	-.2313331	.3159792	-.132094	.2417296	-.2409067	.2852794	-.7825943	.4911507	-.7641986	.4924912	.7012388	.4094246	.2897319	.4623682
Age	.0268588	.0557948	-.0188144	.0426625	-.0226557	.0503849	-.0918341	.0871152	-.0919364	.0867703	.0087494	.0780549	-.0264372	.0859622
Job Tenure	-.0096006	.0550367	.0338006	.0421176	.0721044	.0497341	.1265354	.0860809	.1268888	.0856713	.0297749	.0703838	.0523448	.0782605
Happiness in Dancing (T1)	.0925516***	.0254253	.1941576***	.023924	.0931245***	.0275686	.0938858***	.0365225	.1125046***	.0388846	.0067192	.0373271	-.0486486	.0375569
Dancing (T1)	.1622517	.1205391	.2328491*	.1133837	.1046952	.1295223	-.2140265	.1657833	-.2374041	.1640309	.0888745	.1707303	.1590415	.1585576
Household tasks (T1)	.0325122	.0584128	-.0557098	.0544678	-.0760994	.0626602	.0089325	.0912614	.0089479	.0906231	.1069298	.093703	.0732442	.0868673
Childcare tasks (T1)	.1077684	.3399076	-.2711688	.2746865	-.2839652	.3229847	-.5866481	.4975387	-.5167131	.4933524	-1.203464*	.493926	-1.038035*	.4833971
Work-related tasks (T1)	-.2329035***	.0643392	.1524744**	.0592986	-.1522824*	.068269	.176495	.091352	.2085011*	.0920921	.0235504	.0935429	-.0523246	.0893696
Physical activities (T1)	.0926119	.0612132	.1655074**	.0568621	.0856609	.0658577	.0950533	.0864026	.1115187	.0872475	.0711247	.0875372	.0221615	.0831124
Social activities (T1)	.0916317**	.0353182	.0092159	.0322073	.2268277***	.0373138	-.0661685	.0665114	-.111744	.0722576	-.103045	.06614	-.1058961	.070311
Low-effort activities (T1)	.2113246***	.0604634	.0335441	.0558823	.3457788***	.0640788	.2097279*	.0856292	.1445742	.0936792	.0819985	.0845065	-.0290734	.0884699
Psychological Detachment (T1)									-.032891	.0884614			.0156652	.0845146
Mastery of Skills(T1)									-.1408731	.0735884			.0508459	.0712931
Relaxation at end of day (T1)									.1861628*	.0808707			.0152801	.0777469
Morning Vigor (T2)													.3277534***	.0645296
Daily working hours (T3)													.0991427**	.0379161
-2xLOG	775.5929***		719.5199***		818.1778***		737.35956***		729.84314***		736.07037***		697.90283***	
Level 2 variance (persons)	.1600333***		.0714894***		.1034394***		.4252298***		.4239415***		.14229387***		.2565852***	
Level 1 variance (days)	.5813306		.5185834		.6933146		.902127		.8727401		.9491462		.7821665	

Note. Detachment and Mastery directed to dancing, unless person did not dance that day, then directed to other off-job activities

N = 317 for detachment/mastery/relaxation models; N = 251 for vigor and engagement models.

* $p < .05$, ** $p < .01$, *** $p < .001$

intervals (using z = 5000 bootstrap samples) were estimated for the indirect effects of the casual variable (x) on the outcome variable (y) through a proposed mediator variable (m) (displayed on Table 4). For the relationships where mediators whose confidence intervals do not include the value 0 (zero), it indicates that m significantly mediates the relationship between variables x and y.

Results

Descriptive Statistics

The means, standard deviations, and correlations among the variables can be found in Table 2.

Multilevel models

The results from the multilevel analyses about the impact of dancing, controlling for other off-job activities, on daily recovery variables, morning vigor

on the next day and work engagement on the next day are presented on Table 3. Considering all models, it can be observed that time spent in dancing has systematically a positive coefficient associated, with exception to the two models where it is trying to explain vigor (dependent variable). However, no relationship can be concluded from these coefficients since these are not statistically significant, excluding the case of mastery of skills as a dependent variable. Here, the coefficient of dancing is around 0.23, which can be translated as one hour increased in time in dancing leads to an increase of approximately 0.23 in the score of work engagement (scale 1-7).

Notwithstanding, looking at the coefficient and p-value of the predictor happiness in dancing, it can be found that it turned out statistically significant when trying to explain psychological detachment, mastery of skills, relaxation and morning vigor. Furthermore, these coefficients are positive, at value 0.09, which suggests that an increase of one unit in the score of happiness (scale 0-10) predicts an increase of 0.09 in each of the score of psychological detachment (scale 1-5), relaxation (scale 1-5) and vigor (scale 1-7). Meanwhile, a unit increase in happiness in dancing leads to a bigger increase of 0.19 in the mastery of skills score (scale 1-5). This finding is further elaborated in the discussion section.

In addition, the morning vigor model including the recovery variables illustrates a significant positive impact of relaxation at the end of the day in morning vigor, where beta rounds to 0.19.

Lastly, the work engagement model that includes all day-level variables shows statistically significant coefficients for both morning vigor and daily working hours, rounding 0.33 and 0.10, respectively.

Mediation Bootstrapping analyses

From Table 4, it can be found that the pathway from time spent in dancing to morning vigor on the next day through psychological detachment was marginally significant ($p < .10$), where the confidence interval is more inclined to positive values. This translates a positive relationship between x and y through m, which is in line with *Hypothesis 1*. From the same table, one cannot confirm *Hypothesis 2* due to the fact that there is no significant impact of dancing on morning vigor through mastery of skills. *Hypothesis 3* is confirmed by the results on the table, where the confidence intervals only include positive values, meaning that time in dancing can be said to be positively related to vigor through happiness in dancing. The same happens using relaxation as mediator, confirming *Hypothesis 4*. Curiously, although the direct relationship between dancing and vigor is nonsignificant and negative, it becomes positive and significant by including the aforementioned mediators, excluding mastery of skills. This is another matter addressed in the discussion.

Looking at the statistically significant indirect pathway between dancing and work engagement, it is concluded that the findings support *Hypothesis* 5, because dancing is positively related to next day work engagement through increased next morning vigor. Moreover, a bootstrap analysis was performed for the mediation effects of morning vigor in the relationship between each one of the day-level variables – psychological detachment, mastery of skills, happiness and relaxation – and work engagement, which turned out to be all positive and significant.

Table 4
Bootstrap Intervals of Mediation Tests

	95% confidence interval		
$x \rightarrow m \rightarrow y$	Lower level	Upper level	p < .05
Dancing → psychological detachment → vigor	-.0033	.1408	↑
Dancing → mastery of skills → vigor	-.0395	.2174	Ns
Dancing → happiness in dancing → vigor	.0173	.6000	*
Dancing → relaxation → vigor	.0404	.1918	*
Dancing → vigor → work engagement	.0291	.2059	*
Psychological detachment → vigor → work engagement	.0181	.1323	*
Mastery of skills → vigor → work engagement	.0211	.1198	*
Happiness in dancing → vigor → work engagement	.0122	.0510	*
Relaxation → vigor → work engagement	.0444	.1759	*

Note. Ns = nonsignificant
↑ $p < .10$, * $p < .05$

Discussion

The purpose of the analysis was to evaluate the impact of a specific off-job activity – dancing – in the daily recovery process and, consequently, in daily work engagement. The findings proved exactly that the time spent in dancing has a positive and significant impact in next day work engagement through next morning vigor, and simultaneously, showing that next morning vigor is mediated by positive and successful recovery. These results can be explained by the following observations.

Firstly, the positive direct impact that time in dancing had in sense of mastery model can be explained by the fact that dancing itself promotes a feeling of challenge, calling for some different personal resources that were not used during the workday, such as body coordination, which, in turn, lead to a pleasant learning sensation. As data shows, the average of daily mastery of skills after going dancing was of 4.91 (SD = 0.0216) out of 5, compared to a lower average of 3.00 (SD = .0644) when no dancing had been performed on that day. On the other hand, given the results of the mediation paths, one cannot conclude that these positive emotions are carried out to the next morning in the form of higher levels of energy, since there was no significant indirect effect of dancing in morning vigor through mastery of skills. Contrary to previous literature (Sonnentag et

al. 2008), this last finding does not allow to infer a relationship between mastery of skills and morning vigor, however it does not reject the proposition that mastery of skills can be beneficial for one's self-stem and self-motivation. Consequently, dancing can be also beneficial for those.

Secondly, the fact that happiness in dancing holds a statistically significant and positive direct relationship with detachment, sense of mastery, relaxation and morning vigor, whereas time in dancing does not directly and significantly, supports the idea that subjective experience plays a crucial role in the effectiveness of the replenishment of resources and the obtainance of new ones, independently on the amount of time spent in such off-job activity. This also means that, when people enjoy performing certain activity, its impact on getting recovered is meaningful. On the contrary, when people do not feel satisfied during an activity, the recovery does not take place or can even have a negative influence. Another take-away is that the same activity can either increase or decrease recovery depending on who the person is, since one individual may find happiness in such whereas another may find it unpleasant. Ultimately, this allows one to conclude on the benefits of doing self-pleasant activities after work to help recuperate from stressors derived from the workday. Moreover, the data shows an average of happiness in dancing of 7.38 (SD = 0.1803) out of 10, which also allows one to conclude that dancing is, in average, a self-pleasant activity for all individuals in the sample with a notably low standard deviation.

Thirdly, the physical activity of dancing may lead to physical exhaustion, influencing negatively morning vigor in a direct way, as shown by the results. Nevertheless, no inferences can be made since this negative relationship was not significant. By including the mediation paths, time in dancing showed a positive impact on morning vigor, which means that detachment, relaxation and happiness, provoked by

dancing, is thought to have a greater impact on morning vigor than the feeling of muscle soreness. Simultaneously, these mediated relationships suggest that dancing allows one to forget about work and create positive emotions. This may result from the fact that dancing offers people a different environment, focusing on and memorizing the dance routines, stepping out of their comfort zone, contacting with people other than co-workers, hearing and being absorbed by the music, which, ultimately, lead to detachment, social support and personal fulfilment. As a consequence, and recalling the COR theory, when engaging in dancing, new personal resources are developed, allowing this way for the recuperation from the workday, meaning, from the use of the respective work-related personal resources. At the same time, it is also allowing for the enrichment of their own set of personal resources, which helps creating positive feelings. Overall, dancing is anticipating for better vigor in the next day through its positive impact on recovery.

Finally, as previously mentioned, all pathways of the recovery mechanisms to work engagement through vigor were positive and significant, being also positive and significant the pathway of time in dancing to work engagement through morning vigor, resulting that dancing has an indirect and positive impact in work engagement. In this regard, previous literature has found that employees with higher work engagement scores show improved in-role task performance and better financial results to the company. Moreover, these workers are more prone to be innovative and entrepreneurial (cited in Bakker and Albrecht 2018). Given the importance of daily recovery and work engagement to employees' and companies' success, it is concluded that Human Resources (HR) need to support their workers by giving a clear HR strategy that includes incentives for them to perform off-job activities that contribute effectively to both variables, decreasing this way stress levels and employees' voluntary turnover. Dancing has shown to be a good bet on solving this issue. In this context, some ideas that HR could

implement for this purpose would include creating dancing facilities at the job site, establishing partnerships with dance schools (e.g. in the form of discounts for employees), and, in a more out-of-the-box perspective, having music starting to play as a 5-minute pause on the job site to allow for a quick dance moment in the middle of the workday. These measures would help increase employees' energy levels, happiness and motivation, not only through increased recovery as shown above, but also through social integration between co-workers and immediate production of hormones discussed above.

Limitations

One of the possible limitations is that the attention caught by the study can be biased to people that already have a positive feeling about dancing. This is expected to promote higher levels of happiness during dancing, which, in turn, lead to better results in engagement. In the present study, that may have happened since, in a one-word description about dancing asked in the demographics' questionnaire, 81% of the respondents used a positive noun or adjective to describe it (e.g. freedom), while 15% used an impartial word (e.g. rhythm), and only 4% identified with a negative connotation (e.g. scary), despite volunteering to participate. Moreover, people that engage voluntarily in such studies probably have openness as a personality trait, characteristic that, as shown in previous literature (Akhtar et al. 2015), can once again skew positively the results of engagement scores. Notwithstanding, a trait work engagement's measurement was performed to allow for proper comparison.

On the other hand, most likely cancelling this effect out, one of the biggest issues that may have compromised the findings is the low number of times in dancing classes per participant – 71% of the respondents went to only 1 to 5 hours of dancing classes spread out the entire two weeks (M = 5.06; SD = 4.4377, range 1 to 18 hours). Another limitation related to the data collection forwards to the second round. The first week of

the second round was interrupted by a national holiday on a Thursday, which sabotaged the measurement of the impact of dancing on the next day work engagement for people that went dancing on Wednesday. Moreover, the work engagement on Friday for people who worked on this day was followed by a free day, which is telling nothing about the impact of dancing, and, in fact, decreases the need of recovery. Furthermore, the results from the second round of the same week may have also suffered consequences from the exceptionality of the Web Summit 2018 event, commonly attracting various employees in the companies present in the sample. These consequences may have included: different working hours from usual, which is expected to change recovery needed each day; different type of work, which may be more engaging, or not, than usual; unavailability to go more often to dancing classes during the respective week, which decreases the times in dancing classes that, otherwise, could lead to a more complete measurement of the impact of dancing as well as valid significance levels to the respective coefficients.

Future Directions and Practical Implications

For future research in this field, two variables are suggested to take into consideration that are believed to have great impact as moderators in the results of work engagement: daily number of hours slept (e.g. "How many hours did you sleep last night?"), since a better quality and quantity of sleep leads to a better psychological and energetic state of mind in the next morning before work (Demerouti et al. 2009); and daily health condition (e.g. "Are you feeling sick today?"), since Shirom (2003) has shown that vigor is positively related to good physical health (cited in Bakker and Demerouti 2008). As a matter of fact, some participants from the second round (placed in November) sent the author e-mails informing that they were afraid of worsen the score results because they were feeling sick. Therefore, the inclusion of these questions is found to be important to control for these situations. As a last note, it would be interesting if future research

addressed a similar investigation question of trying to find specific activities that are most effective in leading to a better daily recovery and mastery of skills and, then, analyse to which extent they fulfil the needs of distinct demographic groups simultaneously – e.g. female and male, wide age range.

Still as proposal for the future, a curious analysis would be testing the impact of dancing in personal resources, since employees' beliefs about their personal resources (e.g. self-efficacy, optimism, hope, resilience) are important to determine work engagement (Alessandri et al. 2018). Besides this, it would be interesting to analyse how dancing improves body coordination, memory, reaction time, adaptability, comfort in risking, self-stem, notion of space, attention to details, awareness of what is happening around, body exploration and movement acknowledgement; and, then, whether these characteristics can translate into happiness, health as well as better job performance skills.

Conclusion

Clearly, Portugal still falls behind in having more supportive HR strategies. The stress levels are peaking, and exercising is not part of the weekly routine of most Portuguese people. Dancing can be a ticket to combat this problem, since it predicts higher levels of energy in the next morning by enabling recovery on the day it is performed. In turn, this energetic mood mediates positively the relationship between dancing and work engagement. As literature have already shown, performance and financial results of corporations depend on the well-being and engagement of their employees. Therefore, it is advisable to give more importance and time to addressing and solving these issues. As such, one of the solutions may be motivating and giving the means to the respective employees to implement dancing in their daily lives.

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References

Agência Lusa and Observador. 2018. "Uma em cada quatro pessoas não faz exercício físico suficiente. Em Portugal são 40%.". *Observador*, September 5th. https://observador.pt/2018/09/05/uma-em-cada-quatro-pessoas-nao-faz-exercicio-fisico-suficiente-em-portugal-sao-40/ [self-translation]

Agência Lusa. 2018. "Estudo alerta para risco de 'burnout' em várias classes profissionais." *Observador*, September 25th. https://observador.pt/2018/09/25/estudo-alerta-para-risco-de-burnout-em-varias-classes-profissionais/ [self-translation]

Brummelhuis, Lieke L. ten, and Bakker, Arnold B.. 2012. "Staying Engaged During the Week: The Effect of Off-Job Activities on Next Day Work Engagement."*Journal of Occupational Health Psychology*, 17 (4): 445-455

Demerouti, E., Bakker, A. B., Geurts, S. A. E., and Taris, T. W.. 2009. "Daily Recovery from Work-related Effort during Non-work Time." *Research in Occupational Stress and Well Being*, 7: 85-123

Binnewies, C., Sonnentag, S., and Mojza, E. J.. 2009. "Daily performance at work: feeling recovered in the morning as a predictor of day-level job performance." *Journal of Organizational Behavior*, 30 (1): 67-93

Bakker, A. B., Demerouti, E., Oerlemans, W., and Sonnentag, S.. 2013. "Workaholism and daily recovery: A day reconstruction study of leisure activities." *Journal of Organizational Behavior*, 34: 87-107

Koch, S., Kunz, T., Lykou, S., and Cruz, R.. 2014. "Effects of dance movement therapy and dance on health-related psychological outcomes: A meta-analysis." *The Arts in Psychotherapy*, 41 (1): 46-64

Bräuninger, I.. 2012. “Dance Movement Therapy Group Intervention in Stress Treatment: A Randomized Controlled Trial (RCT).” *The Arts in Psychotherapy*, 39 (5): 443-450

Sonnentag, S., and Fritz, C.. 2007. “The recovery experience questionnaire: Development and validation of a measure assessing recuperation and unwinding from work.” *Journal of Occupational Health Psychology*, 12: 204–221

Kaplan, S.. 1995. “The restorative benefits of nature: Toward an integrative framework.” *Journal of Environmental Psychology*, 15: 169–182

Sonnentag, S., and Bayer, U. V.. 2005. “Switching off mentally: Predictors and consequences of psychological detachment from work during offjob time.” *Journal of Occupational Health Psychology*, 10: 393–414

Waterman, A. S.. 2005. “When effort is enjoyed: Two studies of intrinsic motivation for personally salient activities.” *Motivation and Emotion*, 3: 165–188

Sonnentag, S.. 2001. “Work, recovery activities, and individual well-being: A diary study.” *Journal of Occupational Health Psychology*, 6: 196–210

Sonnentag, S., Binnewies, C., and Mojza, E. J.. 2008. “Did you have a nice evening? A day-level study on recovery experiences, sleep and affect.” *Journal of Applied Psychology*, 93: 674–684

Oerlemans, W., Bakker, A. B., and Demerouti, E.. 2014. “How feeling happy during off-job activities helps successful recovery from work: A day reconstruction study.” *Work & Stress*, 28 (2): 198-216

Bakker, A. B., Demerouti, E., and Euwema, M. C.. 2005. “Job resources buffer the impact of job demands on burnout.” *Journal of Occupational Health Psychology*, 10: 170–180

Sonnentag, S., and Natter, E.. 2004. “Flight attendants’ daily recovery from work: Is there no place like home?” *International Journal of Stress Management*, 11: 366–391

Schaufeli, W. B. , Salanova, M., González-Romá, V. and Bakker, A. B.. 2002. “The measurement of engagement and burnout and: a confirmative analytic approach.” *Journal of Happiness Studies*, 3: 71-92

Bakker, A.B. and Demerouti, E.. 2007. “The job demands-resources model: state of the art.” *Journal of Managerial Psychology*, 22: 309-28

Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., and Stone, A. A.. 2004. “A survey method for characterizing daily life experience: The day reconstruction method.” *Science*, 3: 1776–1780

Bakker, A. B., Albrecht, S.. 2018 “Work engagement: current trends.” *Career Development International*, 23 (1): 4-11

Akhtar, R., Boustani, L., Tsivrikos, D. and Chamorro-Premuzic, T.. 2015. “The engageable personality: Personality and trait EI as predictors of work engagement.” *Personality and Individual Differences*, 73: 44-49

Alessandri, G., Consiglio, C., Luthans, F. and Borgogni, L.. 2018. “Testing a dynamic model of the impact of psychological capital on work engagement and job performance.” *Career Development International*, 23 (1): 33-47

Bakker, Arnold B. 2017. “Strategic and Proactive Approaches to Work Engagement.” *Organizational Dynamics* 46 (2): 67–75

Bakker, Arnold B., and Evangelia Demerouti. 2008. “Towards a Model of Work Engagement.” *Career Development International* 13 (3): 209–23

Guthold, Regina, Gretchen A. Stevens, Leanne M. Riley, and Fiona C. Bull. 2018. “Worldwide Trends in Insufficient Physical Activity from 2001 to 2016: A Pooled Analysis of 358 Population-Based Surveys with 1·9 Million Participants.” *The Lancet Global Health* 6 (10): e1077–86

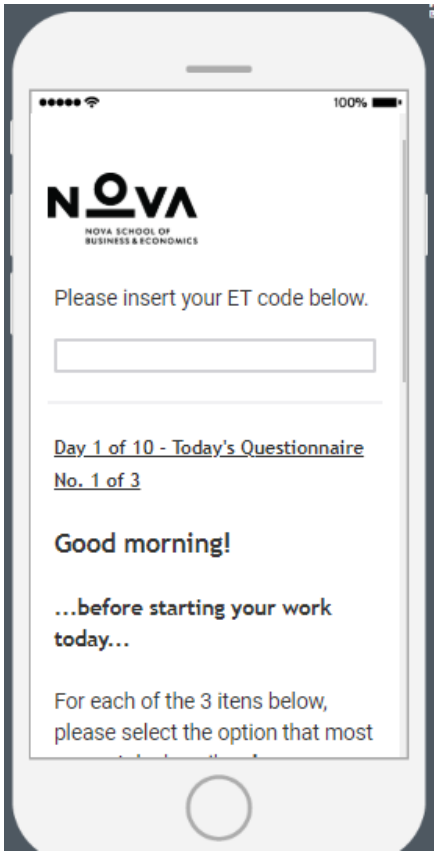
Hobfoll, Stevan E. 2011. “Conservation of Resource Caravans and Engaged Settings.” *Journal of Occupational and Organizational Psychology* 84 (1): 116–22

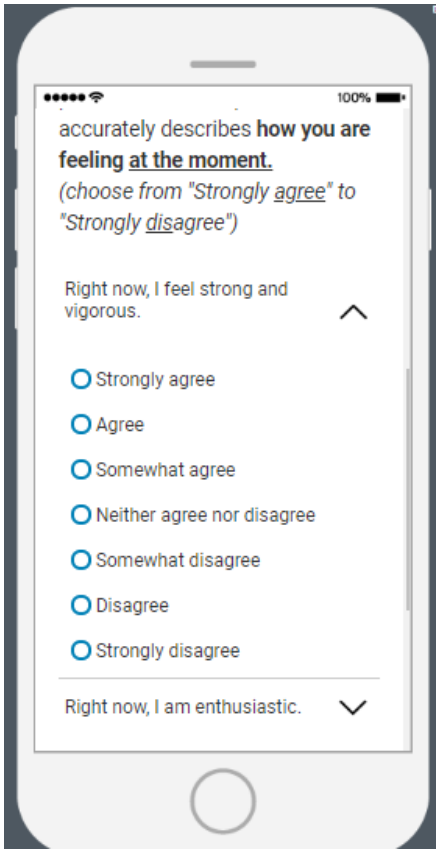
Leckie, George, and Chris Charlton. 2012. “Runmlwin : A Program to Run the MLwiN Multilevel Modeling Software from within Stata.” *Journal of Statistical Software* 52 (11): 1–40

Rasbash, Jon, Fiona Steele, William J. Browne, Harvey Goldstein, and Christopher M J Charlton. 2012. *A User ’ s Guide to MLwiN, v2.26*. *Centre for Multilevel Modelling, University of Bristol*

StataCorp. 2013. *Stata User’s Guide: Release 13. Statisitcal Software. College Station, TX: StataCorp LP*

Appendices





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Free and Voluntary Participation in the dancing classes, meaning that the number of classes/days as well as the dancing styles you attend to are of your choice

Using this model to evaluate...

Off-job activities:

- **Dancing**
- Household
- Childcare
- Work-related
- Social
- Physical
- Low-effort

Filling in the 3 questionnaires per day is very important for my thesis, since through them I will measure these variables and take conclusions.

Beatriz Jardim

During Dancing... DAILY RECOVERY

1. Psychological detachment
2. Mastery of skills
3. Happiness

At the end of the day...

4. Relaxation

1 → MORNING VIGOR

2 → DAILY WORK ENGAGEMENT

3

Sign up in the field study here

Registration end date Friday, Out 19th

- In the appendices of the e-mail you received, you can find the PDF with the **Classes Schedules** from the schools both in Saldanha and in Santos (choose the most suitable for you);
- For **further information** regarding dancing classes, contact:

Saldanha: saldanha@jazzy.pt | 218 208 420 | 923 242 689

Santos: geral@jazzy.pt | 21 395 07 63 | 93 504 22 99

Data Protection: *Your personal data will be exclusively used for purposes of this study. Both analysis and conclusions will be done collectively, not individually.*

Any doubt regarding the study, contact ana.beatriz.p.jardim@gmail.com

Investigation Master's Thesis | Ana Beatriz Pacheco Jardim