Chapter

From "I" to "We": The Factorial Validity of a Team Work Engagement Scale

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Abstract This study contributes to our understanding of work engagement within teams by using aggregated data at the work-unit level in order to test the factorial structure of a Team Work Engagement Scale (i.e., vigor, dedication, and absorption) in a sample of 511 employees nested in 54 teams and 12 small and medium-sized enterprises. Items were aggregated from team members' perceptions using the $AD_{M(J)}$ index. After an item-reduction procedure from the original 18-item scale, confirmatory factor analyses by AMOS: (1) confirmed the expected three-factor structure of team work engagement, and (2) offered a reliable scale with which to test work engagement at the team level. Theoretical and practical implications about team work engagement are discussed according to the findings.

Keywords Team Work Engagement, Assessment, Validation

1. Introduction

The study of work engagement is a core topic in Occupational Health Psychology (Salanova & Schaufeli, 2009). Work engagement is a persistent affective-cognitive work-related state characterized by vigor, dedication and absorption which has been related with many key outcomes, such as performance and financial returns (Bakker & Leiter, 2010). Despite its relevance, the vast majority of scholars has focused on measuring work engagement at the individual level and has not paid much attention to teams. This is even more remarkable if we consider that teams play a crucial role in achieving efficiency and competitiveness in modern organizations (Hodson, 1997). Different scholars have shown the importance of teams to increase innovation (Edmondson, 2002), efficiency (Cohen & Bailey, 1997), and productivity (Salanova, Llorens, Cifre, Martínez, & Schaufeli, 2003).

However, there is very little research based on teams and well-being in terms of work engagement (Simpson, 2009; Whitman, Van Rooy, & Viswesvaran, 2010). Work engagement has proven its relevance in many job settings but findings have only focused on the individual level of analysis, despite the development of several theoretical frameworks focusing on higher-order levels of analysis. This is the case of the *HEalthy & Resilient Organization Model* (HERO; Salanova, Llorens, Cifre, & Martínez, 2012), which states that resources and healthy organizational practices (e.g., job resources, social resources, and healthy organizational practices), healthy employees (e.g., team work engagement), and healthy outcomes (e.g., excellence in products and services) interact with each other to constitute healthy and resilient organizations at higher-order levels, such as teams and organizations.

One reason for the lack of research on work engagement in teams is that no consensus about the measurement of team work engagement has been reached. Salanova et al. (2003) were the first scholars to propose a measure of collective work engagement. However, so far this measure has only been validated in a sample of university students working in groups, but not in employees working in teams. In addition, the focus of work engagement in this measure was on the task and not on work as a whole. Although some papers have tried to tackle this limitation in the past, in the current study we go one step further. Specifically, the objective of the study is to test the validity of a team work engagement scale using aggregated data at the team level of analysis.

1.1. Work Engagement: the Concept and Its Measurement

Work engagement has traditionally been described as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Vigor refers to the willingness to invest effort in one's work, being persistent in the face of difficulties, and exhibiting high levels of energy and mental resilience while working. Dedication refers

to particularly strong work involvement and identification with one's job. The final dimension of engagement, absorption, denotes being fully concentrated and engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from the task at hand. This three-dimensional structure of work engagement (i.e., vigor, dedication, and absorption) has been confirmed in a vast amount of research in different contexts: among students (Salanova, Schaufeli, Martínez, & Bresó, 2009), Information and Communication Technology (ICT) workers (Llorens, Bakker, Schaufeli, & Salanova, 2006), teachers (Hakanen, Bakker, & Schaufeli, 2006), secondary school teachers, and students working in groups (Salanova, Llorens, & Schaufeli, 2011), among others. Moreover, a number of studies show the positive consequences of generating engagement at work. Engaged workers display more proactive behavior (Salanova & Schaufeli, 2008), perform better (Bakker, Demerouti, & Verbeke, 2004), obtain higher objective financial returns for the business (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007), and show less sickness absenteeism (Schaufeli, Bakker, & Van Rhenen, 2009). All in all, these studies provide evidence for the relevance of enhancing work engagement at work.

Previous studies on work engagement provided support for the psychometric quality of the instrument used to assess the construct: the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). This scale is the most widely used instrument to measure work engagement. A search on PsycINFO showed that 83% of scholarly articles about engagement used this questionnaire (Schaufeli & Salanova, 2011). The UWES is composed of seventeen items measuring vigor (six items), dedication (five items) and absorption (six items) with a Likert-type scale ranging from 0 'never' to 6 'always'. Different research using Confirmatory Factor Analysis (CFA) provided evidence for the structural validity of this instrument for testing work engagement in different occupations, such as workers in the tourism sector (Salanova, Agut, & Peiró, 2005), ICT workers (Llorens, Schaufeli, Bakker, &

Salanova, 2007; Salanova & Llorens, 2009), healthcare workers, educators, white- and blue-collar workers (Seppälä et al., 2009), university students working in groups (Llorens et al., 2006, 2007), and secondary school teachers (Salanova et al., 2011), as well as across different countries (for a review, see Schaufeli & Bakker, 2010).

A further step in the measurement of work engagement was the shift toward the construction of a cross-nationally validated, 9-item version of the UWES scale (Schaufeli, Bakker, & Salanova, 2006). By using CFA techniques, this development led to a short 9-item scale distributed in three dimensions: vigor (three items), dedication (three items) and absorption (three items) with a Likert-type scale ranging from 0 'never' to 6 'always'. This short work engagement scale has also been cross-nationally validated in a large dataset (N = 14.521) with a wide range of occupations from ten different countries (Schaufeli et al., 2006). The validity of the scale is demonstrated by the accurate values in alpha (.80) across all national samples and by the fit indices obtained in the CFA (e.g., RMSEA = .03).

All in all, the scientific literature provides an adequate and consistent concept of work engagement and also validated instruments (i.e., the original and the short version of the UWES) to measure work engagement across different contexts (e.g., students, teachers, ICT users). However, this use is limited to the individual level in the workplace: each individual answers the UWES by thinking about his or her personal perception of this experience. Consequently, the measurement of work engagement at higher-order levels of analysis (e.g., organizational, team level) remains virtually uncovered. The current study attempts to bridge this gap in the literature.

1.2. Team Work Engagement: the Concept and the Measurement

In line with the original definition by Schaufeli et al. (2002), team work engagement is conceptualized as a positive, fulfilling, work-related shared-state that is characterized by team work vigor,

dedication, and absorption which emerges from the interaction and shared experiences of the members of a work team. In fact, social psychology offers a large number of studies showing how common beliefs and affective experiences arise among people working together and who tend to show similar cognitive and behavioral patterns (González-Romá, Peiró, Subirats, & Mañas, 2000), feel collective emotions (Barsade, 2002), share collective efficacy (Bandura, 2001) or share job strain (Semmer, Zapf, & Greif, 1996).

There are essentially two reasons for these collective phenomena, which can be summarized as: team members can affect each others' moods (implicit processes) and are likely to share many experiences, as they are all part of the same work place (explicit processes; Ilies, Wagner, & Morgeson, 2007). This rationale can also be applied to work engagement by considering emotional contagion as the main potential mechanism (Bakker, Demerouti, & Schaufeli, 2005). Thus, team work engagement arises from consensus on the perceptions of team members who are able to share a common idea on how the team expresses vigor, dedication and absorption. Since team work engagement is also expected to maintain an isomorphic structure across different levels of analysis, a reference-shift consensus model has to be applied to model work engagement at the team level. This aggregation model uses the aggregate from team members who have been asked to rate team properties, thereby shifting the referent from "I" to "We". The use of an aggregation index is required, since it is necessary to provide statistical support to consider that a consensus about the construct exists (Chen, Mathieu, & Bliese, 2004).

Several studies have shown a significant relationship between work engagement measured at the collective level and organizational and team outcomes. A meta-analytic study by Harter, Schmidt and Hayes (2002) revealed that engagement positively predicts business-unit outcomes. Furthermore, Salanova et al. (2003) observed a sample of students working in groups and concluded that collective work engagement increases the levels of task performance (when collective

efficacy is high). Salanova et al. (2005) also used a sample of 114 service employees from hotel front desks and restaurants to prove that work engagement relates to service climate, which in turn predicts employee performance, all of which was measured at the collective level. Llorens et al. (2007) recruited a sample of students working in groups to show that collective work engagement generates the perception of job resources (i.e., control) and efficacy beliefs in gain cycles using a two-wave longitudinal design. Finally, Salanova et al. (2011), again in students working in groups, showed that activity engagement (i.e., work and task) increases collective positive affect (i.e., comfort, enthusiasm, satisfaction) and collective efficacy by means of positive spirals using a three-wave longitudinal design.

As far as we know, work engagement at the collective level (i.e., the group is the referent of work engagement although it is assessed by individuals) was tested for the first time using a collective version of the UWES in a sample of students working in groups (Salanova et al., 2003). The resulting adapted scale was composed of eighteen items distributed in three dimensions: collective vigor (seven items), collective dedication (four items) and collective absorption (seven items) using a Likert-type scale ranging from 0 'never' to 6 'always'. A first attempt to confirm the factorial structure of this collective scale was made by Salanova et al. (2005). The results revealed that a model for collective vigor, collective dedication and collective absorption fit the data well. Further support for the collective questionnaire of work engagement was included in the validation paper of the HERO Questionnaire (Salanova et al., 2012), which revealed the factorial structure of team work engagement using second-order factor analyses in a sample of small and medium-sized enterprises (SMEs).

Although these studies represented an important step toward achieving a validated measure of team work engagement, an important critique should be carried out: despite having the team as a referent, team work engagement has not yet been tested by considering aggregated data at the team level instead of using individual

perceptions of the construct. This study intends to fill this void in the literature.

1.3. The Aim of this Study

The objective of our study is to test, for the first time, the factorial structure of a team work engagement scale by aggregating data at the team level. Specifically, we test the three-factor structure of team work engagement (i.e., team work vigor, team work dedication and team work absorption) by considering the aggregation of team members' perceptions. At this point, we expect the three-factor structure of the Team Work Engagement Scale to fit the data better than a one-factor model.

2. Method

2.1. Sample and Procedure

The sample consisted of 511 employees nested within 54 work units from 12 Spanish SMEs. Response rate was 58%. Of these employees, 53% were women, 71% had a tenured contract, 17% were self-employed, and 12% had a temporary contract. The average tenure in their current job was 4 years (*SD* = 3.47), 7 years working in the same company (*SD* = 5.58) and 10 years working in general (*SD* = 7.67). Work-units had an average team size of 9.46 members (*SD* = 9). Finally, 81% of the SMEs belonged to the services sector, 11% to industry, and 8% to construction sectors.

After the company had agreed to participate in the study, questionnaires were administered to the different team members, who were asked to participate voluntarily. The whole questionnaire required about 30 minutes to be filled out (the engagement questionnaire only 5 minutes). According to Feldman (1988), the accommodation period that the new worker needs to settle into his job and the organization is three or four months (i.e., the encounter stage). Thus, in order to prevent bias,

only workers who had been working in the same company for more than six months were considered for the analyses. Confidentiality of the answers was guaranteed.

2.2. Measures

The Team Work Engagement Scale was assessed by eighteen items from the collective work engagement scale, as included in the HERO questionnaire (Salanova et al., 2012). These items were reworded from their original collective version in Salanova et al. (2003) so that they could be used in work teams (see Annex). Specifically, team work engagement also considered three dimensions: team work vigor (seven items; e.g., '*During the task, my team feels full of energy'*; alpha = .80); team work dedication (four items; e.g., '*My team is enthusiastic about the task'*; alpha = .91), and team work absorption (seven items; e.g., '*When my team is working, we forget everything else around us*'; alpha = .86). Thus, internal consistencies for the three dimensions achieved the cut-off point of .70 (Nunnally & Bernstein, 1994). Respondents answered by using a 7-point Likert-type scale ranging from 0 'nothing' to 6 'always'.

2.3. Data Analyses

Firstly, we calculated the internal consistencies (Cronbach's α) for the individual data. Secondly, since the team work engagement items were measured at the team level, we computed the interrater agreement at team level for each item from each scale (Chen et al., 2004). To do so, we computed the Average Deviation Index ($AD_{M(J)}$; Burke, Finkelstein, & Dusig, 1999). Then, the Average Deviation Indices of the scales ($AD_{M(J)}$) were computed by averaging the values for their corresponding items ($AD_{M(j)}$). Accordingly, team agreement was concluded when $AD_{M(J)}$ were equal to or less than 1 (Burke et al., 1999). Moreover, Analyses of Variance (ANOVA) were computed in order to ascertain whether there was an adequate between-units differentiation on average scales (i.e., vigor, dedication, and absorption) to support the validity of

the measure. Thirdly, we computed the descriptive statistics and intercorrelations among the aggregated items at the team level. Fourthly, the AMOS 18.0 software application (Analysis of MOment Structures; Arbuckle, 2009) was used to implement the different CFA in order to test the factorial structure of the team work engagement scale. Two plausible models for the 18-item scale of team work engagement were compared: M1, the one-factor model, in which all the items loaded on a single latent factor; and M2, a three-factor model in which items loaded on the specific team work engagement dimensions – team work vigor, team work dedication, and team work absorption.

We assessed two absolute goodness-of-fit indices to evaluate the goodness-of-fit of the models: (1) the χ^2 goodness-of-fit statistic; and (2) the Root Mean Square Error of Approximation (RMSEA). The χ^2 goodness-of-fit index is sensitive to sample size, so the use of relative goodness-of-fit measures is recommended (Bentler, 1990). In consequence, four relative goodness-of-fit indices were used: (1) the Comparative Fit Index (CFI); (2) the Normed Fit Index (NFI); (3) the Tucker-Lewis Index (TLI, also called the Non-Normed Fit Index); and (4) the Incremental Fit Index (IFI). For RMSEA, values smaller than .05 were considered to indicate an excellent fit, whereas values greater than .1 led to model rejection (Brown & Cudeck, 1993). For the relative fit indices, values greater than .90 were indicative of a good fit (Hu & Bentler, 1999). In order to compare non-nested models, the Akaike Information Criterion (AIC) was also requested in the analyses. The lower the AIC is, the better the model fits to the data (Akaike, 1987).

3. Results

3.1. Descriptive Analyses and Aggregation

Table 1 shows the Cronbach α's (at the individual level), means, standard deviations and intercorrelations of the three dimensions (eighteen items) of team work engagement aggregated at the work-unit

level. Thus, based on the aggregated data (N = 54), the $AD_{M(J)}$ indices were .73 (*SD* = .24), .66 (*SD* = .31), and .84 (*SD* = .26) for team work vigor, team work dedication and team work absorption, respectively. Since an $AD_{M(J)}$ value equal to or less than 1 indicated an adequate level of agreement, these results provided support to consider the existence of within-group agreement in the teams (Burke et al., 1999). We also tested a one-way ANOVA to ascertain whether there was an adequate between-units differentiation in the scales (i.e., vigor, dedication, and absorption) to support the validity of the measure. Results for the three team work engagement dimensions were: $F(53, 452) = 2.89$, $F(53, 452) = 2.81$, and $F(53, 451) = 2.96$, respectively ($p < .001$). Therefore there was a significant degree of between-unit discrimination, which supported the validity of the three aggregated dimensions of team work engagement (i.e., vigor, dedication, and absorption). Regarding the correlations at the team level (N = 54), the patterns of the intercorrelations among team work vigor, team work dedication and team work absorption with the aggregated data show that the variables correlated positively and significantly with each other.

Table 1. Means, standard deviations (SD), and intercorrelations of team work vigor, team work dedication, and team work absorption for the aggregated scales (N = 54) and Cronbach's α (N = 511)

	18-item Scale		9-item Scale				
Variables	Mean	SD	Mean	SD	1	2	3
1. Vigor	4.40	.54	4.43	.57	.86 / .80	.88***	.74***
2. Dedication	4.77	.59	4.67	.64	.84***	.91 / .91	.79***
3. Absorption	4.04	.58	4.17	.72	.67***	.75***	.86 / .87

Notes. Cronbach α's at the individual level (for the 18-item/9-item scales) on the diagonal (N = 511); Correlations for the 9-item scale below the diagonal; ***$p < .001$.

3.2. Confirmatory Factor Analyses for the Team Work Engagement Scale

For the CFA, we used the aggregated database (N = 54) that considered 511 employees nested within 54 work units from 12 SMEs; consequently, the aggregated items at the work-unit level for team work

vigor, team work dedication and team work absorption were considered to be observed variables. Meanwhile, team work vigor, team work dedication, and team work absorption were considered to be latent variables. Table 2 provides results of the CFA conducted to test the team work engagement structure by aggregating the data at the work-unit level. The findings of these analyses indicate that the three-factor, team work engagement model (M2) with correlated factors and no cross-loadings fitted the data better than M1 [Delta $\chi^2(3) = 30.886$, $p < .001$].

However, M1 and M2 models testing the fit for the 18-item scale did not show adequate goodness-of-fit indices and did not, therefore, support the consideration of factorial validity for this scale to measure team work engagement at the aggregated level. Since low factor loadings also suggested unsound items in the original collective scale, an item-reduction procedure was applied to deal with these unexpected findings. The procedure for the reduction of the original 18-item scale consisted in removing the items with the lowest factor loadings. A similar procedure can be found in the field within an Exploratory Factor Analysis framework (Schaufeli, Shimazu, & Taris, 2009). For the team work vigor scale, items 2, 3, 4 and 7 were left out of the model. The same procedure was applied for team work dedication. Hence, item 8 was removed. Finally, items 13, 14, 17 and 18 were removed for the team work absorption scale.

Consequently, a revised version (nine items) of the Team Work Engagement Scale was obtained. This revised 9-item version considered the three inner dimensions of team work engagement: team work vigor (three items), team work dedication (three items), and team work absorption (three items) (see Annex for the final items). Then, a revised model ($M2_R$) was tested. $M2_R$ fitted the data with all the fit indices satisfying the criteria, and with the RMSEA index close to the criterion value of .10. Since the original three-factor 18-item model (M2) and the original one-factor 18-item model (M1) have fewer items and are not nested within $M2_R$, the comparison between these models was made by

means of the AIC. This index indicated that $M2_R$ showed a better fit to the data as compared with the original models. Finally, $M2_R$ was also compared to $M2_{Alt}$; that is, an alternative model which assumes that the nine items of the Team Work Engagement Scale load on a one-factor model. Once again, the Chi-square tests between $M2_R$ and $M2_{Alt}$ supported the superiority of $M2_R$ [Delta $\chi^2(3) = 22.23$, $p < .001$]. Thus, the revised three-factor scale (nine items) for team work engagement ($M2_R$) was the most parsimonious scale and the one which offered the best goodness-of-fit indicators. This final model was completed as shown in Figure 1. Firstly, it is important to note that all the items loaded significantly on the intended latent factors: team work vigor, team work dedication, and team work absorption. An inspection of output revealed that all the indicators of team work vigor had loadings on the intended latent factor which were higher than .70. Furthermore, the loadings of team work dedication and team work absorption indicators were higher than .80 and .81, respectively. Moreover, with this final model, the covariances among the three dimensions of team work engagement were higher than .79.

Table 2. Fit Indices of the CFA for the team work engagement scale (N = 54)

Models	χ^2	*df*	RMSEA	CFI	NFI	TLI	IFI	AIC
M1	342.739	135	.170	.732	.630	.696	.738	414.739
M2	311.853	132	.160	.768	.664	.731	.774	389.853
Diff. M2-M1								
$M2_R$	37.624	24	.103	.962	.905	.943	.963	79.624
$M2_{Alt}$	59.854	27	.152	.909	.849	.878	.911	95.854
Diff. $M2_{Alt}$ -$M2_R$								

Table 2. Fit Indices of the CFA for the team work engagement scale (N = 54),(continue)

Models	$\Delta\chi^2$	Δdf	ΔRMSEA	ΔCFI	ΔNFI	ΔTLI	ΔIFI
M1							
M2							
Diff. M2-M1	30.886***	3	.010	.036	.034	.035	.036
$M2_R$							
$M2_{Alt}$							
Diff. $M2_{Alt}$ -$M2_R$	22.23***	3	.049	.053	.056	.065	.052

Notes. χ^2 = Chi-square, df = degrees of freedom; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; NFI = Normed Fit Index; TLI = Tucker-Lewis Index; IFI = Incremental Fit Index; ***p < .001. For a description of the models, see text.

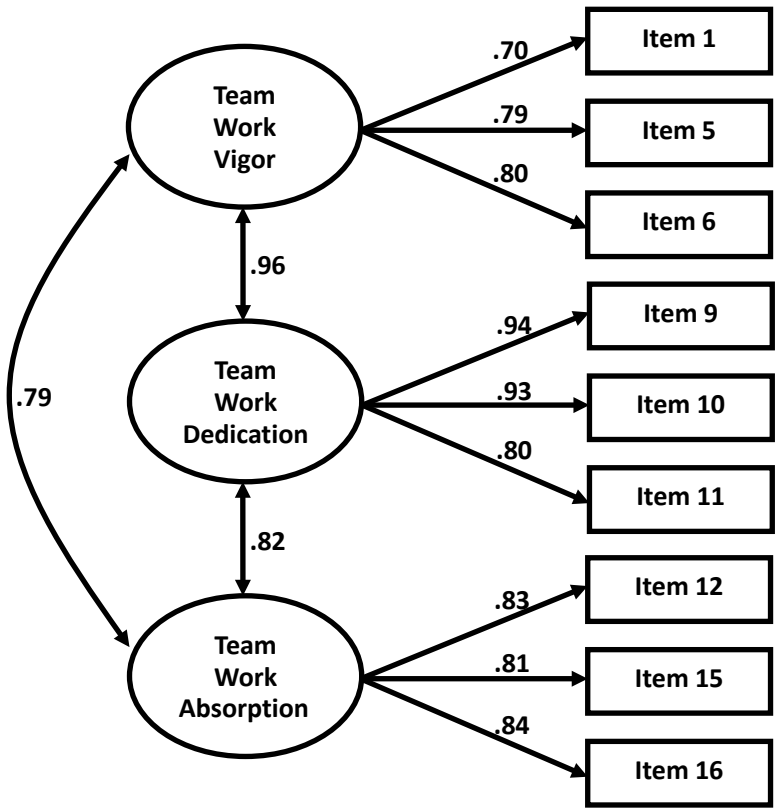

Figure 1. Path diagram for the final Team Work Engagement Scale. All factor loadings and covariances are significant at p < .001

Internal consistencies and descriptive analyses of this 9-item version of the Team Work Engagement are shown in Table 1. Internal consistencies for the revised three team work engagement dimensions achieved the cut-off point of .70 (Nunnally & Bernstein, 1994). The patterns of the intercorrelations among team work vigor, team work dedication, and team work absorption with aggregated data also showed that variables correlated positively and significantly with each other.

4. Discussion

The objective of our study was to test, for the first time, the factorial structure of a team work engagement scale by aggregating data at the team level of analysis. Specifically, we tested the three-factor structure of team work engagement (i.e., team work vigor, team work dedication, and team work absorption) by considering team members' aggregated perceptions of work engagement. Since statistical support for reference-shift consensus models is required (Chen et al., 2004), items were aggregated from team members' perceptions using the $AD_{M(J)}$ index. We expected the three-factor structure of the Team Work Engagement Scale to fit the data better than a one-factor model.

The results of the CFA analyses with the aggregated data at the work-unit level revealed that the three original scales from the team work engagement scale did not fit the data. In consequence, an acceptable degree of factorial validity for the original 18-item scale was not achieved. This unexpected result could be due to a mismatch between the level of measurement and the level of analysis when conducting previous CFA. Since earlier research did not aggregate team members' perceptions to test the factorial validity of team work engagement, the level of analysis was not in accordance with the level of measurement, thus leading to invalid results. To deal with this finding, we carried out an item-reduction procedure. After the item-reduction procedure (removing the items with the lowest factor loadings) the three-dimension original scale (eighteen items) was reduced to nine

items: three items each for team work vigor, team work dedication, and team work absorption with good internal consistencies. This revised three-factor 9-item model fitted the data significantly better than both the original three-factor 18-item model and a one-factor model (with eighteen items and with nine items), which assumes that items load on a common single factor.

More specifically, this three-factor structure of team work engagement tested at the work-unit level reflects the three inner dimensions of work engagement that had previously been found in different samples at the individual level (e.g., Bakker & Demerouti, 2008; Schaufeli et al., 2006). As a whole, CFA: (1) confirm the expected three-factor structure of team work engagement (vigor, dedication and absorption) when they are tested at the team level with nine items using aggregated data, and (2) offer a validated scale with which to test work engagement in teams. Consequently, the results support the consideration that the main objective of this study has been attained.

However, since the three dimensions of team work engagement are highly intercorrelated (ranging from .79 to .96), an overall measure of team work engagement could be derived from averaging the final nine items of the revised scale. This conclusion was also drawn by Schaufeli et al. (2006) from the individual point of view when reducing the original UWES questionnaire to a shorter version. Several differences appear when comparing the nine items which emerged in the above-mentioned validation paper against the nine items obtained in the current study.

Regarding the vigor dimension, Schaufeli et al. (2006) included an item ("*When I get up in the morning, I feel like going to work*") that was left out of the team version. This item refers to a behavioral-energetic state that is purely individual and about which it is difficult to have a shared perception within the team. Concerning the dedication dimension, two items have no clear team counterpart (*"My job inspires me"* and *"I am proud of the work that I do"*). One reason for this difference can be found in the nature of the construct to which they refer. Inspiration and pride are more cognitive than affective or motivational in nature, and it is

thus more difficult for them to be shared by all team members. In contrast, the team counterparts of these items (see items #10 and #11 in Annex) focus on enjoyment and motivation, which are more related to explicit behavior, which in turn is more capable of affecting team members' perceptions of team work dedication. Finally, differences are less pronounced in the absorption dimension, since all items refer to being fully concentrated on work.

4.1. Limitations and Further Research

The main limitation of this study is the use of a convenience sample. However, it is a wide sample, including different team groups from different enterprises which belong to different economic sectors. A further step in this line of research must also consider the multilevel factorial validation of this scale in a wider range of occupations, along with cross-cultural studies, as they will lead to fruitful contributions to the factorial invariance of the measure of team work engagement by aggregated data.

More research on the content validity of team work engagement is also needed by testing its antecedents and consequences as well as its underlying contagion processes. Following recent theoretical frameworks which focus on the collective level, as is the case of the *HERO Model*, will help to provide a deeper understanding of how to boost team work engagement in organizations (Salanova et al., 2012). Multilevel techniques are also recommended in order to look for cross-level relationships involving this construct. Furthermore, relevant variables in organizational research may display different effects from one dimension to another, so greater detail is needed when team work engagement measures are considered. Comparing both individual work engagement and its team-level counterpart in the same sample is also encouraged. Following Chen et al. (2004), these papers foster the validity of multilevel constructs and lead to a greater understanding of how they evolve as part of wider psychosocial processes within organizations.

4.2. Theoretical and Practical Implications

The current study presents important theoretical and practical implications. First, results corroborate and extend the three-factor structure of work engagement to team work engagement by using aggregated data at the team level. Hence, a step forward has been taken toward confirming the relevance of this construct in higher-order levels within organizations (i.e., the team level). This finding provides evidence of the isomorphism of the work engagement measure at different levels of analysis which reinforces the idea that underlying processes such as emotional contagion could be playing a key role in how team members share a common perception about team work engagement (Bakker et al., 2005). Second, a revised and shorter scale with only nine items leads to a more parsimonious understanding of the construct. With this 9-item team work engagement scale practitioners gain not only from the advantage of using a shorter work engagement measure that applies to work teams but also from the possibility of acquiring a better understanding of well-being at work in highly interdependent job settings.

Final note

To sum up, this research has led to the development of a team work engagement scale that can be applied to teams. The three-factor model of work engagement has been replicated at the team level, which encourages us to consider the isomorphism of this construct at a higher-order level of analysis. This team-oriented instrument enhances future research into well-being in teams for scholars, and is also a new specific tool for information within organizations. Thus, by changing the focus from "I" to "we", a huge amount of rich and useful information about the topic of work engagement becomes available.

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Annex

Collective work engagement scale, as included in the HERO questionnaire

Vigor
1. During the task, my team feels full of energy*
2. My team can continue working for very long periods of time
3. My team keeps on working, even when things do not go well
4. Hard work is not much of an effort for my team
5. My team feels very persistent during the task*
6. My team feels strong and vigorous during the task*
7. When the task is finished, my team has quite some energy left for other activities
Dedication
8. My team is involved in the task
9. My team is enthusiastic about the job*
10. My team enjoys doing the task*
11. My team feels very motivated to do a good job*
Absorption
12. When my team is working, we forget everything else around us*
13. My team takes new initiatives
14. My team is immersed in the task
15. Time flies when my team is working*
16. My team feels happy when we are engrossed in the task*
17. It is difficult for the team to detach from the task
18. My team gets “carried away” by the task

Note: Items with asterisks were selected for the revised 9-item scale.