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Individual Crafting, Collaborative Crafting, and Job Satisfaction: The Mediator Role of Engagement

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ABSTRACT

Most theories of job crafting understand the term to refer to an individual activity, and only a few studies have focused on collaborative job crafting. The present study has two aims. First, to adapt and validate a Spanish version of the Individual and Collaborative Crafting Scale. Second, to test a simple mediation model of engagement on the relationship between individual and collaborative crafting and job satisfaction. The sample consisted of 301 people. The data were analyzed using the Smart PLS statistical program, version 3.2.6., using the partial least squares (PLS) path modeling method. The results reveal that the Spanish language version of the Individual and Collaborative Crafting Scale is both valid and reliable. Moreover, engagement was found to fully mediate the relationship between job crafting and job satisfaction, with the hypothesized model explaining 78.4% of the variance observed in job satisfaction.

Job crafting y satisfacción laboral: el papel mediador del engagement

RESUMEN

La mayor parte de las teorías de *job crafting* han estudiado el término como una actividad individual. Pocas investigaciones se han centrado en el *crafting* colaborativo. El presente estudio tiene dos objetivos. Se pretende adaptar y validar la versión española de la escala de *crafting* individual y colaborativo. Además, se pretende poner a prueba un modelo de mediación simple del *engagement* sobre la relación entre el *crafting* individual y colaborativo y la satisfacción laboral. La muestra está formada por 301 personas. El análisis de datos se llevó a cabo con el programa Smart PLS v. 3.2.6. usando mínimos cuadrados parciales (PLS). Los resultados muestran que la escala de *crafting* individual y colaborativo en castellano es válida y fiable. Además, existe una mediación completa del *engagement* en la relación *job crafting*-satisfacción. El modelo hipotetizado explica un 78.4% de la varianza de la satisfacción laboral.

Job design aims to change tasks or working conditions in order to ensure either better job performance or higher work-related motivation (Le Blanc, Demerouti, & Bakker, 2017, p. 48). The concept of job crafting arose as an alternative to classic approaches to redesigning the workplace, which mainly consisted of top-down strategies initiated by an organization, rather than by employees themselves (Oldham & Hackman, 2010).

Wrzesniewski and Dutton (2001) propose an alternative bottom-up approach in which individuals play a leading role in the design of their jobs. Recognizing the importance of proactive employee behavior, these authors introduce the concept of job crafting, which they define as an activity that aims to change cognitive, task, and/or relational boundaries in order to shape, mold, or redesign a job. Job crafting, they argue, is capable of altering the meaning of work itself. Moreover, they consider it to have an everyday basis, since “the job

is being re-created or crafted all the time” (Wrzesniewski & Dutton, 2001, p. 181).

Other authors have used the Job Demands-Resources Model (Bakker & Demerouti, 2007) as a theoretical framework for conceptualizing job crafting (Tims & Bakker, 2010). According to this perspective, proactive employee behavior is driven by the characteristics of the job. Although each job is different and has its specific idiosyncrasies, these characteristics can nevertheless be classified into either demands or resources (Wang, Demerouti, & Bakker, 2017). Tims and Bakker (2010) believe that employees can alter their job demand and resource levels in order to make them a better fit to their own skills and preferences. Tims, Bakker, and Derks (2012) developed and validated a job crafting scale that consists of four dimensions: increasing structural job resources, increasing social job resources, increasing challenging job demands, and decreasing hindering job demands.

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Previous conceptualizations of job crafting have always considered it to be an individual activity. [Leana, Appelbaum, and Shevchuk \(2009\)](#) expounded on the theory developed by [Wrzesniewski and Dutton \(2001\)](#), demonstrating that the effects of collaborative job crafting are more powerful than those of individual job crafting. These authors argue that since workers participate in similar working processes and relate to and experience common events, they can “jointly determine how to alter the work to meet their shared objectives” ([Leana et al., 2009](#)). The results of their study revealed that job crafting is comprised of two different constructs: individual crafting and collaborative crafting.

It should also be borne in mind that in certain professions it is difficult to adapt individual work due to the high degree of interdependence between groups. This is the case, for example, in health professions or in education. [Leana et al.'s \(2009\)](#) theoretical model is therefore an interesting alternative to other approaches, particularly when studying employees in jobs requiring this high degree of professional interconnectedness. [Cheng, Chen, Teng, and Yen. \(2016\)](#) argue that in individual crafting employees actively alter the limits of their tasks, while in collaborative crafting they work together to review the work process.

[McClelland, Leach, Clegg, and McGowan \(2014\)](#) highlighted the scarcity of studies focusing on collaborative crafting, while [Leana et al. \(2009\)](#) showed that job crafting is better conceptualized at an individual level of analysis. For their part, however, [Tims, Bakker, Derks, and Van Rhenen \(2013\)](#) proposed that collaborative job crafting is a theoretically similar construct to individual crafting. These authors define team job crafting as “the extent to which team members combine efforts to increase structural and social job resources as well as challenging job demands, and to decrease their hindering job demands”. Nevertheless, the study also found that job crafting is as influential at a team level as at an individual, and the authors argue that team-level job crafting may lay the groundwork for individual performance. The differences between conceptualizations of job crafting are evident in the model they use to develop this concept, which is based on tasks or characteristics of work environment. They are also evident in the consideration of the concept from an individual or collaborative level of analysis.

For their part, in a recent international literature review on the use of job crafting instruments, [Devotto and Machado \(2017\)](#) observed a predominance in the use of the job crafting scale developed by [Tims et al. \(2012\)](#) over others such as the one developed by [Leana et al. \(2009\)](#). In their meta-analysis, [Rudolph, Katz, Lavigne, and Zacher \(2017\)](#) also found that the most commonly-used job crafting model was that based on the demands and resources model developed by [Tims and Bakker \(2010\)](#). For their part, [Bakker, Ficapal-Cusí, Torrent-Sellens, Boada-Grau, and Hontangas-Beltrán \(2018\)](#) underscore the need for further research on the empirical quantitative evaluation of job crafting, pointing out the lack of validated instruments in Spanish for measuring this construct.

Although the scale developed by [Tims et al. \(2012\)](#) was validated in Spanish by [Bakker et al. \(2018\)](#), following an exhaustive review of the literature, we found no studies in Spanish which assess the psychometric properties of [Leana et al.'s \(2009\)](#) Individual and Collaborative Crafting Scale. In other countries, this scale has been found to have adequate reliability and validity levels ([Chen, Yen, & Tsai, 2014](#)). The first aim of this paper is therefore to validate a Spanish version of this scale ([Leana et al., 2009](#)) (see [Appendix](#)). Moreover, the paper also aims to provide theoretical evidence in support of the approach advocated by [Leana et al. \(2009\)](#), who consider individual and collaborative crafting to be different constructs. The objective is to develop a scale with a similar structure, but comprising two factors (individual and collaborative crafting).

Job Crafting, Engagement, and Job Satisfaction

Engagement is a work-related concept which refers to a pervasive affective-cognitive state characterized by vigor, dedication, and absorption ([Salanova, Schaufeli, Llorens, Peiró, & Grau, 2000](#)). It is associated more with a persistent rather than momentary state, and is not focused on any particular object, event, or behavior. Its three components are characterized by high levels of energy and mental resilience while working (vigor), total concentration and the feeling of being happily engrossed in one's work, with time passing quickly (absorption) and, finally, strong involvement in one's work and the experience of a sense of significance, enthusiasm, inspiration, pride, and challenge (dedication) ([Schaufeli, Bakker, & Salanova, 2006](#)).

From the perspective of the demands and resources model, job crafting has been linked to performance through engagement at both an individual and collective level ([Tims et al., 2013](#)). [Bakker and Oerlemans \(2018\)](#) studied job crafting and engagement on a daily basis, finding that the former had a positive effect on the latter, since it satisfied certain basic psychological needs. Nevertheless, they also found that job crafting may have negative effects, since it involves an effort and depletes workers' energy reserves. These authors also suggest that the relationship between job crafting and engagement may be reciprocal, although they remark that most available evidence points to a causal effect of job crafting on engagement. The literature review carried out here revealed that few studies have used [Leana et al.'s \(2009\)](#) model to study job crafting and its relationship with engagement. [Chen et al. \(2014\)](#) found that both types of job crafting (individual and collaborative) strengthen engagement, stating that both enable employees to alter the tasks and limits of their job, thereby fostering greater commitment. However, the results of their study also reveal that the two types of job crafting influence engagement in different ways. Specifically, the indirect effect of individual crafting on engagement, through person-job fit, was stronger than the indirect effect of collaborative crafting. Furthermore, the authors suggest that the relationship between job crafting and engagement may be reciprocal.

Other studies have reported a relationship between job crafting (and its dimensions) and satisfaction and other organizational results. However, different theoretical approaches have led to different conclusions. Thus, [Leana et al. \(2009\)](#) studied the relationships between job crafting and organizational outcomes. According to their theoretical model, collaborative crafting predicted higher-quality care and stronger job satisfaction and organizational commitment, while individual crafting did not predict these outcomes. [Cheng and O-Yang \(2018\)](#) also suggested that job crafting may be linked to job satisfaction. [Ghitulescu \(2006\)](#) showed that individuals who crafted their job felt more committed to their tasks and work-related decisions, thereby enjoying higher levels of job satisfaction.

Other studies have linked the components of job crafting with engagement and satisfaction. [Villajos, García-Ael, and Topa \(2019\)](#) found that those dimensions linked to an increase in structural and social resources and challenging demands were associated with engagement. However, only increased structural and social resources were found to be related to job satisfaction. [Nielsen and Abildgaard \(2012\)](#) found that some (although not all) job crafting behaviors or dimensions were linked (although not closely) to well-being measures such as job satisfaction and engagement.

Moreover, several studies have suggested a mediator effect of engagement on the relationship between the components of job crafting and organizational outcomes. [Ogbuanya and Chukwuedo \(2017\)](#) found that job crafting positively and significantly predicted engagement and organizational commitment, as well as satisfaction. They also observed that engagement and commitment had a multiple mediating effect on the relationship between job crafting and satisfaction. [Bakker, Tims, and Derks \(2012\)](#) suggested a mediator effect of engagement on the relationship between specific job crafting behaviors and in-role performance.

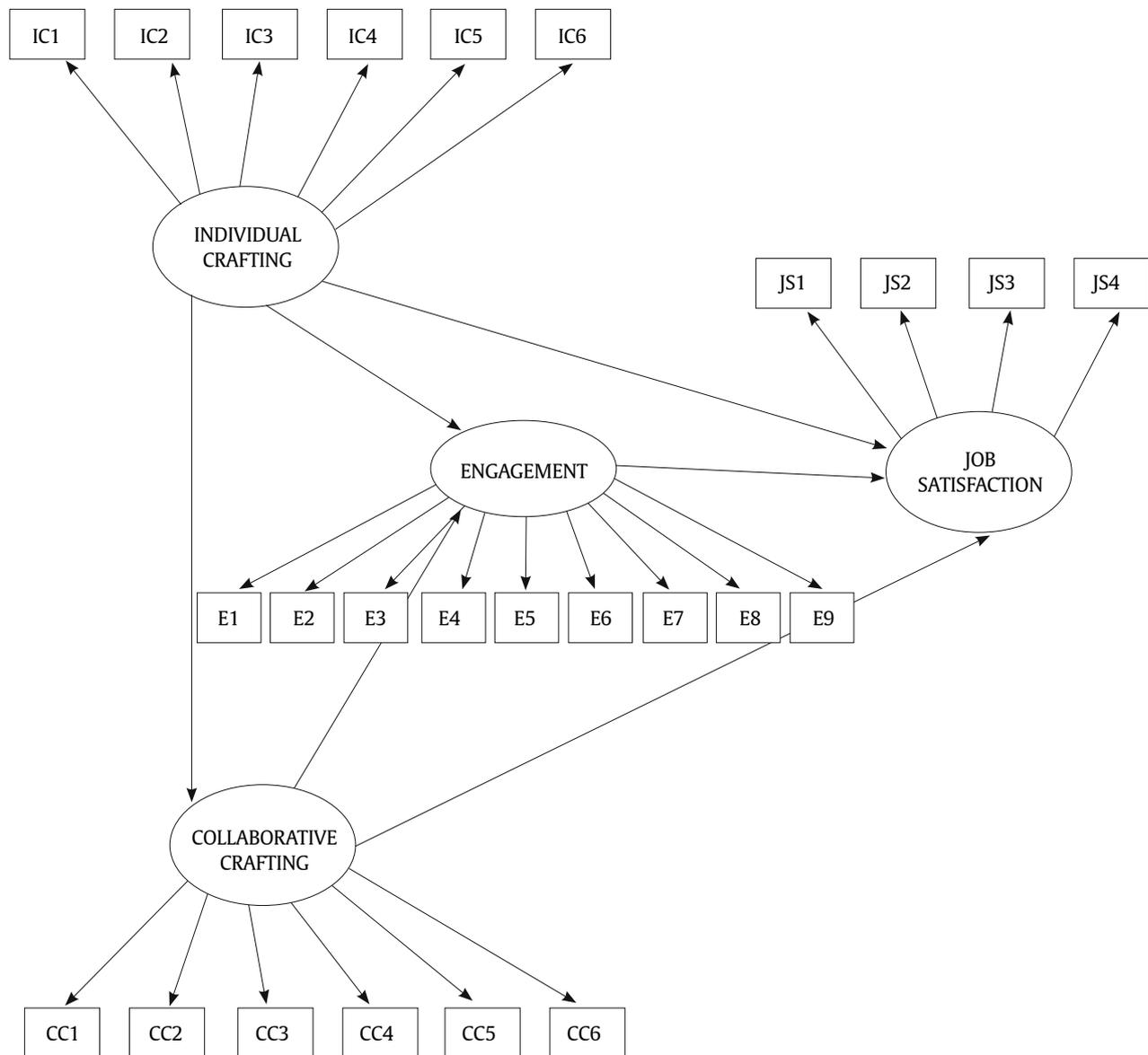


Figure 1. Hypothesized Model.

IC = individual crafting; CC = collaborative crafting; E = engagement; JS = job satisfaction.

Finally, the second aim of this study is to relate individual and collaborative job crafting with engagement and job satisfaction, and to contribute new data and results to [Leana et al.'s \(2009\)](#) theoretical model. The following hypotheses were tested ([Figure 1](#)):

H1: Individual and collaborative job crafting are directly and positively related to job satisfaction.

H2: Engagement mediates the relationship between both types of job crafting and organizational satisfaction.

Method

Participants and Procedure

The sample comprised 302 people. The sample was constituted with the collaboration of students at the UNED (National University of Distance Education), who recruited employed persons from among their friends and acquaintances in exchange for practical academic credits. They sent out an online questionnaire to possible

participants over various social media networks and messenger applications such as WhatsApp. They also requested all recipients to resend the questionnaire to all their contacts, thus ensuring its mass dissemination.

The sample group comprised all those who gave their consent to participate in the study and was made up of 108 men and 194 women, with a mean age of 41.91 ($SD = 8.463$). Most participants (77.8%) had higher-education qualifications, and 32.8% worked in the education and health sectors. As regards professional category, 19.2% were managers, 33.1% middle managers, 43% technical or administrative staff, and 4.6% unqualified workers.

Instruments

Demographic data. The demographic data collected in this study were age, gender, education level, professional sector, and professional category ([Table 1](#)).

Table 1. Demographic Data

	N	%	M	SD
Age			41.91	8.463
Gender				
Female	194	64.2		
Male	108	35.8		
Education level				
Primary education	4	1.3		
Secondary level/High school	63	20.9		
University level	235	77.8		
Professional category				
Managers	58	19.2		
Middle managers	100	33.1		
Technical or administrative staff/unqualified workers	130	43.0		
14	14	4.6		
Years of seniority			12.31	9.30
Professional sector				
Legal profession	6	1.99		
Administrative work	33	10.9		
Education/Health	99	32.8		
Banking/Finance	27	8.94		
Construction industry	9	2.98		
Hotel and Catering	18	5.96		
Transport sector	9	2.98		
Commercial sector	6	1.99		
Other sectors	95	31.4		

Note. N = 302; M = mean; SD = standard deviation.

Job crafting. The Individual and Collaborative Crafting Scale developed by Leana et al. (2009) was translated into Spanish and adapted to the Spanish culture by the research team. The translation-back translation method was used. The original questionnaire was also translated into Spanish by two bilingual English-Spanish speakers not familiar with the original scale. The translation carried out in this case was semantic. Both translations were sent to another two bilingual English-Spanish speakers for back translation. The differences were resolved jointly by the research team and the translators. Subsequently, permission was requested from and granted by the authors of the original scale for the validation of the Spanish version of the questionnaire.

The scale consists of 2 subscales which evaluate the different dimensions of individual and collaborative job crafting. Each subscale is composed of 6 items. In this study, the reliability of the item scores was $\alpha = .78$ in the individual crafting subscale and $\alpha = .89$ in the collaborative crafting subscale. In the validation of the original scale, the same value was obtained for collaborative crafting and a value of .79 was obtained for individual crafting (Leana et al., 2009).

Examples of individual crafting items include “Do you introduce new approaches on your own to improve your work?” and “Do you, on your own, change work procedures that you think are not productive?”. Examples of collaborative crafting include “Do you work together with your coworkers to introduce new approaches to improve your work?” and “Do you decide together with your coworkers to bring materials to work?”. Responses are given on a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*).

Job satisfaction. Job satisfaction was evaluated through 4 items from the Brief Index of Affective Job Satisfaction (Thompson & Phua, 2012). The reliability of scores for the items on this scale was $\alpha = .916$. Other studies have reported adequate reliability values for this scale (Pujol-Cols & Lazzaro-Salazar, 2018). Responses are given on a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*) and item examples include “Most days I am enthusiastic about my job” and “I find real enjoyment in my job”.

Engagement. The Utrecht Work Engagement Scale by Schaufeli and Bakker (2003) was used to evaluate engagement in work. In its reduced version, the scale comprises 9 items and is made up of

3 subscales: vigor, dedication, and absorption, with 3 items in each. The reliability of scores for the items on the global scale was $\alpha = .93$. Schaufeli and Bakker (2003) also found adequate reliability values for all 3 subscales in their short version of the scale (α values of between .79 and .89). The instrument has a 5-point Likert-type response scale, with higher scores indicating greater agreement with the statement. Examples of items from the three subscales are “At work, I feel bursting with energy” (vigor subscale), “I am enthusiastic about my job” (dedication subscale), and “I am immersed in my work” (absorption subscale).

Data Analysis

The results were tested using the partial least squares (PLS) method, which is a variance-based structural equations model (Reinartz, Haenlein, & Henseler, 2009). This model was chosen for three reasons: 1) according to Chin (2010), it is a technique suitable for use in a situation of theoretical development, such as is the case in this study; 2) it enables the reliability and validity of theoretical construct measures to be evaluated (external or measurement model) and the relations between these constructs to be estimated (internal or structural model) simultaneously (Barroso, Cepeda, & Roldán, 2010, p. 429); and 3) it enables a priori knowledge and hypotheses to be combined and tested with empirical data (Barroso et al., 2010).

The data were analyzed using version 3.2.6. of the SmartPLS statistical analysis software (Ringle, Wende, & Becker, 2015). Following the recommendation made by Dijkstra and Henseler (2015, p. 311), a new approach called consistent partial least squares path modeling (consistent PLS) was used. According to this approach, providing the common factor model is maintained, consistent PLS or covariance-based SEM should be the preferred choice for researchers, over and above traditional PLS.

Results

The means, standard deviations and correlations of the study variables are presented in Table 2.

Table 2. Correlations, Means, and Standard Deviations of Study Variables

Variables	M	SD	1	2	3	4
Individual crafting	3.12	0.79	(.62)			
Collaborative crafting	3.01	0.92	.55**	(.76)		
Engagement	3.44	0.88	.39**	.42**	(.77)	
Job satisfaction	3.46	0.94	.33**	.38**	.79**	(.86)

Note. N = 302. The elements on the diagonal (values in parentheses) represent the square root of the variance extracted (AVE).

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

The PLS model was interpreted in three phases: measurement model (external model), structural model (internal model), and evaluation of the global model,

Measurement Model

Firstly, the individual reliability of the items was determined by analyzing the simple loadings or correlations of the measures or indicators with their respective construct. The external loadings of the indicators must be higher than .707 (Hair, Hult, Ringle, & Sarstedt, 2014) in order to indicate a good fit. For both job satisfaction and collaborative crafting, the loadings were all over this value. For individual crafting, the values for items 2, 3, 4, and 6 were lower than .707. Items 2, 8, and 9 of the engagement scale also had values lower than .707. According to Hair, Ringle, and Sarstedt (2011), indicators with loadings of between .40 and .70 should only be eliminated

from the scale if this leads to an increase in its composite reliability. Various analyses were therefore conducted, first eliminating item number 9 of the engagement scale, whose loading was less than .40. Subsequently, the model was tested, eliminating those items of the individual crafting scale with the lowest loadings (3 and 6). The composite reliability was recalculated following the elimination of these items, and the decision was finally made to remove only item number 9 from the engagement scale, since the elimination of individual crafting items reduced the composite reliability from .78 to .74.

Secondly, the reliability of the construct was evaluated by measuring Cronbach's alpha reliability, composite reliability, and rho_A value. All constructs were found to satisfy the construct reliability requirement, having values of over .70 (Nunnally & Bernstein, 1994).

Thirdly, convergent validity was evaluated by means of the average variance extracted (AVE). The individual crafting scale was found to have a value below the recommended threshold (.50). Collaborative crafting had a value of .59, engagement .64 and job satisfaction .74 (Table 3).

Table 3. Measurement Model: Loadings, Construct Reliability, and Convergent Validity

Latent variable	Item	λ	CR	α	Rho_A	AVE
Individual crafting	IC1	.82	.78	.79	.80	.38
	IC2	.61				
	IC3	.45				
	IC4	.54				
	IC5	.69				
	IC6	.52				
Collaborative crafting	CC1	.84	.90	.90	.90	.59
	CC2	.76				
	CC3	.75				
	CC4	.75				
	CC5	.71				
	CC6	.80				
Engagement	E1	.88	.93	.93	.94	.64
	E2	.68				
	E3	.92				
	E4	.90				
	E5	.84				
	E6	.78				
	E7	.72				
	E8	.63				
Job satisfaction	JS1	.87	.92	.92	.92	.74
	JS2	.90				
	JS3	.80				
	JS4	.86				

Note. λ = loadings; CR = composite reliability; rho_A = Dijkstra-Henseler's rho (ρ_A); AVE = average variance extracted; α = Cronbach's alpha.

Finally, the discriminant validity of the model constructs was evaluated, resulting in a matrix of factor loadings and factor cross loadings (Table 4). The factor loadings were higher than the factor cross loadings. In other words, the indicators correlated more closely with their own construct than with others, thereby indicating discriminant validity.

According to Chin (1998b, p. 327) "an indicator of discriminant validity is to have all AVE measures be larger than the square of the correlations". To facilitate this assessment, the square root of the AVE of each latent variable must be higher than the correlation between that construct and all the others (see Table 2). The correlations table shows that this criterion was also fulfilled.

Lastly, the heterotrait-monotrait (HTMT) ratio recommended by Henseler, Ringle, and Sarstedt (2015) was evaluated. In a model with a good fit, heterotrait correlations should be smaller than monotrait ones. Thus, in order to indicate good fit, the HTMT ratio must be lower than 1. The HTMT ratios found were as follows: .42 between job satisfaction and collaborative crafting, .40 between job satisfaction and individual crafting, .66 between the two types of crafting, .47 between engagement and collaborative crafting, .46 between engagement and individual crafting, and .88 between engagement and satisfaction. These results indicate that all constructs have adequate discriminant validity levels.

Moreover, the bootstrapping method was used to test whether the HTMT ratio was significantly different from 1 (HTMT inference). In all the relationships between variables, the bootstrap confidence interval at 90% of the HTMT ratio included the value 1, which also indicates the existence of discriminant validity.

Structural Model

To test the structural model, the algebraic sign, magnitude, and statistical significance of the path coefficients were evaluated. The signs of those path coefficients that reached significance level were positive and coincided with the hypotheses postulated at the start of the study. To assess the statistical significance of path coefficients, the bootstrapping method for consistent PLS was used (10,000 subsamples). Student *t*-values higher than the critical *t*-value (1.645) for significance level .05 were considered significantly different from 0 (Figure 2). Moreover, the 95% confidence intervals of the path coefficients were also found to be significant, since they did not include 0. Thus, the non-significant direct effects found were between collaborative crafting and satisfaction [-.09, .13] and between individual crafting and satisfaction [-.15, .07], while the direct effects between the two types of job crafting [.58, .77], between collaborative crafting and engagement [.11, .47], between individual crafting and engagement [.08, .46], and between engagement and satisfaction [.82, .96] were significant.

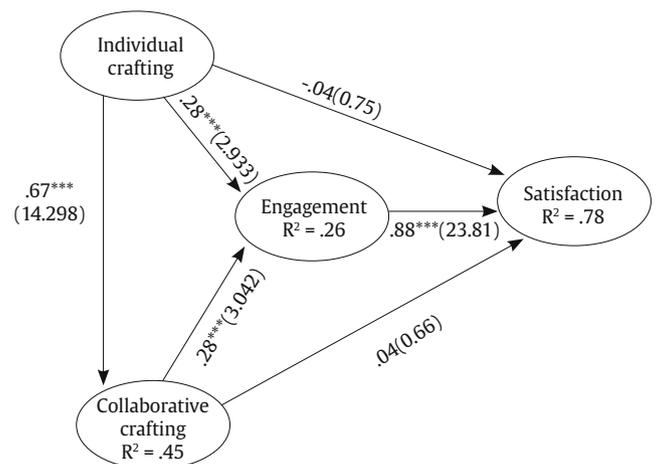


Figure 2. Structural Model: Standardized Regression Coefficients (Values of *t*). **p* < .05, ***p* < .01, ****p* < .001.

As regards magnitude, the standardized β coefficients which did not attain the minimum value recommended by Chin (1998a) (.20) were not considered significant. In this case, the coefficients between both types of job crafting and satisfaction were not significant. The results, therefore, do not support hypothesis 1. As regards the coefficient of determination, the model was found to explain 78.4% of the variance observed in job satisfaction, 45.4% of that observed in collaborative crafting, and 26.2% of that observed in engagement.

Table 4. Analysis of Cross-Loading Factors

	Collaborative crafting	Engagement	Individual crafting	Job satisfaction
BIAJS1	.39	.76	.34	.87
BIAJS2	.34	.79	.32	.90
BIAJS3	.39	.70	.40	.80
BIAJS4	.32	.76	.29	.86
CC1	.84	.39	.55	.36
CC2	.75	.38	.46	.34
CC3	.75	.34	.53	.29
CC4	.75	.33	.51	.33
CC5	.71	.33	.50	.25
CC6	.80	.37	.54	.34
IC1	.53	.41	.82	.32
IC2	.38	.31	.61	.26
IC3	.27	.24	.45	.19
IC4	.38	.23	.54	.20
IC5	.54	.25	.69	.23
IC6	.32	.26	.52	.24
UWES1	.43	.89	.35	.79
UWES2	.41	.68	.40	.54
UWES3	.41	.93	.38	.84
UWES4	.41	.91	.41	.81
UWES5	.42	.85	.38	.73
UWES6	.32	.78	.36	.71
UWES7	.33	.73	.35	.64
UWES8	.26	.63	.36	.55
UWES9	.17	.38	.26	.31

Note. BIAJS = Brief Index of Affective Job Satisfaction Scale; CC = collaborative crafting; IC = individual crafting; UWES = Utrecht Work Engagement Scale.

Finally, we calculated the indirect effects between the variables. The indirect effects of engagement on the relationship between collaborative crafting and satisfaction ($\beta = .26, p < .000$) and between individual crafting and satisfaction ($\beta = .24, p < .01$) were significant. The multiple mediation of collaborative crafting and engagement on the relationship between individual crafting and satisfaction ($\beta = .17, p < .000$) was also significant. The isolated indirect effect of collaborative crafting was significant on individual crafting and engagement ($\beta = .19, p < .000$), although not on individual crafting and satisfaction ($\beta = .02, p = .66$). These results support hypothesis 2.

Global Model

The normalized fit index (NFI) was used to evaluate the global model, obtaining a value of .86. NFI values of over .90 are considered acceptable for factor models (Byrne, 2013). Moreover, the standardized root mean square residual (SRMR) parameter was used for this same purpose. This method consists of measuring the difference between the observed correlation matrix and the model implied correlation matrix. Although some authors have suggested that SRMR values of $< .08$ are indicative of good fit (Hu & Bentler, 1999, p .27), Williams, Vandenberg, and Edwards (2009) propose a more flexible option (SRMR $< .10$). In this study, the SRMR was .07 for the estimated model prior to the elimination of item number 9 from the engagement scale, and .06 following this step. The data were therefore deemed to have an adequate fit.

Discussion

The principal aim of the present study was to relate individual and collaborative job crafting with engagement and job satisfaction, and to contribute new results to Leana et al.'s (2009) theoretical model. The findings of this study partially support the hypotheses. Also,

the psychometric properties of the Spanish version of Leana et al.'s (2009) Individual and Collaborative Crafting Scale were assessed and the instrument was validated. Data were also found that support the existence of two different constructs, individual and collaborative crafting, in line with that argued by Leana et al. (2009).

In order to validate the Spanish version of the Individual and Collaborative Crafting Scale, its psychometric properties were evaluated. Firstly, it is important to highlight the fact that, during the translation-back translation process, the translation team reached an agreement with the research team regarding a common Spanish version of the scale. The initial scale comprised 6 items for the individual crafting dimension and 6 items for the collaborative crafting one. No item was found to be confusing or difficult to translate.

Secondly, the reliability and validity of the theoretical construct measures were assessed by evaluating the external or measurement model. The reliability of the construct refers to the internal consistency of the measurement model (Straub, Boudreau, & Gefen, 2004). After measuring the Cronbach's alpha coefficient, the composite reliability and the rho_A value, we can conclude that the scale satisfies the construct reliability requirement. The measures are robust in terms of internal consistency. Other studies have also reported adequate reliability levels (Chen et al., 2014; Leana et al., 2009).

For its part, construct validity was estimated using convergent and discriminant validity. The results observed for both dimensions of job crafting support the discriminant validity of the scale. The scale distinguishes between different constructs using a single measurement system. In relation to convergent validity, only the individual crafting scale failed to reach the recommended average variance extracted level. This parameter explores whether a set of indicators represent a single underlying construct (Henseler, Ringle, & Sinkovics, 2009). Collaborative crafting was able to explain more than half of the variance observed in its indicators. This finding indicates that, in psychometric terms, collaborative crafting may be considered

a stronger construct than individual crafting. [Chen et al. \(2014\)](#) also found better average variance extracted values in the collaborative crafting construct than in the individual crafting one.

The global fit of the confirmatory factor model was determined using the standardized root mean square residual (SRMR) criterion. The results indicate an adequate goodness of fit. This finding is consistent with the conclusions drawn by [Leana et al. \(2009\)](#), who argue that individual and collaborative crafting can be understood both empirically and conceptually as different constructs. Although the strength of collaborative crafting is not manifested psychometrically in their scale, it is nevertheless important to highlight the fact that these authors also found this construct to be more powerful as an instrument for improving performance than individual crafting. Therefore, our results support the use of this version of the Individual and Collaborative Crafting Scale as a valid and reliable instrument.

The evaluation of the structural model enabled us to test the existence of a relationship between individual and collaborative crafting and job satisfaction. Moreover, the mediating role of engagement was also tested. The evaluation of the model revealed adequate explanatory and predictive power. Explanatory power is measured using *R*-squared and predictive power by evaluating the statistical significance of the path coefficient ([Andreev, Heart, Maoz, & Pliskin, 2009](#)).

Firstly, the results obtained reveal the inexistence of a direct relationship between either type of job crafting and job satisfaction. [Villajos et al. \(2019\)](#) also found that not all dimensions of job crafting predicted job satisfaction. In the model studied the predictive power was weak, explaining only 27% of the variance observed in job satisfaction. [De Beer, Tims, and Bakker \(2016\)](#) found that reducing hindering job demands was negatively associated with job satisfaction and may result in procrastination and task avoidance. [Leana et al. \(2009\)](#) found that, contrary to their hypothesis, individual crafting was negatively linked to job satisfaction, although collaborative crafting was found to predict higher scores for this variable.

Secondly, the results obtained highlight the mediating power of engagement in the relationship between both types of job crafting and job satisfaction. The model explains a high percentage of job satisfaction thanks to the mediation of engagement. This finding indicates the importance of engagement in crafting jobs in which employees feel satisfied. Other authors have reported similar findings. For example, [Tims and Bakker \(2010\)](#) argue that job crafting leads to positive outcomes for employees, one of which is engagement. [Chen et al. \(2014\)](#) found that both types of job crafting (individual and collaborative) strengthen engagement and other studies have shown how employees can influence their daily and momentary engagement through the crafting and content of their daily work ([Bakker & Oerlemans, 2018](#)). [Ogbuanya and Chukwuedo \(2017\)](#) found a full, multiple mediation of engagement and job commitment in the relationship between job crafting and job satisfaction. The present study therefore coincides with these authors in stating the importance of engagement as a strategy to ensure that job crafting generates adequate levels of job satisfaction.

Thirdly, this study contributes an important finding to research into job crafting. The results suggest a significant multiple mediation effect of collaborative job crafting and engagement on the relationship between individual crafting and job satisfaction. [Tims et al. \(2013\)](#) found that employees who worked in teams in which the members crafted their jobs together were more likely to engage in individual crafting. According to these authors, individuals distinguished between their own behaviors and affective experiences and those of the team as a whole. In this sense, the present study supports the idea that the two types of job crafting (individual and collaborative) are different constructs, although they are intimately linked. In this case, however, it is individual crafting that is the antecedent to collaborative crafting, rather than the other way round. Thus, individuals who

craft their own job are more likely and more willing to collaborate in activities designed to foster team-based collaborative job crafting.

Limitations

Since the study uses convenience sampling, a selection bias may exist due to the fact that the subjects selected were those most accessible to the research team. Moreover, the data were gathered using self-administered questionnaires, which have been associated with the common method bias. Finally, the questionnaire itself may have induced response fatigue, which may threaten its validity.

In relation to the sample, it should be stressed that 78% had higher education qualifications. [Bakker and Oerlemans \(2018\)](#) question whether results can be generalized to the active population, due to differences in employees' capacity to craft their job in accordance with their education level.

Finally, the study's main limitation lies in the concept of empirical redundancy between constructs ([Le, Schmidt, Harter, & Lauver, 2010](#)). [Le et al. \(2010\)](#) argue that not only should there be a theoretical distinction between constructs, they should also be distinguishable on the basis of empirical data. These authors observed that a high correlation between variables (job satisfaction and organizational commitment) may suggest a lack of empirical distinction between constructs. In the present study, the correlation observed between engagement and job satisfaction was .79, a result which may indicate the possibility of redundancy between the two constructs. In a meta-analysis, [Joseph, Newman, and Hulin \(2010\)](#) suggested that items corresponding to engagement may measure the same construct as classic work attitude measures such as satisfaction.

For their part, [Harter and Schmidt \(2008\)](#) argued that it is important to know whether the conceptual differentiation is supported by the empirical data, thereby demonstrating the discriminant validity of the constructs. Some studies have shown that, despite existing correlations, constructs may indeed have adequate discriminant validity ([Brooke et al., 1988](#); [Mathieu & Farr, 1991](#); [Nystedt et al., 1999](#); as cited in [Le et al., 2010](#), p. 116). However, [Le et al. \(2010\)](#) suggested that current methods for estimating relationships between constructs are inadequate, which may alter the conclusions reached in previous studies. These authors believe that key measurement artifacts contribute to measurement variance, and recommend the use of structural equation modeling (SEM) and/or confirmatory factor analysis to estimate the relationships between constructs in a more precise manner.

In order to find a solution to the problem of redundancy in this study, the discriminant validity of all the constructs was evaluated. According to the results of the analyses carried out, all constructs had discriminant validity. Nevertheless, according to the studies cited above, this fact does not completely rule out the possibility of empirical redundancy between engagement and job satisfaction. According to [Le et al. \(2010\)](#), in cross-sectional research, it may not be possible to empirically distinguish between constructs due to their reciprocally causal relationship. Therefore, a future avenue of research may be to conduct longitudinal studies designed to overcome the problem of redundancy. [Chen et al. \(2014\)](#) have proposed the need to carry out longitudinal studies to demonstrate the directionality of the relationship between job crafting and engagement. Moreover, "longitudinal research may be critical for attainment of a better understanding of the role of work attitudes" ([Harter & Schmidt, 2008](#)).

Conclusions

The contribution made by this study can be summed up in three points: 1) the Spanish validated version of the Individual and Collaborative Crafting Scale is a valid and reliable tool; 2) the

findings reported by this study contribute new evidence in support of the theory that postulates the existence of two different types of job crafting: individual and collaborative; and 3) both types of job crafting are associated with organizational results such as job satisfaction, although this relationship is mediated by engagement. Moreover, the multiple mediation of collaborative crafting and engagement in the relationship between individual crafting and job satisfaction may have practical implications. Employees with higher levels of individual crafting engage in activities or strategies which generate a greater degree of collaborative crafting and, in turn, greater engagement and satisfaction. Therefore, organizations should strive to foster a working climate conducive to activities designed to improve job crafting and increase engagement.

According to the literature reviewed here, very few studies have focused on this theoretical approach to job crafting. Future research may wish to examine the antecedents and consequences of individual and collaborative job crafting, analyze specific work groups, and validate the scale in other languages. Moreover, it would also be interesting to conduct studies in professions in which employees are highly interdependent, since levels of individual and collaborative job crafting may differ widely from one professional area to another.

Conflict of Interest

The authors of this article declare no conflict of interest.

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Appendix

Individual and Collaborative Crafting Scale

<i>Crafting individual</i>	<i>Individual crafting</i>
1. Propones, por ti solo, enfoques nuevos para mejorar tu trabajo	1. Introduce new approaches on your own to improve your work in the classroom.
2. Cambias, por ti solo, los procedimientos de trabajo que crees que no son productivos.	2. Change minor work procedures that you think are not productive (such as lunch time or transition routines) on your own.
3. Por ti solo, cambias la forma en que haces tu trabajo para que sea más fácil para ti.	3. On your own, change the way you do your job to make it easier to yourself.
4. Reorganizas el equipo o los muebles en tu área de trabajo por ti solo.	4. Rearrange equipment or furniture in the play areas of your classroom on your own.
5. Organizas eventos especiales en tu trabajo (como la celebración del cumpleaños de un compañero, etc.) por ti solo.	5. Organize special events in your classroom (such as celebrating a child' birthday, etc.) on your own.
6. Por ti solo, traes materiales de tu casa para tu área de trabajo	6. On your own, bring in other materials from home for the classroom (such as empty jars or egg cartons).
<i>Crafting colaborativo</i>	<i>Collaborative crafting</i>
1. Trabajas junto con tus compañeros para presentar nuevos enfoques para mejorar tu trabajo.	1. Work together with your coworkers to introduce new approaches to improve your work in the classroom.
2. Decides junto con tus compañeros de trabajo cambiar los procedimientos menores de trabajo que crees que no son productivos.	2. Decide together with your coworkers to change minor work procedures that you think are not productive (such as lunch time or transition routines).
3. Decides junto con tus compañeros de trabajo cambiar la forma en que haces tu trabajo para que sea más fácil para ti.	3. Decide together with your coworkers to change the way you do your job to make it easier to yourself.
4. Decides junto con tus compañeros de trabajo reorganizar el equipo o los muebles en las áreas de trabajo.	4. Decide together with your coworkers to rearrange equipment or furniture in the play areas of your classroom.
5. Decides junto con tus compañeros de trabajo organizar eventos especiales en tu trabajo (como celebrar el cumpleaños de un compañero, etc.)	5. Decide together with your coworkers to organize special events in your classroom (such as celebrating a child' birthday, etc.)
6. Decides junto con tus compañeros de trabajo traer otros materiales para el trabajo.	6. Decide together with your coworkers to bring in other materials from home for the classroom (such as empty jars or egg cartons).