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The Italian version of the Job Crafting Scale (JCS)

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Experiences and Tools

The Italian version of the Job Crafting Scale (JCS)

First psychometric evaluations

Summary

Introduction Job crafting refers to actions carried out by workers in order to bring their job demands and job resources at a preferred level. Crafting behaviors are measured by the Dutch Job Crafting Scale (JCS). The Italian version of the JCS includes the following three positive factors: increasing structural job resources, social job resources and challenging job demands.

Methods To assess the factorial validity of the scale, an exploratory factor analysis (N=311) and confirmatory factor analyses (N=410) were performed. Convergent and criterion validity were investigated through correlations with other variables.

Results Factor analyses showed a good three-factor structure, in line with the literature. Moreover, as expected, job crafting behaviors were correlated with work self-efficacy, work engagement and job performance.

Conclusions Results suggest that the Italian version of the JCS can be reliably used to measure job crafting.

Keywords: job crafting, job demands-resources model, scale adaptation

The Italian version of the Job Crafting Scale (JCS)

First psychometric evaluations

Introduction

During the last decades, the economic global crisis has modified the labour market and forced companies to improve their abilities and know-how to be more competitive. These constant and rapid changes have directly and indirectly involved workers and organizations (Callea, Urbini, Ingusci, & Chirumbolo, 2014), and required them greater flexibility and stronger personal initiative. In this scenario, it has become more urgent to develop and improve new strategies to facilitate individuals' successful coping with the turbulent context. These strategies can be implemented by managers, through interventions aimed at adapting the organization to external modifications (Petrou, 2013; Petrou, Demerouti, & Häfner, 2015), but also generated by the employees themselves. Indeed, research (e.g. Van den Heuvel, Demerouti, Bakker, & Schaufeli, 2010) has shown that workers are able to assume a proactive role in remolding their work activities and crafting their job, to activate the desired changes. Therefore, job crafting results of critical importance because it can represent an individual strategy to promote the best conditions for the future. According to Tims, Bakker, and Derks (2012), job crafting involves self-initiated changes and behaviors that employees perform in order to adjust their jobs with their preferences, motivations and needs.

The authors (Tims et al., 2012) inscribe the concept within the job demands-resources (JD-R) theoretical framework, which considers two broad classes of processes at work (job demands and job resources) in the development of well-

being and performance (Bakker & Demerouti, 2014). On the one hand, job demands are those aspects of the job that require a physical and psychological (cognitive or emotional) effort. Examples of job demands are heavy workload, emotionally demanding interactions with others, or high responsibility. Considering their effects on workers' job outcomes, job demands can be distinguished between challenging demands (i.e., obstacles that workers have to overcome to learn and achieve goals) and hindering demands (i.e., needless requests that impede worker's personal growth and goal achievement) (Bakker & Sanz-Vergel, 2013). On the other hand, job resources are those aspects of the job that are functional to achieve work goals, reduce the physiological and psychological cost associated to job demands, and increase skills learning and development. Examples of job resources are job autonomy or performance feedback.

In this perspective, job crafting is defined as the changes that employees may make to balance their job demands and job resources with their personal abilities and needs (Tims & Bakker, 2010; Tims et al., 2012). Within this conceptualization, Tims et al. (2012) proposed three broad dimensions of job crafting: increasing job resources, increasing challenging job demands and decreasing hindering job demands. Increasing job resources can result in both positive organizational and individual outcomes, such as work engagement and job satisfaction (Zito, Cortese, & Colombo, 2015). Furthermore, optimizing job resources may enhance individual well-being, because they allow employees to protect themselves from exhaustion, sustain their existing resources, and achieve expected outcomes, in line with the Conservation of Resources (COR) theory (Petrou et al., 2015). Increasing challenging job demands can enable individuals to pursue more difficult goals,

improve their skills, and avoid boring jobs or repetitive tasks that can reduce the energy and effort at work. Finally, decreasing hindering job demands depicts those employees' behaviors aimed at reducing the emotionally, mentally and physically demanding aspects of the job (e.g., relational stressors) that can limit them in achieving their performance (Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012). All in all, crafting behaviors represent a very promising strategy to foster employee-organization fit as well as organizational effectiveness.

From an empirical standpoint, job crafting is measured by the Dutch Job Crafting Scale (JCS) developed by Tims et al. (2012). To test the psychometric characteristics of the JCS, the authors conducted three separate studies in the Netherlands (total sample N= 1.181). In study 1, they performed an explorative test on the initial 42 items of the JCS and found a four-factor structure instead of the proposed three-factor one, after deleting 21 items with low or ambiguous factor loadings. Study 2 confirmed this four-factor structure on the remaining 21 items. The broader dimension "increasing job resources" was split in two sub-dimensions: (a) structural job resources, referred to organizational resources (e.g., opportunities for development, autonomy and variety), and (b) social job resources, referred to support from colleagues or supervisors (e.g., social support, feedback and coaching). With regard to convergent validity, increasing structural job resources, increasing social job resources and increasing challenging job demands correlated positively with proactive personality and personal initiative (considered as active constructs) and negatively with cynicism (considered, indeed, as an inactive construct), while decreasing hindering job demands showed a positive and significant correlation only with cynicism. Study 3 examined the criterion validity

of the scale and reported that increasing structural job resources, increasing social job resources and increasing challenging job demands were positively correlated with work engagement, employability and performance, while decreasing hindering job demands was not significantly associated with any of these variables.

In this sense, the study (Tims et al., 2012) revealed an evident difference between the first three factors of JCS on the one hand, which are oriented toward a positive direction of *increasing* (job resources and challenging demands), and the fourth factor on the other hand, which is oriented toward a direction of *reducing* (hindering demands). The latter dimension, in fact, showed a peculiar pattern of correlations with outcome variables, different from the that of the *increasing* dimensions. In a study by Bakker, Tims, and Derks (2012), which examined the role of proactive personality in predicting work engagement and job performance, job crafting was operationalized through the three increasing factors (thus, excluding the behaviors related to decreasing hindering job demands), resulting in a variable that mediates the relationship between proactive personality and work engagement. A further recent study (Tims, Bakker, & Derks, 2015) confirmed the difference between the increasing and decreasing dimensions. Indeed, only decreasing hindering job demands did not correlate with work engagement and OCB nor it lead to motivation.

Aims

Based on the aforementioned literature, the present study aims to provide a first psychometric evaluation of the Italian version of the JCS, including the three job crafting dimensions oriented in the positive direction of “increasing”: increasing structural job resources, increasing social job resources, and increasing challenging

job demands. This general purpose will be declined in three specific aims: (1) to test the factorial validity and reliability of the Italian JCS; (2) to investigate its convergent validity, by analyzing the relation between job crafting and work self-efficacy, representing individual proactivity (see Tims et al., 2012); (3) to analyze the criterion validity, by exploring the relations of crafting behaviors with work engagement and job performance, in line with Tims et al. (2012).

A contribution to the validation of the Italian JCS seems necessary in light of the lack, to our knowledge, of an Italian job crafting measure. Therefore, the present study can fill the gap and promote in Italy more empirical research on the dynamics and consequences of job crafting.

Methods

Participants

To perform an exploratory factor analysis and a confirmatory factor analysis, two heterogeneous samples of Italian workers were used for the research. The first sample was composed by 311 participants from several organizations: 51.4% female, average age 40 years ($SD = 11.4$), average seniority 12 years ($SD = 10.4$). The second sample included 410 participants from a large service organization: 51.1% male, average age 44 years ($SD = 9.6$), average seniority 14 years ($SD = 14.3$).

Measures

JOB CRAFTING. We used the Italian version of the JCS, consisting of the three increasing dimensions (Bakker et al., 2012): increasing structural job resources (five items, e. g. “I try to develop my capabilities”), increasing social job resources (five items, e. g. “I ask my supervisor to coach me”) and increasing challenging job demands (five items, e. g. “When an interesting project comes along, I offer myself proactively as

project co-worker”), for a total of 15 items. All items were translated (from English to Italian) and back-translated (from Italian to English) with the help of an English mother tongue speaker. The result was a good correspondence between items. The investigation of validity and reliability of the scale is an aim of the present study. Items were measured on a 7-point frequency scale, ranging from 1 = *Never* to 7 = *Always*.

WORK SELF-EFFICACY. We used a monofactorial work self-efficacy scale created and validated in the Italian context (Borgogni, Dello Russo, Petitta, & Vecchione, 2010). The scale consists of seven statements assessing the beliefs of being able to handle job responsibilities, challenging situations and coordination with colleagues (e.g. “In my work I am confident I can generate new ideas in order to deal with organizational demands”, $\alpha = .92$). The statements were measured on a 7-point scale, ranging from 1 = *Cannot do at all* to 7 = *Highly certain can do*.

WORK ENGAGEMENT. We used the validated Italian version of the UWES-9 (Balducci, Fraccaroli, & Schaufeli, 2010). The scale entails three factors: vigor, measured by three items (e.g. “At my work, I feel bursting with energy”, $\alpha = .83$); dedication, measured by three items (e.g. “I’m proud of the work that I do”, $\alpha = .83$); and absorption, also measured by three items (e.g. “I am immersed in my job”, $\alpha = .71$). Items were answered using a 7-point frequency scale, ranging from 1 = *Never* to 7 = *Always*).

JOB PERFORMANCE RATINGS. Supervisors rated their employees’ performance through the company’s established performance appraisal system. This instrument, developed by the HR department of the organization, assesses performance as a general, unidimensional measure. Employees’ performance was measured on a 10-point scale

(labels: 1 = *Inadequate*; 2-3 = *Improvable*; 4-6 = *Average*; 7-9 = *Elevated*; 10 = *Beyond expectations*).

Procedure

Part of the data on the Italian JCS was collected through a paper-and-pencil questionnaire in the first sample. Afterwards, the second sample filled in an online questionnaire that measured job crafting, work self-efficacy and work engagement. Participation in the study was voluntary, and a cover letter informed participants about how to complete the paper-and-pencil or online questionnaires (for the first and second samples, respectively) and about data confidentiality. Moreover, for the second sample, supervisory performance ratings were provided at the end of the year by the Human Resource (HR) department of the organization. In order to match the answers provided by each employee with his/her performance ratings, the HR department assigned a code to each participant. The code was used to log in and respond to the online questionnaire. In this way, the HR department knew the name of the employee, his/her code, and the performance rating, but did not know the answers to the questionnaire, whereas the research team knew the code, the answers to the questionnaire, and the performance rating provided by the company, but not the name of employee.

Data analysis

To assess the factorial validity of the Italian JCS (aim 1), first an exploratory factor analysis (EFA) was performed on the first sample through SPSS 20. Principal Axis Factoring extraction method and Promax rotation were used (Kaiser's normalization), since factors were expected to correlate.

Reliability analyses (corrected item-total correlations and Cronbach's alphas) and confirmatory factor analyses (CFA) were performed on the second sample, using

Mplus7 (Muthén & Muthén, 2012) for the CFA. To test the model goodness of fit, the following indices were considered: the chi-square value (χ^2); the Comparative Fit Index (CFI); the Tucker-Lewis Index (TLI); the Root Mean Square Error of Approximation (RMSEA); the Standardized Root Mean Square Residual (SRMR). Moreover, to verify the association of job crafting with other relevant variables (aims 2 and 3), its correlations with work self-efficacy, work engagement and job performance were investigated for the second sample, by using Pearson's r coefficient.

Results

As regards the EFA, the resulting structure was in line with the scale developed by Tims et al. (2012), with regard to its positive dimensions, and showed three factors (see Table 1): increasing structural job resources (five items), increasing social job resources (five items) and increasing challenging job demands (five items). Factor loadings ranged between $|.45|$ and $|.83|$ for increasing structural job resources, between $|.44|$ and $|.87|$ for increasing social job resources, and between $|.57|$ and $|.79|$ for increasing challenging job demands.

TABLE 1

The factor solution absorbs 55% of the total variance. More specifically, increasing structural job resources explained 38% of the variance, increasing social job resources explained 12%, and increasing challenging job demands explained 5%.

Factors reported a correlational pattern quite similar to the one in Tims et al. (2012) study: the higher correlation resulted between increasing structural job resources and increasing challenging job demands ($r = .66$), followed by the correlations between increasing social job resources and increasing challenging job demands

($r = .43$), and between increasing structural job resources and increasing social job resources ($r = .36$).

However, considering the reliability properties of the 15 items (analyzed on the second sample), we found that two items, i.e. Str5 (“I decide on my own how I do things”) and Soc5 (“I ask colleagues for advice”), showed a low item-total correlation (.29 and .39, respectively). Accordingly, item Str5 was dropped, since its correlation with the scale (.29) was far below the limiting value (.40). In order to decide whether to maintain item Soc5, a CFA was run on the remaining 14 items. Since the resulting fit indices were not completely adequate¹, item Soc5 was eliminated, obtaining the final 13-item scale ($\Delta X^2 = 61.254$, $df = 12$, $p = .000$).

Finally, a CFA was conducted on the posited three-factor model (i. e. Model 1) and its fit compared with several alternative models by testing the change in X^2 . These alternative models assumed a two-factor structure, obtained by combining two of the three dimensions (i.e., Models 2, 3 and 4), or a mono-factorial structure (i.e., Model 5, see Table 2). In line with our theoretical assumptions, the three-factor model showed the best fit with the data, suggesting the conformity of the Italian JCS to the scale developed by Tims et al. (2012) and its factorial validity.

TABLE 2

All items of the three-factor model (Model 1) loaded only on the hypothesized factors and factor loadings ranged between $|.55|$ and $|.82|$ for increasing structural job resources, between $|.53|$ and $|.74|$ for increasing social job resources, and between $|.48|$ and $|.71|$ for increasing challenging job demands (Figure 1). Correlations between factors were good. In particular, it has to be noted the elevated correlation between increasing structural job

¹ X^2 ($df = 74$) = 268.624, $p = .000$; RMSEA = 0.08; CFI = .91; TLI = .88; SRMR = .05

resources and increasing challenging job demands (.92). In this regard, as above mentioned, the fit of a two-factor solution that merged these two dimensions (Model 2) was worse than the fit of the three-factor structure (Model 1, see M2-M1 comparison in Table 2). More specifically, the TLI was lower than the limiting value of .90, making Model 2 not completely acceptable (Tucker & Lewis, 1973). Therefore, despite the high correlation, this study cannot consider the two dimensions of increasing structural job resources and increasing challenging job demands as a unique one.

As regards the reliability statistics (Cronbach's alphas and item-total correlations), they were adequate for each scale, i.e. increasing structural job resources (four items, α .81, item-total correlations ranging from .52 to .69), increasing social job resources (four items, α .74, item-total correlations ranging from .43 to .62) and increasing challenging job demands (five items, α .78, item-total correlations ranging from .45 to .62).

FIGURE 1

Finally, as expected, the three job crafting dimensions (i.e. increasing structural job resources, increasing social job resources and increasing challenging job demands) were positively correlated with work self-efficacy and work engagement. In particular, correlations among increasing structural job resources and increasing challenging job demands, on the one side, and work self-efficacy and engagement, on the other side, were strong (ranging from .44 and .59), whereas increasing social job resources was more weakly correlated with self-efficacy ($r = .15$) and engagement ($r = .20$). Moreover, increasing challenging job demands and increasing social job resources correlated positively, although modestly ($r = .19$ and $.14$ respectively), with job performance, whereas increasing structural job resources showed no significant association with performance.

TABLE 3

Conclusions

The overall purpose of the study was to provide first psychometric evaluations of the Italian version of the JCS developed by Tims et al. (2012), operationalized by using the three dimensions oriented in the positive direction of *increasing* (i.e., increasing structural job resources, increasing social job resources, and increasing challenging job demands), as suggested by literature (Bakker et al., 2012).

As expected, the exploratory factor analysis revealed a three-factor structure. The content of each factor was in line with our theoretical assumptions and all items loaded on each primary factor (see Table 1). Nevertheless, the reliability indices led us to drop two items, related to increasing structural job **resources** and increasing social job **resources**, because of their low item-total correlation.

Confirmatory factor analyses performed on the final 13-item Italian JCS proved the three-factor structure (Model 1), which fitted the data better than the alternative solutions with one factor or two factors.

The reliabilities of the final scales were satisfactory. The Cronbach's alpha coefficients, in particular, are in line with those found by Tims et al. (2012): .81 for increasing structural job resources, .74 for increasing social job resources and .78 for increasing challenging job demands (alphas were respectively .76, .73 and .77 in the original study).

Finally, we investigated the correlations of employees' job crafting behaviors with self-reported work self-efficacy and work engagement, and with performance evaluations expressed by their direct supervisors. The resulting pattern of relations provided additional evidence of the validity of the Italian JCS,

in terms of convergent and criterion validity. Indeed, all the three job crafting dimensions were positively associated with the other variables, with the only exception of increasing structural job resources that was not significantly related to job performance. A possible explanation could be that most of the items belonging to this dimension refers to the development of future competences, not directly affecting current goal achievement. Further research is needed to better examine the modest correlations that we found among some of our variables, as reported in details in the Result section. For example, future studies may use a social measure of self-efficacy, which might be more strongly associated with those crafting behaviors oriented toward attaining satisfactory degrees of social interactions or seeking support (i.e., increasing social job resources). All in all, the expected links of job crafting with individual proactivity, operationalized as self-efficacy beliefs, and with desirable individual and organizational outcomes, as employees' engagement and performance, have been supported.

A limitation of the present study is the use of a cross-sectional design that does not permit to establish definite relations of causality between variables. However, the focus was on the validation of the Italian JCS and future longitudinal research can better address patterns of influence between job crafting and other variables. Future studies can also confirm the psychometric characteristics of the instrument on larger samples and considering different classes of employees. Multi-group research design could be useful, for example, to verify potential peculiarities of the construct of job crafting and its dimensions within multiple professional groups. This could contribute to a deeper understanding on how (and whether) diverse types of workers use job crafting strategies differently.

The availability of a tool to measure crafting behaviors can both enhance additional research on the topic and uncover useful practical implications. The questionnaire can be used, for example, in training or coaching courses aimed at increasing skills of flexibility, initiative and disposition to change. This may provide trainees with an opportunity to check their inclination to job crafting, identifying strengths and areas of improvement related to the forms that job crafting can assume. Moreover, the instrument can be used within the organizational check-up processes, to analyze to what extent job crafting strategies are used and which of these strategies can be promoted to all employees or to specific groups. Finally, the questionnaire can help to recognize job crafting best practices already available in the organization, which may guide social and training activities for newcomers.

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Table 1

Exploratory factor analysis on the initial 15-item JCS (PAF extraction; Promax rotation; Kaiser's normalization; N = 311)

Item Code	Items	M	SD	Factors		
				STR	SOC	CHA
Str2	Creo le condizioni per crescere professionalmente [I try to develop myself professionally]	5.03	1.38	.83	.02	.02
Str1	Creo le condizioni per sviluppare le mie capacità sul lavoro [I try to develop my capabilities]	4.95	1.33	.82	.04	.02
Str3	Faccio in modo di imparare nuove cose al lavoro [I try to learn new things at work]	5.49	1.27	.80	.01	.04
Str4	Uso a pieno le mie capacità [I make sure that I use my capacities to the fullest]	5.39	1.26	.69	-.05	.00
Str5	Decido autonomamente come svolgere il mio lavoro [I decide on my own how I do things]	4.82	1.42	.45	-.08	.11
Soc2	Chiedo al mio capo se è soddisfatto del mio lavoro [I ask whether my supervisor is satisfied with my work]	3.45	1.76	-.11	.87	-.04
Soc1	Chiedo al mio capo di farmi da "coach" [I ask my supervisor to coach me]	3.80	1.62	.15	.77	-.18
Soc4	Chiedo ad altre persone di darmi feedback sulla mia prestazione [I ask others for feedback on my job performance]	3.64	1.73	-.24	.73	.21
Soc3	Prendo ispirazione dal mio capo [I look to my supervisor for inspiration]	4.05	1.77	.18	.66	-.06
Soc5	Chiedo consigli ai miei colleghi [I ask colleagues for advice]	4.70	1.34	.01	.44	.14
Cha4	Mi faccio carico regolarmente di attività "extra", pur non ricevendo alcun compenso per queste [I regularly take on extra tasks even though I do not receive extra salary for them]	4.57	1.56	-.03	-.08	.79
Cha2	Se ci sono delle novità, sono tra i primi ad acquisirle e testarle [If there are new developments, I am one of the first to learn about them and try them out]	4.67	1.45	.04	-.04	.76
Cha3	Quando non c'è molto da fare al lavoro, ne approfitto per iniziare nuovi progetti [When there is no much to do at work, I see it as a chance to start new projects]	4.50	1.48	.03	.06	.66
Cha1	Quando arriva un progetto interessante, offro proattivamente la mia collaborazione [When an interesting project comes along, I offer myself proactively as project co-worker]	4.99	1.45	.14	.14	.62
Cha5	Mi sforzo di rendere il mio lavoro più stimolante riconoscendo tutte le relazioni tra i suoi diversi aspetti [I try to make my work more challenging by examining the underlying relationships between aspects of my job]	4.81	1.35	.26	.00	.57
Correlation between factors						
				STR	SOC	CHA
				STR__	1	
				SOC__	.36	1
				CHA__	.66	.43
						1

Note. STR = increasing structural job resources; SOC = increasing social job resources; CHA = increasing challenging job demands. M = mean. SD = standard deviation.

Table 2

Results of the confirmatory factor analysis on the final 13-item JCS: model comparison (N = 410)

MODEL	X ²	df	p	RMSEA	CFI	TLI	SRMR	Model comparison	ΔX ²	df	p
Model 1: 3-Factor Model	207.370	62	.000	.08	.93	.91	.05				
Model 2: 2-Factor Model STR+CHA, SOC	235.097	64	.000	.08	.91	.89	.05	M2-M1	27.727	2	.000
Model 3: 2-Factor Model STR+SOC, CHA	485.545	64	.000	.13	.78	.74	.09	M3-M1	278.175	2	.000
Model 4: 2-Factor Model SOC+CHA, STR	457.523	64	.000	.12	.80	.75	.09	M4-M1	250.153	2	.000
Model 5: 1-Factor Model	494.778	65	.000	.13	.78	.74	.09	M5-M1	287.408	3	.000

Note. STR = increasing structural job resources; SOC = increasing social job resources; CHA = increasing challenging job demands.

Table 3

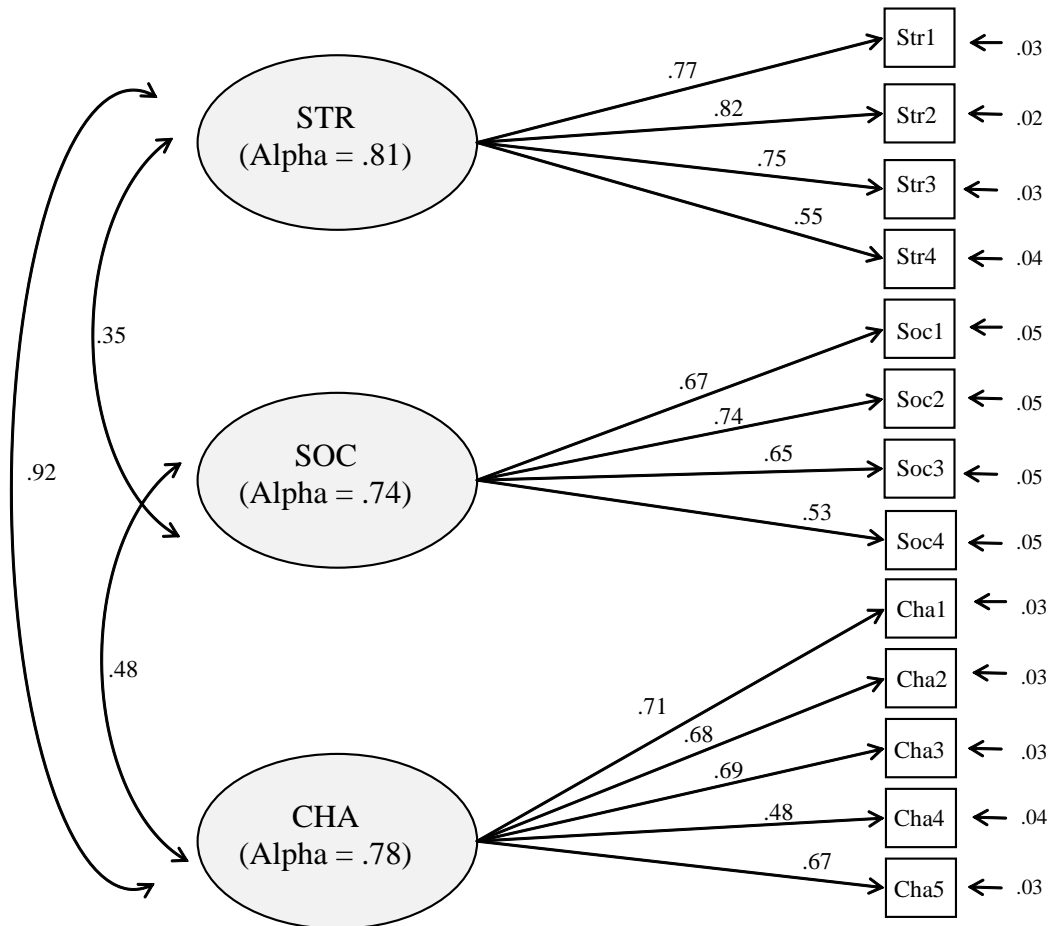
Relations to other constructs: Pearson's r coefficients (N = 410)

Dimensions of job crafting	Work self-efficacy	Work engagement	Job performance ratings
STR	.57*	.59*	.10
SOC	.15*	.20*	.14*
CHA	.58*	.44*	.19*

*Note.*STR = increasing structural job resources; SOC = increasing social job resources; CHA = increasing challenging job demands. * p< .01.

Figure 1

Results of the confirmatory factor analysis and Cronbach's alphas on the final 13-item JCS (N = 410)



Note. STR = increasing structural job resources; SOC = increasing social job resources; CHA = increasing challenging job demands.