



Construct validity evidence for the individual Authenticity Measure at Work in Brazilian samples



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ARTICLE INFO

Article history:

Received 21 December 2014

Accepted 25 March 2015

Keywords:

Individual authenticity at work

Scale validation

Positive psychology

ABSTRACT

Authenticity at work is characterized as the extent to which individuals feel and act coherently with themselves. The objective in this study was to adapt and obtain initial construct validity evidence of the Individual Authenticity Measure at Work in the Brazilian context. The sample consisted of 477 employees, who answered an initial version of the scale, consisting of 12 items. To correlate the measure with other variables, tools were used to measure positive and negative constructs associated with work and life. The results of exploratory and confirmatory factor analyses permitted the complete reproduction of the three-factor structure of the original version. The authentic experience was positively correlated with positive and significant aspects of work and life and negatively with negative aspects of work and life, while the opposite happened with self-alienation. It was concluded that the scale demonstrated initial construct validity evidences, which recommends its use for future research situations.

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Pruebas de validez de constructo de la medida Autenticidad Individual en el Trabajo en muestras brasileñas

RESUMEN

La autenticidad en el trabajo se caracteriza por el grado en que los individuos se sienten y actúan coherentemente con ellos mismos. El objetivo de este estudio fue adaptar y obtener evidencia inicial de la validez de constructo de la medida de Autenticidad Individual en el Trabajo en el contexto brasileño. La muestra está formada por 477 empleados, que respondieron a una versión inicial de la escala, que consta de 12 artículos. Para correlacionar la medida con otras variables, se utilizaron instrumentos para medir constructos positivos y negativos asociados con el trabajo y la vida. Los resultados de los análisis factoriales exploratorios y confirmatorios han permitido la reproducción completa de la estructura de tres factores de la versión original. La experiencia auténtica se correlacionó positivamente con los aspectos positivos y significativos de la vida laboral y negativamente con los aspectos negativos del trabajo y la vida, mientras que lo contrario ocurrió con la auto-alienación. Se concluyó que la escala demostró evidencias iniciales de validez de constructo que recomiendan su uso para situaciones futuras de investigación.

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Palabras clave:

La autenticidad individual en el trabajo

Validación de escala

La psicología positiva

The Positive Psychology, in the search to cultivate the best part of individuals for themselves and for society, revived the interest

in the study of authenticity (Seligman & Csikszentmihalyi, 2000). Authenticity can be defined as the extent to which people act coherently with themselves (Harter, 2002). This construct has shown to be a positive predictor of different psychological phenomena, such as the quality of affective relationships, subjective wellbeing, self-esteem, personality, and emotional regulation (Boucher, 2011; Brunell et al., 2010; English & John, 2013; Kifer, Heller, Perunovic, &

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Galinsky, 2013; Neff & Suizzo, 2006; Robinson, Lopez, Ramos, & Nartova-Bochaver, 2012; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Theran, 2010; Wenzel & Lucas-Thompson, 2012; Wickham, 2013; Wood, Linley, Maltby, Baliousis, & Joseph 2008), as well as a negative predictor of psychological vulnerability (Satici, Kayis, & Akin, 2013).

In the work context, the study of authenticity has also gained strength. In that sense, authenticity at work has revealed a positive association with wellbeing at work, with the sense of community at work, with the meaning of work and with psychologists' professional experience (Burks & Robbins, 2012; Cholorowski, 2003; Ménard & Brunet, 2011; Ménard & Brunet, 2012; Rozelle, 2004), as well as a negative relation with burnout (Grandey, Foo, Groth, & Goodwin, 2012). The interest in the study of authenticity in the work context also led to the rising of the authentic leadership concept, used to designate those leaders who are fully aware of their beliefs and values, which make them act coherently with it, as well as transparently towards other people (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Diddams & Chang, 2012; Freeman & Auster, 2011; Hannah, Walumbwa, & Fry, 2011; Ilies, Curşeu, Dimotakis, & Spitzmuller, 2013). In summary, being authentic means acting according to oneself in various activity contexts, which leads to the healthy development of individuals, groups, and institutions.

Despite the increasing number of studies focused on authenticity, few measures with good psychometric characteristics have been developed to assess this construct, particularly regarding the work context. The Individual Authenticity Measure at Work stands out in this respect (Van den Bosch & Taris, 2013). Nevertheless, despite the importance of this construct to predict various work attitudes and behaviors, Brazilian scales to assess authenticity at work do not exist (Ménard & Brunet, 2011; Van den Bosch & Taris, 2013). This justifies the development of additional studies to gather construct validity evidence of the Individual Authenticity Measure at Work in Brazilian samples, so as to offer organizational experts a specific measure for the organizational and work context, which can contribute to the diagnosis of that construct and to the development of future research. Based on these considerations, the general objective in this study was to adapt and collect evidence of the construct validity of the Individual Authenticity Measure at Work in a sample of Brazilian workers.

Authenticity and its measure

For a long time, authenticity or authentic personality was discussed in the psychological literature through the lack of authenticity or false behavior, which relates to the hiding of one's actual thoughts, making individuals say what others want to hear instead of what they truly think (Harter, 2002). Today, however, it is considered that authenticity refers to individuals' personal experiences. In other words, the concept is related to the thoughts, emotions, needs, desires, preferences, and beliefs about themselves, which results in actions consistent with these experiences.

One of the first authors to focus on the study of authenticity was Rogers (1983), who considered authenticity, which he also called sincerity or congruence, as an attitude that facilitated the individuals' complete functioning. Thus, for this author, human beings have several internal resources that are used to modify the self-concepts, attitudes, and behaviors, which tend to be activated in the presence of facilitating psychological attitudes. Therefore, authenticity is characterized as one of these facilitating attitudes, which makes people act coherently with what they feel in their interpersonal relations, so as to reduce the barriers that may emerge in those relations.

Based on Rogers' conception, Barrett-Lennard (1998) considered the authenticity as a person-centered tripartite construction, which involves coherence among three levels: people's primary living, that is, their actual psychological status in terms of emotions, beliefs and opinions; awareness of their own psychological conditions; and emotional expression of their own behavior. The first level expresses the incoherence between the actual living and their own awareness, manifested in the individuals' self-alienation, that is, in the experience of not knowing themselves sufficiently and feeling out of touch with their core self. The coherence between conscious awareness and behavior, in turn, represents the second level and is revealed in authentic living. This last concept refers to the extent to which individuals are capable of expressing their emotions based on their conscious awareness, that is, the extent to which they are true to themselves in most situations, behaving and expressing themselves coherently with their emotions, beliefs, and opinions. The third level of authenticity refers to the acceptance of external influences, that is, other people's opinion. Those influences manifest themselves in both self-alienation and authentic living, and (Schmid, 2005). Thus, accepting external influences refers to the extent to which individuals conform to other people's expectations, independently of their own values (Robinson et al., 2012; Van den Bosch & Taris, 2013).

Several measures have been developed to assess authenticity. Among them, the Authenticity Inventory (Goldman & Kernis, 2002, 2004), the Authenticity Scale (Wood et al., 2008), and the Authenticity in Relationships Scale (Lopez & Rice, 2006) should be highlighted.

The Authenticity Scale by Wood et al. (2008), for example, was developed based on the afore-mentioned three-factor model (self-alienation, authentic living, and accepting external influences) proposed by Barrett-Lennard (1998). The instrument consists of 25 items, distributed across those three factors. Internal consistency coefficients of these factors, calculated using Cronbach's alpha, were .69 (authentic living), .78 (accepting external influences), and .78 (self-alienation). When comparing the factorial structure and validity evidence of some previously developed authenticity measures, however, White (2011) concluded that the factor structures of the Authenticity Inventory (Goldman & Kernis, 2002, 2004) did not get empirical support, although the three-factor structure of the Authenticity Scale was confirmed (Wood et al., 2008).

The different instruments that have been developed to assess authenticity, including that by Wood et al. (2008), are based on the premise that this construct is a personality trait. Some authors (Fleeson & Wilt, 2010; Schmid, 2005), however, have argued that it can be considered a state instead of a trait, as it receives influences from the individuals' social environment (Schmid, 2005). Besides, people who are more satisfied with themselves act in a more authentic manner (Fleeson & Wilt, 2010). In addition, studies in which high levels of self-esteem, satisfaction with life, and positive affection were positively associated with authenticity also contributed to support the argument that authenticity is a state and not a trait (Wood et al., 2008).

Authenticity in the work context and its measure

Based on the conception of authenticity as a state, different authors (Barrett-Lennard, 1998; Schmid, 2005; Sheldon et al., 1997; Wood et al., 2008) have conceptualized authenticity as the degree to which individuals feel and act coherently with themselves in the different work situations they experience due to a perfect adjustment between themselves and the work environment. This construct has demonstrated a positive association with several positive psychological phenomena, such as wellbeing at work (Ménard & Brunet, 2011; Ménard & Brunet, 2012), satisfaction at work,

performance, and work engagement (Van den Bosch & Taris, 2013). In addition, it has been negatively related with heavier workloads, time pressure, negative emotions, and lower levels of decision-making control (Robinson et al., 2012).

Referring to Rogers' humanistic conception (1983), Van den Bosch and Taris (2013) consider authenticity at work as a phenomenon in the form of state, which can be measured through a continuum that ranges from a completely authentic to a completely unauthentic hub. In order to assess this construct, the authors developed the Individual Authenticity Measure at Work, based on the Authenticity Scale by Wood et al. (2008), rewriting the items to adapt them to the work context. Thus, to give an example, the item 'I am true to myself in most situations' turned into 'I am true to myself in most work situations'. Seeking to assess the authenticity as a state, the respondents were also instructed to concentrate on their most recent position and to imagine the degree to which the assertions applied to them in the last four workweeks.

The results of the exploratory and confirmatory factorial analyses, obtained in a study that was conducted in a sample of 516 Dutch workers, reproduced the initially established three-factor structure, removing four items from the initial scale. Thus, the final version of the measure consisted of 21 items, distributed in three factors, which obtained the following internal consistency coefficients (Cronbach's α): authentic living = .81, self-alienation = .81, accepting external influences = .69.

For practical reasons, however, the authors found it convenient to create a short version, including only those items with the highest loadings estimated by the exploratory factor analyses. Therefore, the short version consisted of 12 items, per factor, which showed internal consistency coefficients of .81 (authentic living), .83 (self-alienation), and .67 (accepting external influences).

The confirmatory factor analysis yield evidence of the three-factor structure of the reduced version. In addition, the existence of positive correlations between authenticity and positive work results, as well as negative correlations between authenticity and negative work results, indicated the convergent construct validity of the short version (Van den Bosch & Taris, 2013).

Therefore, based on the three-factor model of authenticity at work, the objective in this study is to adapt the Individual Authenticity Measure at Work for Brazilian Portuguese, and to obtain construct validity evidence of this measure, through the adoption of exploratory and confirmatory factor analyses procedures and the correlation of the measure with other measures of constructs related to authenticity at work. Therefore, the following constructs were chosen: emotional social support at work, flourishing at work, work engagement, work role performance, satisfaction with life, workload, and neuroticism.

As mentioned earlier, authenticity is measured through a continuum, ranging from a completely authentic (authentic living) to another completely unauthentic hub (self-alienation), in which authentic living is associated with the extent to which individuals show to be true to themselves in most situations (Robinson et al., 2012; Van den Bosch & Taris, 2013). Therefore, positive correlations would be expected with positive aspects of the work environment and with positive attitudes towards work and life, as verified earlier by Van den Bosch and Taris (2013).

As work engagement is a positive state, characterized by vigor, dedication, and absorption (Schaufeli & Bakker, 2010; Schaufeli, Salanova, González-Romá, & Bakker, 2002), the hypothesis was raised that it would be positively correlated with authentic living (Hypothesis 1a). The performance of work roles, in turn, refers to non-voluntary behaviors, but which are expected as part of the organization's formal requirements (Williams & Anderson, 1991). In that sense, the hypothesis was raised that authentic living is positively correlated with the performance of work roles (Hypothesis 1b).

Emotional social support at work can be understood as the employee's perception that there are people in the organization who are trustworthy, who demonstrate concern for others, and who value and like one another (Siqueira & Gomide Junior, 2008). Therefore, positive correlations with authentic living would be expected (Hypothesis 1c). Flourishing at work is associated with positive functioning in the work context (Mendonça, Caetano, Ferreira, Sousa, & Silva, submitted for publication). Therefore, a positive correlation with authentic living would be expected (Hypothesis 1d). Finally, satisfaction with life refers to the global assessment of the different aspects of life, such as work, family, leisure (Gouvêia, Barbosa, Andrade, & Carneiro, 2005). Thus, the hypothesis was raised that authentic living would show positive correlations with that construct (Hypothesis 1e).

As regards the negative aspects of the work environment and the negative attitudes towards life, negative correlations with authentic living would be expected, as verified earlier in Van den Bosch and Taris (2013). Therefore, considering that workload is characterized as the perceived pressure due to the amount of work and the weight of the task (Tomic & Tomic, 2010), negative correlations would be expected between authentic living and the workload (Hypothesis 1f). Neuroticism, in turn, is associated with negative emotions, such as depression and anxiety (Penley & Tomaka, 2002). Therefore, negative correlations would be expected between authentic living and neuroticism (Hypothesis 1g).

Another authenticity dimension is self-alienation, which characterizes the completely unauthentic hub and refers to the subjective experience that they do not know themselves and feel out of touch with their core self (Robinson et al., 2012; Van den Bosch & Taris, 2013). Thus, positive correlations would be expected with the negative aspects of work environment and with the negative attitudes towards life. Therefore, the hypothesis was raised about positive correlations between self-alienation and workload (Hypothesis 2a) and with neuroticism (Hypothesis 2b).

On the other hand, negative correlations were also expected between self-alienation and the positive aspects of the work environment and with the positive attitudes towards work and life. Thus, the hypothesis was raised that self-alienation would be negatively correlated with work engagement (Hypothesis 2c), with work performance (Hypothesis 2d), with emotional social support (Hypothesis 2e), with flourishing at work (Hypothesis 2f), and with satisfaction with life (Hypothesis 2g).

The third dimension of authenticity is the acceptance of external influences, which refers to the extent to which individuals accept the influence of other people, so as to conform to other people's expectations, independently of their own values (Robinson et al., 2012; Van den Bosch & Taris, 2013). When people receive influence from others in their beliefs and opinions, they tend to feel more distant from their core self, leading to the assumption that accepting external influences probably lies closer to the self-alienation dimension and more distant from authentic living. Hence, it would be expected that this dimension were positively correlated with the negative aspects of the work environment and with the attitudes towards life. Therefore, the hypothesis was raised that accepting external influences would be positively correlated with workload (Hypothesis 3a) and with neuroticism (Hypothesis 3b). On the other hand, negative correlations between accepting external influences and the negative aspects of work environment and attitudes towards life would also be expected. In that sense, the hypothesis was raised that accepting external influences would be negatively correlated with work performance (Hypothesis 3c), work engagement (Hypothesis 3d), emotional social support (Hypothesis 3e), flourishing at work (Hypothesis 3f), and satisfaction with life (Hypothesis 3g).

Method

Participants

In this study, a convenience sample was used, consisting of 477 Brazilian workers, mainly from two states, Minas Gerais (72.1%) and Rio de Janeiro (16.1%). One third were males and two thirds were females (66.1%) and their age ranged from 18 to 79 years old, with an average of 34.9 ($SD = 11.07$). Regarding education, a large part of the sample (64.4%) held a higher education degree. Among the participants, 56.2% belonged to the private sector and, concerning the activity area, 31.4% belonged to the education sector and 20.0% to the service sector, while the remainder was distributed among health, industry, trade, and research, among others. Job types were very diversified, including lawyers, psychologists, teachers, public servants, secretaries, telemarketing attending, and so on. With regard to the organizational level, 66.7% were administrative/operational employees, and the remainder was distributed among supervisors, independent professionals, directors/owners, and managers. Respondents' current length of work experience ranged between 1 and 42 years, with an average of 6.21 years ($SD = 7.49$). The total time of work ranged between 1 and 47 years, with a mean 12.85 years ($SD = 10.31$). The sole criterion for inclusion in the sample was the fact that the individual had to have been working for at least one year when the instruments were applied, as the intent of the research was to investigate the variations in feelings towards work.

Instruments

The short version of the Individual Authenticity Measure at Work (Van den Bosch & Taris, 2013) was used to assess the authenticity at work. It consists of 12 items, associated with the feelings towards the current job experienced in the last four weeks, to be answered on a seven-point Likert scale, ranging from 1 (*does not describe me at all*) to 7 (*describes me very well*). Example of items: "I behave in accordance with my values and beliefs in the workplace" [in Portuguese, "Em meu local de trabalho, comporto-me de acordo com os meus valores e crenças"] and "At work, I feel out of touch with the 'real' me" [in Portuguese, "No trabalho, sinto-me longe do meu verdadeiro eu"]. Adopting the back-translation method, three people initially translated and adapted the scale to Portuguese. Then, a bilingual teacher translated it back to English, as recommended by Borsa, Damasio, and Bandeira (2012). Next, two experts verified the inter-item equivalence, making small changes in some of the items for the sake of adjustment to the original scale.

The workload was measured by a subscale of the Perceived Organizational Support Scale (Tamayo, Pinheiro, Tróccoli, & Paz, 2000), originally developed in Brazil, based on the scale by Eisenberger, Huntington, Hutchison, and Sowa (1986). It consists of five items with answers on five-point Likert scales, ranging from 1 (*never*) to 5 (*always*). Example of items: "My boss sets unrealistic deadlines to execute the tasks" and "My organizations submits the employee to an excessive workload". In the current study, the internal consistency of the scale, calculated using Cronbach's alpha coefficient, corresponded to .85.

In order to assess emotional social support at work, a subscale of the Perceived Social Support Scale at Work was used (Gomide Junior, Guimarães, & Damásio, submitted for publication). This scale was originally developed in Brazil, based on the premises of Rodriguez and Cohen (1998). The subscale consists of six items, to be answered through a five-point Likert scale, ranging from 1 (*I completely disagree*) to 5 (*I completely agree*). Example of items: "In my work, people like each other" and "In my work, you can trust people". In this research, the internal consistency of the scale, calculated using Cronbach's alpha, equaled .89.

To assess the flourishing at work, the Scale of Flourishing at Work was used (Mendonça et al., 2014), developed in Brazil based on the adaptation to the work context of the Scale of Flourishing (Diener et al., 2010). It consists of eight items, to be answered on a six-point Likert scale, ranging from 1 (*I completely disagree*) to 6 (*I completely agree*). Example of items: "In my work, my social relations give me support and are rewarding" and "My work contributes to make me a good person and live a good life". In this research, the internal consistency of the scale, calculated using Cronbach's alpha, was equal to .82.

Satisfaction with life was measured using the Brazilian version of the Scale of Satisfaction with Life (Gouvêia et al., 2005), adapted from the Scale of Satisfaction with Life by Diener, Emmons, Larsen, and Griffin (1985). The instrument consists of five items, answered on a seven-point Likert scale, ranging from 1 (*I completely disagree*) to 7 (*I completely agree*). Example of items: "In most aspects, my life is close to my ideal" and "The conditions of my life are excellent". The internal consistency of the scale, in this study, calculated using Cronbach's alpha, equaled .88.

In order to assess the work engagement, the short Brazilian version of the Work Engagement Scale was used (Ferreira et al., submitted for publication), adapted from the Utrecht Work Engagement Scale of Engagement (UWES) by Schaufeli, Bakker, and Salanova (2006). The instrument consists of nine items with a seven-point Likert scale, ranging from 0 (*never*) to 6 (*always*). Example of items: "At my work, I feel bursting of energy" and "My job inspires me". The internal consistency of the scale, calculated using Cronbach's alpha, equaled .93 in this study.

The Work Role Performance Scale (Williams & Anderson, 1991) was used to assess the work performance. It consists of seven items on a five-point Likert scale, ranging from 1 (*I completely disagree*) to 5 (*I completely agree*). Example of items: "Adequately complete assigned duties" and "Perform tasks that are expected of you". The internal consistency of the scale, calculated using Cronbach's alpha, was equal to .72 in this research.

To measure neuroticism, one of the Scales of the Big Five Inventory (BFI) by John, Donahue, and Kentle (1991) and adapted to Brazilian samples by Andrade (2008). The neuroticism subscale contains six items, on a five-point Likert scale, ranging from 1 (*I completely disagree*) to five (*I completely agree*). Example of items: "I consider myself as someone who stays calm in tense situations" and "I consider myself as someone who gets nervous easily". The internal consistency of the scale, calculated using Cronbach's alpha, was estimated at .78, in this research.

Procedure

The participants were contacted by e-mail and through face-to-face meetings. In the online application, a short explanation was provided about the research objectives, followed by a link that led directly to the initial screen of the research. The questionnaire, in a Word file, was also forwarded to those participants who indicated their desire to answer it electronically and then forward the file to the researcher. The face-to-face application happened in groups or individually. The participants initially read the instructions and then completed the questionnaire and returned it to the researcher. In total, 212 participants answered the questionnaire electronically, while 275 answered it face-to-face. In all situations, the respondents were informed about the voluntary nature of the research and the anonymity of their answers.

Data Analyses

The exploratory factor analyses were developed in SPSS (version 21) as well as in Software Factor (version 9.3.1). The confirmatory

factor analyses were performed in the software Mplus (version 7.0), using the maximum-likelihood (ML) parameter estimation method. The adjustment ratios were assessed according to the recommendations of Hox and Bechger (1998), for whom a model that is well-adjusted to the data should be in accordance with the following indicators: $\chi^2/df < 5$, CFI and TLI > .95, RMSEA < .05. In the reliability estimation, the internal consistency rates were calculated using Cronbach's alpha. Pearson's correlations were calculated to investigate the relations between the Individual Authenticity Measure at Work and the other related constructs.

Results

Exploratory and confirmatory factor analysis of the individual authenticity measure at work (IAMW)

The item inter-correlations are shown in Table 1. In order to explore the internal structure of the translated version of the IAMW, first, the results of parallel analysis and the Hull method were considered. The parallel analysis was performed using the permutation procedure (Buja & Eyuboglu, 1992). This method permits the estimation of random matrices in which some part of the data is permuted with the original database. The real-data eigenvalues were paralleled with the random eigenvalues estimated by the 95% percentile of 500 random correlation matrices. The first four real eigenvalues were, in order: 3.75, 1.89, 1.50, and 0.90; in contrast, the first four random eigenvalues were, in order: 1.33, 1.24, 1.18, and 1.13. These results called for the extraction of three factors due to the value of the fourth real eigenvalue, which was below the fourth random one. The Hull method (Lorenzo-Seva, Timmerman, & Kiers, 2011) showed similar results. The comparative fit index (CFI) was used to compare a model of x factors with a previous model of x - 1 factors. The increase in the goodness of fit was significant up to the third factor (CFI = .83). Based on these results, the twelve items were submitted to exploratory factor analysis, using the principal axis (PAF) estimation method of the item parameters with a promax rotation. This configuration was set as equal to the original study by Van den Bosch and Taris (2013). Table 2 represents the items, factor loadings, eigenvalues, and communalities. Pondering the oblique rotation method, the communalities were estimated based on the following equation:

$$h^2 = \sum (\lambda_{pattern} \times \lambda_{structure}),$$

where $\lambda_{pattern}$ is the factor loading in the pattern matrix, and $\lambda_{structure}$ is the factor loading in the structure matrix.

The results presented in Table 2 show suitable factor loadings (above .30), and, except for items 4, 9 and 12, all the remaining loadings were above .50. The factors explained 45.9% of the variance

Table 2
Exploratory factor analysis (n = 477).

Items	Loading			h ²
	SA	AEI	AL	
Aut 1			.54	.30
Aut 2			.86	.71
Aut 3			.55	.31
Aut 4			.36	.16
Aut 5	.55			.32
Aut 6	.73			.57
Aut 7	.90			.80
Aut 8	.85			.77
Aut 9		.48		.26
Aut 10		.86		.72
Aut 11		.65		.42
Aut 12		.37		.15
Eigenvalues	3.63	1.83	1.46	
Correlations				
AEI	.31			
AL	-.40	-.17		

Note. SA = self-alienation (first-order factor), AEI = accepting external influences (first-order factor), AL = authentic living (first-order factor), h² = communalities.

of the items. Considering the range restriction of the items, an additional factor analysis was performed using a polychoric correlation matrix and the non-weighted least squares estimation method. The results were similar to those yielded by PAF (with a Pearson's correlation matrix). The maximum difference between the loadings was .16 (mean of the differences = .07), and the correlation among the loadings was .90. Therefore, we decided to assume the loadings of the PAF analysis, in order to keep the congruence between the results of the present study and the original one.

In the confirmatory factor analysis, different models were tested, and Table 3 presents the goodness of fit indices. In accordance with the original study, models 1 and 2 set one general second-order factor as well as three first-order factors. Model 1 did not assume correlations between the errors and showed acceptable adjustment indicators. In model 2, the covariance between the residuals of items 9 and 12 was freely estimated. This strategy is justified due to the similarity in the content of the items. Model 2 obtained better adjustment indices than model 1, although both confirmed the originally previewed three-factor structure. Taking into account the small and medium loadings between the second and the first-order factors (Figure 1), rival models also were tested. Model 3, without second-order factor and free correlations among first-order factors, fitted the data in the same way as model 2, as expected. Actually, model 3 was tested only to be nested with

Table 1
Item intercorrelations.

Items	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	5.61	1.34												
2	5.95	1.19	.52**											
3	6.09	1.16	.38**	.47**										
4	5.71	1.51	.23**	.30**	.30**									
5	2.39	1.65	-.15**	-.13**	-.12**	-.05								
6	2.23	1.69	-.24**	-.24**	-.18**	-.13**	.51**							
7	2.11	1.59	-.20**	-.25**	-.25**	-.21**	.50**	.67**						
8	2.03	1.48	-.21**	-.32**	-.22**	-.22**	.45**	.68**	.87**					
9	3.93	1.95	-.08	-.05	-.09	.06	.18**	.19**	.19**	.20**				
10	2.32	1.44	-.11*	-.16*	-.12*	.02	.26**	.23**	.23**	.27**	.44**			
11	2.72	1.58	-.08	-.11*	-.07	-.06	.18**	.18**	.19**	.25**	.29**	.65**		
12	3.63	1.92	-.08	-.06	-.04	-.03	.17**	.16**	.15**	.18**	.38**	.26**	.26**	

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

model 4, with the correlations among factors being experimentally fixed to 0. The reason of this last model was to evaluate whether small correlations could be reduced to 0, in a completely orthogonal model. The goodness of fit of model 4 shows that the data do not support the hypothesis of orthogonality of the model. Therefore, in accordance with the original study, we decide to assume the second-order model.

In Table 4, the unstandardized parameters are displayed. It can be observed that in the 95% confidence interval no 0 is included and all critical ratios are superior to 1.96, thus indicating that the estimated parameters are significantly different from 0. Therefore, all can be considered useful to the model. As regards the standardized factor loadings of the items in the final model, according to Figure 1, it is verified that between the second-order and the first-order factors, the highest loading refers to self-alienation (−.82), followed by the loadings for authentic living (.49) and accepting external influences (−.39).

Considering the items' range restriction, the second-order model was also estimated using the weighted least squares robust (WLSMV) method, based on polychoric correlations. Then, the estimations with WLSMV were compared with the estimation yielded by ML. The maximum differences between the standardized parameters were .13 (mean of the differences = .06), and the correlation among parameters was high ($r = .99$). Based on these results, we decide to assume the ML method in order to keep the congruence between the present study and the study by Van den Bosch and Taris (2013).

The internal consistency coefficients of the factors, calculated using Cronbach's alpha, were equal to .67 (authentic living), .70 (accepting external influences), and .86 (self-alienation). These results indicate that the estimated scores for the three factors

are minimally stable and free from measuring errors, specifically regarding the absence of internal consistency.

Relations with other variables

The means, standard deviations, and correlation coefficients between the different scales used in the study are displayed in Table 5. Positive correlations were obtained between authentic living and work engagement ($r = .31$), work role performance ($r = .21$), emotional social support at work ($r = .17$), flourishing at work ($r = .32$), and satisfaction with life ($r = .19$). These results confirmed the Hypotheses 1a, 1b, 1c, 1d, and 1e. On the other hand, negative correlations were observed between authentic living and workload ($r = -.15$) and neuroticism ($r = -.12$), which permitted the confirmation of Hypotheses 1f and 1g.

Self-alienation, in turn, showed positive correlations with workload ($r = .30$) and neuroticism ($r = .23$), confirming the Hypotheses 2a and 2b. In addition, negative correlations were found between self-alienation and work engagement ($r = -.41$), work role performance ($r = -.32$), emotional social support at work ($r = -.22$), flourishing at work ($r = -.42$), and satisfaction with life ($r = -.23$). These results confirmed Hypotheses 2c, 2d, 2e, 2f, and 2g.

Finally, accepting external influences showed a positive correlation with workload ($r = .17$) and neuroticism ($r = .13$), so that Hypotheses 3a and 3b could be confirmed. On the other hand, the acceptance of the external influence was negatively correlated with work role performance ($r = -.17$) and satisfaction with life ($r = -.15$), solely confirming Hypotheses 3c and 3g. Thus, these results contributed to the validity evidence of the scores based on the relation with other variables.

Table 3 Goodness of fit of the confirmatory factor models (n = 477)

Models	χ^2 (df)	TLI	CFI	SRMR	RMSEA (IC)	BIC
1. Second-order	154.07 (51)	.935	.950	.043	.065 (.053 - .077)	19223.11
2. Second-order (modified)	118.57 (50)	.956	.967	.039	.054 (.041 - 0.66)	19193.81
3. Correlatedfirst-order (modified)	118.57 (50)	.956	.967	.039	.054 (.041 - 0.66)	19193.81
4. Uncorrelatedfirst-order (modified)	216.14 (53)	.902	.921	.127	.080 (.069 - .092)	19272.85

Notes. Model 1 = three first-order factors and one second-order factor. Model 2 (modified) = three first-order factors, one second-order factor and free residual correlation between items 9 and 12. Model 3 (modified) = three correlated first-order factors and free residual correlation between items 9 and 12. Model 4 uncorrelated = three uncorrelated first-order factors (i.e., correlations among factors fixed to 0) and free residual correlation between items 9 and 12.

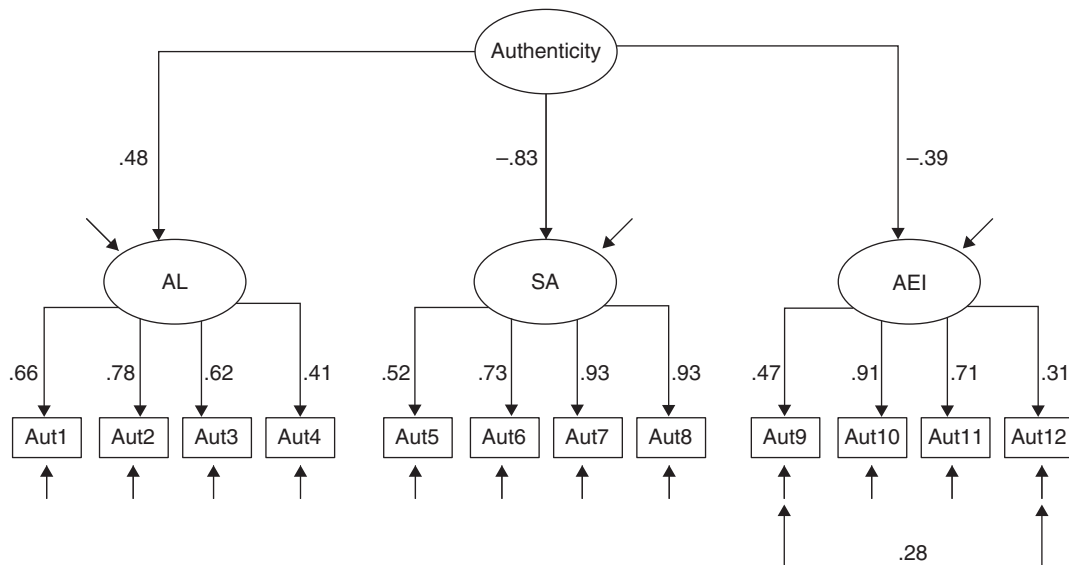


Figure 1. Second-order model of the Individual Authenticity Measure at Work. AL = authentic living (first-order factor), SA = self-alienation (first-order factor), AEI = accepting external influences (first-order factor).

Table 4
Unstandardized parameters of the confirmatory factor analysis.

Unstandardized parameters						
Parameters			Coefficient β	Standard Error	Critical Ratio	CI (95%)
Authen	→	AL	.58	.17	3.30	.24; .93
Authen	→	SA	−1.00			
Authen	→	AEI	−.50	.16	−3.17	−.82; −.20
AL	→	Aut1	1.00			
AL	→	Aut2	1.11	.10	10.65	.91; 1.32
AL	→	Aut3	.82	.08	9.92	.67; .99
AL	→	Aut4	.71	.10	7.14	.52; .91
SA	→	Aut5	1.00			
SA	→	Aut6	1.42	.12	11.23	1.18; 1.67
SA	→	Aut7	1.70	.13	12.48	1.44; 1.97
SA	→	Aut8	1.59	.12	12.49	1.35; 1.85
AEI	→	Aut9	1.00			
AEI	→	Aut10	1.42	.16	8.72	1.11; 1.74
AEI	→	Aut11	1.22	.13	9.41	.97; 1.48
AEI	→	Aut12	.64	.10	6.44	.45; .84
Correlations						
Error 9 ↔ Error 12 $r = .28$						
Goodness of fit						
$\chi^2 (gl) = 121.17 (50)$						
TLI = .95						
CFI = .96						
RMSEA (CI 90%) = .05 (.04 - .06)						

Notes. Authen = authenticity (second-order factor), AL = authentic living (first-order factor), SA = self-alienation (first-order factor), AEI = accepting external influences (first-order factor).

Table 5
Means, standard deviations, cronbach's alpha and correlation coefficients.

	M	SD	α	1	2	3	4	5	6	7	8	9	10
AL(1)	5.85	.91	.67										
SA(2)	2.17	1.34	.7	−.33**									
AEI(3)	3.15	1.25	.86	−.14**	.32**								
WL(4)	2.56	1.02	.85	−.15**	.30**	.17**							
ESSW(5)	3.17	.86	.89	.17**	−.22**	.06	−.31**						
FW(6)	4.84	.76	.82	.32**	−.42**	−.02	−.41**	.42**					
SL(7)	5.01	1.3	.88	.19**	−.23**	−.15**	−.18**	.26**	.40**				
WE(8)	3.87	1.24	.93	.31**	−.41**	−.05	−.33**	.28**	.72**	.45**			
WRP(9)	4.31	.53	.72	.21**	−.32**	−.17**	−.16**	.07	.33**	.23**	.38**		
N(10)	2.64	.85	.78	−.12**	.23**	.13**	.21**	−.17**	−.30**	−.22**	−.25**	−.24**	

Note. AL = authentic living, SA = self-alienation, AEI = accepting external influences, WL = workload, ESSW = emotional social support at work, FW = flourishing at work, SL = satisfaction with life, WE = work engagement, WRP = work role performance, N = neuroticism.

* $p < .05$.

** $p < .01$.

Common method variance

Because all data are self-reported and collected through the same questionnaire during the same period of time with a cross-sectional research design, we explore the extent to which common method variance was a concern. We conducted Harman's single-factor test to examine whether a general factor emerged and accounted for the majority of covariance among the measures (Podsakoff, MacKenzie, & Podsakoff, 2003). In doing so, all of the items were entered into an exploratory factor analysis with an unrotated principal axis factoring procedure. The results showed that eight factors emerged with eigenvalues greater than 1. These factors together accounted for 52.47 per cent of variance, and the first (largest) factor did not account for the majority of the variance (22.24%). Thus, no general factor is apparent. These results suggest that common method variance did not pose a serious threat to the validity of our study. In addition, to help reduce the likelihood of socially desirable responding, we followed the recommendations by Podsakoff et al. (2003) and stressed the survey instructions that there were no right or wrong answers and that they were anonymous and would be used for research purposes only.

Discussion

The objective in this study was to adapt and to verify the internal structural validity of the authenticity scores predicted by the Brazilian version of the Individual Authenticity Measure at Work, as well as collect evidence of validity based on the relation with other variables. Therefore, the collected data were analyzed through exploratory and confirmatory factorial analysis. Also, the correlations of the scale with other measures of constructs related to authenticity at work were analyzed.

The exploratory factor analysis showed results similar to the analysis performed by Van den Bosch and Taris (2013). The parallel analysis, MAP, and loadings support the three-factor model. The small effect size of the correlations among factors was similar to the correlations presented by Van den Bosch and Taris (2013). We highlight the shrunk covariance between authentic living and accepting external influences (presented in the original study as well as in the present research). This result can also indicate a reduced relation among these factors and the general construct of authenticity. Studies of correlations with other external measures could increase the importance of these two constructs for the authenticity. Regarding the factor analysis, it must be mentioned that the parallels between

the present study and the original one must be drawn with caution. Although the estimation method was the same, [Van den Bosch and Taris \(2013\)](#) presented only a factor analysis for the entire scale, and not for the reduced one. Considering that the loadings usually change when some items are excluded (due to the chance of the total scores), the loadings of the present factor analysis (with the reduced scale) cannot be compared straightforwardly with the loadings of the original research (with the full scale).

The confirmatory factor analyses tested different models setting first and second-order factors. The uncorrelated first-order factors model showed only a slightly acceptable fit to the data. It means that the correlations between the factors shall be estimated, even if these correlations achieve only small effect sizes. The correlations among first-order factors also supported the estimation of a second-order factor. In fact, the second-order model (with a residual covariance between items 9 and 12 due to the similar content of the items) fitted the data well. This model confirmed the three-factor structure of the scale. These results were similar to those presented by [Van den Bosch and Taris \(2013\)](#), who also tested three different models and chose to retain a second-order model, with one general factor explaining three first-order factors.

As observed, the highest factor loading corresponded to the self-alienation dimension. These data are in accordance with the results by [Van den Bosch and Taris \(2013\)](#), who found similar factor loadings, $-.98$ for self-alienation, $.73$ for authentic living, and $-.50$ for accepting external influences. In addition, this result can be considered an evidence that authenticity seems to be characterized much more by the lack of authenticity or alienation than by authentic living. This evidence is also in accordance with the first proposals of the authenticity concept, in which this construct was addressed through the lack of authenticity or hiding of one's actual thoughts ([Harter, 2002](#)). This finding also find support in the model by [Barrett-Lennard \(1998\)](#), for whom self-alienation is characterized as the first level of authenticity, as it expresses the incoherence that exists between actual living and one's own awareness.

The internal consistency of the three dimensions was satisfactory, although the results also differed somewhat from the findings by [Van den Bosch and Taris \(2013\)](#) in their development of the original measure. Hence, in the present study, the dimensions authentic living, self-alienation, and accepting external influences showed Cronbach's alpha coefficients equal to $.67$, $.86$, and $.70$, while in the study cited these coefficients corresponded to $.76$, $.85$, and $.67$, respectively. It is highlighted, however, that the internal consistency, mainly when estimated using Cronbach's alpha, depends on the sample variance ([Thompson, 2003](#)) and that, consequently, discrepancies in the estimated precision were expected.

In summary, the results of the confirmatory factorial analyses evidenced that the scores of the Brazilian version of the Individual Authenticity Measure at Work displayed evidence of internal structural validity. The scores also showed acceptable internal consistency. These evidences are also in line with the three-factor model of the complete original scale, which includes twelve items, three first-order factors, and one second-order factor.

As regards the correlation between the scale and other measures, it was observed that authentic living (completely authentic hub) showed positive correlations with work engagement, with work role performance, emotional social support at work, flourishing at work, and satisfaction with life, thus supporting Hypotheses 1a, 1b, 1c, 1d, and 1e, respectively. These results confirm the earlier findings by [Van den Bosch and Taris \(2013\)](#), who also obtained positive and significant correlations between authentic living and work engagement, role performance, and global satisfaction at work. The findings from both studies reveal the coherence between conscious awareness and behavior: when individuals feel accomplished, involved, and satisfied with their work activity and their life, they act in a way that is true to themselves, even at work.

In addition, negative correlations were observed between authentic living and workload (Hypothesis 1f) and with neuroticism (Hypothesis 1g), thus confirming the [Van den Bosch and Taris \(2013\)](#) study, in which negative correlations were found between authentic living and negative feelings and stress. These results demonstrated that, when individuals are overloaded with work and negative feelings towards themselves, they act coherently with these states, making them take distance from authentic living in the work context. It should be registered, however, that these correlations, although significant, were low, what means these results should be considered with caution.

In the self-alienation dimensions (completely unauthentic hub), the results of this study evidenced the existence of positive correlations with the workload and neuroticism, supporting Hypotheses 2a and 2b. This dimension also showed negative correlations with work engagement, work role performance, emotional social support at work, flourishing at work, and satisfaction with life, confirming Hypotheses 2c, 2d, 2e, 2f, and 2g. These data are coherent with the studies by [Van den Bosch and Taris \(2013\)](#), who found positive correlations between self-alienation and negative feelings and stress, as well as negative correlations between self-alienation and work engagement, work role performance, and global satisfaction with work. The findings from these studies reveal the incoherence between the actual experience and conscious awareness, that is, when individuals feel out of touch with their core self, they can diminish their positive experiences related to work and reinforce the negative experiences.

The dimension accepting external influences showed positive correlations with the workload and with neuroticism, confirming the Hypotheses 3a and 3b. Negative correlations were found between this dimension and work role performance and satisfaction with life, supporting Hypotheses 3c and 3g. These findings are coherent with the study by [Van den Bosch and Taris \(2013\)](#), who also found positive correlations between accepting external influences and negative feelings and stress, as well as negative correlations with work engagement. Accepting external influences makes individuals conform to other people's expectations, annulling their own values. By accepting these influences, the individuals can get overloaded by some professional activity or take responsibilities for other people, which can deepen their emotional instability.

In accordance with [Schmid \(2005\)](#), accepting external influences affects both self-alienation and authentic living, so that it is present in the relation between the actual experience and conscious awareness (self-alienation) and between conscious awareness and behavior (authentic living). These results, however, indicated a stronger relation between accepting external influences and self-alienation, as the correlation pattern found between these dimensions and the other variables was similar. In other words, by accepting external influences and taking distance from their own beliefs and emotions, individuals seem to get closer to self-alienation.

The results of this study reinforce the conception by [Van den Bosch and Taris \(2013\)](#) that authenticity at work is a state phenomenon, subjectively experienced, that can be measured on a continuum with two hubs: authentic living and self-alienation. Authentic living reflects the extent to which individuals feel and act coherently with themselves, in the different situations they experience, due to a perfect adjustment between them and the work environment, which explains the positive correlation with the positive aspects of work and life and the negative correlation with the negative aspects of work and life. Self-alienation, on the other hand, refers to the completely unauthentic hub, in which individuals feel out of touch with their core self, which explains the fact that it is negatively correlated with the positive aspects of work and life and positively with the negative aspects of work and life.

Study limitations

The survey design of this research does not permit any causal statements about the relations between authenticity at work and the other variables addressed in the research. In addition, the convenience sample restricted the diversity of subjects. Likewise, the use of a single personality factor (neuroticism) reduced the evidence of the nomological network, especially regarding its relations with other personality characteristics. The fact that the study was based on a single data collection did not permit any stability analysis of the structure of the IAM work scale in Brazilian samples. The results indicated that common method variance was not of great concern and it was unlikely to have significantly confounded the interpretation of the results. Therefore, in future research it would be desirable to further reduce the bias of common variance using different sources of data collection (e.g., co-workers and the supervisor).

Another limitation refers to range restriction of the items. Some items showed averages close to the maximum or the minimum limit of the Likert scale. Such a restriction is a potential explanation for the shrunk correlations. It also could lead to underestimated factor loadings. ‘Not so authentic’ populations could be assessed in order to evaluate the impact of a non-restricted variability on the estimation of correlations and loadings of the scale. Another suggestion is to rewrite some items to make them more difficult (or easy) to endorse.

Implications of the study

Based on these results, it can be concluded that the scores of the Individual Authenticity Measure at Work present initial evidence of construct validity and precision in Brazilian samples. Consequently, it can be adopted in future research to assess the extent to which individuals act truly to themselves in the work environment. It can also be useful in individual or group interventions to enhance individual authenticity at work. Nevertheless, future studies in other countries would be interesting to verify whether the three-factor structure is maintained in other cultures, as well as to extend its nomological network. New studies can also investigate the predictive power of authenticity on attitudes and organizational behaviors, not addressed in this study. Longitudinal studies might also contribute to deepen the discussion about whether authenticity is a state or trait.

Conflict of interest

The authors of this article declare no conflict of interest.

Financial support

FAPERJ - Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro.

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