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Psychometric properties of the Work Valences Scale (WSV) in Portugal: Studies with children and adults

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Abstract

Work valences are defined as a general disposition toward work, which includes cognitive and affective dimensions. There is evidence suggesting that work valences begin to develop during the childhood period of the lifespan, through socialization processes across various information sources and contexts, to include parent-child interactions within the family context. Work valences have been found to be associated with career exploration, academic and work motivation, and academic achievement. Prior research on work valences has mostly occurred in the USA and Italy, which suggests that more research in other country contexts is still needed. Two studies analyzing the psychometric properties of the Work Valences Scale (WVS) with Portuguese children and adults are presented, following translation, back-translation, and tryout phases. The first study was conducted with 200 middle-school children (59.5% girls), aged nine to 12 years old (M = 10.05). The second study was developed with 384 working adults (76% women), aged 20

to 70 years old (M = 36.02). Confirmatory factor analyses, internal consistency, and correlational analyses were performed. Results suggest that a four-dimensional measurement model yields a good fit to children's data, whereas hierarchical measurement models offer good fit to the adults' data. Additionally, results suggest good internal consistency reliability, as well as statistically significant associations with school/work engagement. These results illustrate the applicability of the WVS with Portuguese children and adults. The assessment of work valences can be useful to deepen and expand international research on the construct and to help plan career interventions throughout the life cycle.

Keywords: work valences, career development, psychometric properties

Propriedades psicométricas da Work Valences Scale (WVS) em Portugal: Estudos com crianças e adultos

Resumo

As valências de trabalho podem ser definidas como uma disposição geral para o trabalho, com dimensões cognitiva e afetiva. Existe evidência de que as valências de trabalho se desenvolvem desde a infância, através de processos de socialização decorrentes de várias fontes de informação e contextos, incluindo interações pais-filhos/as no contexto familiar. As valências de trabalho parecem ainda associar-se à exploração de carreira, motivação de trabalho e rendimento académico. Investigação prévia sobre as valências de trabalho tem sobretudo ocorrido nos EUA e em Itália, pelo que estudos noutros países são ainda necessários. Apresentam-se dois estudos sobre propriedades psicométricas da *Work Valences Scale* (WVS) com crianças e adultos portugueses, após fases de tradução, retroversão e administrações-piloto. O primeiro estudo decorreu com 201 crianças (59.2% raparigas), com idades entre nove e 12 anos (M = 10.04). O segundo estudo foi desenvolvido com 384 adultos (76% mulheres), com idades entre 20 e 70 anos (M = 36.02). Efetuaram-se análises fatoriais confirmatórias, de consistência interna e correlacionais. Os resultados sugerem que um modelo quadridimensional oferece bom

ajustamento aos dados das crianças, enquanto modelos de medida hierárquicos se ajustam bem aos dados de adultos. Adicionalmente, os resultados indicam boa consistência interna e associações estatisticamente significativas com o envolvimento na escola/no trabalho. Estes resultados ilustram a aplicabilidade da WVS com crianças e adultos portugueses. A avaliação das valências de trabalho poderá ser útil ao aprofundamento e expansão internacional de investigação sobre o construto, assim como ao planeamento de intervenções de carreira ao longo da vida.

Palavras-chave: valências de trabalho, desenvolvimento de carreira, propriedades psicométricas

The literature has increasingly acknowledged synergies among the Career Psychology and the Work and Organizational Psychology fields (Arnold & Cohen, 2013). Although these fields have been evolving separately, they share joint concerns regarding how individuals manage multiple life roles, assign meaning to work, prepare for the workforce, adapt to unpredictable work environments, and attain wellbeing while constructing unique career pathways (Kenny et al., 2019; Lent & Brown, 2021). A construct that may be of common interest and may help advance future collaborative efforts across these fields is work valence.

Generally, a valence consists of an inner disposition, which guides one's behaviors, stimulates efforts to pursue intended goals, and affects decision-making processes (Carruthers, 2018; Schuman et al., 2013). The American Psychological Association's Dictionary of Psychology defines valence as "the subjective value of an event, object, person, or other entity in the life space of the individual; an entity that attracts the individual has positive valence, whereas one that repels has negative valence". According to the expectancy-valence model, a valence represents the anticipated value allocated to a specific outcome and plays a motivational force affecting one's behaviors (Vroom, 1964). In an application of the concept to the work domain, work valence can be conceived of a general work orientation that sustains one's disposition to approach or avoid work endeavors, and that can facilitate or inhibit career development tasks (Porfeli et al., 2012). Work valence includes both cognitive and affective dimensions (Lee &

Porfeli, 2015). The cognitive dimension involves a person's general expectations regarding work experiences (e.g., job progression, work-related social interactions). The affective dimension involves generalized emotion-based expectations and experiences (e.g., excitement, boredom). The experiential and affective dimensions unite to yield positive and negative work valences, which are understood to be independent, and inversely correlated poles of an overall work valence construct (Porfeli et al., 2012). It appears to exist as a hierarchical array of constructs with generalized beliefs about positive work experiences and affectivity combining to offer a positive work valence, with the same being true for a negative work valence. Further, the positive and negative poles jointly contribute to an overall work valence that can range from decidedly negative to positive (Porfeli et al., 2008).

Work valences are established during childhood and develop across the lifespan (Porfeli et al., 2012). Within the family setting, parents' work experiences and affectivity are presumed to be shared within parent-child interactions (Porfeli et al., 2008). These interactions may be in the form of overt conversations about parents' work lives and in more subtle ways to include how children interpret how work affects parents' emotional state when they return home each day (i.e., work-family spillover) (Bryant et al., 2006; Young et al., 1997). The mechanism of this socialization is akin to those mechanisms that contribute to the development of work values and expectations. Aligned with the literature on parents' socialization of their children to the world of work (Hartung et al., 2005), there is evidence suggesting that parents' work experiences and shared work-related affectivity are perceived by their children and impact the development of their work valence (Lee & Porfeli, 2015; Porfeli et al., 2013; Porfeli et al., 2008). Studies developed with children, adolescents, and young adults also suggest that greater positive work valences are linked to greater engagement in school, work approach motivation, and in-depth career exploration (Lee & Porfeli, 2015; Lee et al., 2016; Porfeli et al., 2012). In turn, greater negative work valences seem to be associated with greater work avoidance motivation and in-breadth career exploration (Lee et al., 2016; Porfeli et al., 2012). The higher-order work valence construct also seems to be positively related to academic achievement and negatively associated with work avoidance motivation (Porfeli et al., 2013; Porfeli et al., 2012). Overall, prior research suggests that work valence and its

positive and negative poles exist and develop during the childhood period and throughout adulthood. Additionally, these constructs are associated with other career and academic factors operating across the lifespan.

To advance this line of inquiry, Porfeli et al. (2012) developed and tested the Work Valence Scale (WVS) with samples of North American high-school and higher education students. The WVS is a self-report measure presenting a hierarchical structure. Hence, the WVS affords the possibility to assess individuals anticipated positive and negative work experiences and affects (first-order factors), or positive and negative work valences, or a global work valence (higher order factors) (Porfeli et al., 2012). The WVS has been used in studies with North American adolescents and adults (e.g., Lee & Porfeli, 2015; Lee et al., 2016). In Europe, the measure has been successfully applied to Italian children and adults (Porfeli et al., 2013).

The expansion of the work valences assessment in other countries could be useful to stimulate more systematic research on the topic and to bring together international collaborative efforts spanning Career Psychology and the Work and Organizational Psychology fields. This paper advances that agenda with two studies aimed at examining the psychometric properties of the WVS with European Portuguese middle-school children and working adults. These studies intended to offer psychometric tests of the WVS factor structure, reliability, and convergent validity with assessments of school/work engagement. Relying on previous research, it was expected that: a hierarchical measurement model would yield a good fit to the data from children and adults (H1); acceptable internal consistency reliability would be found (H2); statistically significant correlations affirming the internal structure of the WVS would be found, with positive correlations within the positive and negative dimensions of the WVS and negative correlations across the positive and negative dimensions (H3); statistically significant positive correlations between positive aspects of the WVS and school/work engagement and statistically significant negative correlations between the negative aspects of the WVS and school/work engagement would be found (H4).

Study 1: Psychometric properties of the WVS with Portuguese middle school children

Method

Participants

A non-probabilistic convenience sampling approach was used to recruit the sample. Participants included 200 middle-school children, 119 (59.5%) girls and 81 (40.5%) boys, aged nine to 12 years old (M = 10.05, DP = .48). Children attended a public school located in northern Portugal. Most children lived with their parents and siblings (65.5%), but there were also other household compositions, such as children living with their grandparents or uncles (1.5%). The majority of the participants' mothers and fathers held a high school or higher education diploma (70.6% mothers, 65.6% fathers) and were employed (88.24% mothers, 96% fathers).

Measures

Work Valences Scale (WVS; Porfeli et al., 2012). The WVS includes 28 items answered with a Likert scale from 1 "never" to 5 "always". Items are distributed across the positive and negative work experiences (e.g., positive: "be treated fairly by your boss"; negative: "get treated badly at work") and affectivity (e.g., positive: "happy"; negative: "sad") subscales. In the North American version, Cronbach's alpha values from .78 to .89, and from .80 to .88 were found in high-school and college students respectively (Porfeli et al., 2012). In Italy, a Cronbach's alpha of .92 was found in middle-school children (Porfeli et al 2013).

Aligned with literature recommendations (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, 2002; Muñiz et al., 2013), Paquete (2019) advanced in the: translation and adaption of the WVS instructions and items to European-Portuguese; back-translation by a bilingual researcher on Career Psychology; confirmation that the original meaning of the instructions and items was preserved during translation and discussion of potential cultural adjustments with the collaboration of the WVS main author; tryout with five middle-school children, who assured that the measure was understandable and took an average of 11 minutes to complete it.

Student Engagement in School: A Four-Dimensional Scale (SES-4DS; Veiga, 2016). The SES-4DS includes 20 items, answered in a Likert scale from 1 "totally disagree" to 6 "totally agree". Items are equally distributed among the cognitive, affective, behavioral, and agentic engagement in school dimensions. A Cronbach's alpha of .83 was herein obtained.

Procedures and Analyses

The Portuguese General-Directorate of Education authorized the collection of data at the school setting (Ref. 0617900002). Upon permission from a school board, written consent forms from caregivers and students were obtained. Data was collected from students within the classroom setting. Confidentiality was assured by following the principles established by the Deontological Code of the Portuguese Order of Psychologists and the APA ethical principles of psychologists and code of conduct.

Data was analyzed with the Statistical Package for the Social Sciences (SPSS) and the Analysis of Moment Structures (AMOS), version 28 for Windows. Confirmatory factor analyses (CFA) were performed to test four measurement models: Model 1 included four inter-related factors (positive and negative work affectivity, positive and negative work experiences); Model 2 included two inter-related factors (positive work valences, negative work valences); Model 3 included four first-order factors (positive and negative work affectivity, positive and negative work experiences) and two higher order factors of positive and negative work valences; Model 4 included four first-order factors (positive and negative work affectivity, positive and negative work experiences) and one higher order factor of global work valence.

Multivariate non-normality was evidenced by the Mardia's coefficient, and 12 multivariate outliers were identified with Mahalanobis distance values. Outliers were removed from analyses and the Bollen-Stine chi-square goodness-of-fit test with 500 bootstrap samples was used to evaluate the goodness-of-fit (Gilson et al., 2013). Other goodness-of-fit indicators were considered: the chi-square to degrees of freedom ratio (χ^2/df), with values lower than 2 indicating good fit and values from 2 to 5 being acceptable (Byrne, 2010); the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), with values from .90 to .95 being acceptable (Hu & Bentler, 1999); the Root Mean

Squared Error of Approximation (RMSEA) with 90% Confidence Intervals (CI) and the Standardized Root Mean Squared Residual (SRMR), with values from .05 to .08 being acceptable (Hu & Bentler, 1999); the Akaike Information Criterion (AIC), with smaller values suggesting better fit (Byrne, 2010). Cronbach's alpha was computed for all constructs that conformed with the model fit criteria shared above. Due to univariate non-normality identified by the Kolmogorov-Smirnov test, Spearman correlation coefficients were used to test associations between the WVS and the SES-4DS.

Results

CFA results suggest that Models 1 (i.e., four inter-related first-order factors) and 3 (i.e., four first-order factors and two higher order factors) yielded the best fit to the data. Based on modification indices, the goodness-of-fit of these models were reevaluated after correlating the errors of measurement associated with the anticipated negative work experiences items "have a job that holds you back in life" and "have a job that interferes with the other parts of your adult life". Although the recommended CFI and TLI values remained unattained, the modified Model 1 presented the better fit to the data (Table 1).

Statistically significant correlations among the WVS subscales and engagement in school were found (Table 2). Children presenting greater positive work affectivity and experiences demonstrated greater engagement in school. In turn, children presenting greater negative work affectivity and experiences showed lower engagement in school.

Table 1

CFA Fit Indices Results (Middle School Children)

Model	Bollen-Stine *p*	χ^2/df	CFI	TLI	RMSEA [90% CI]	SRMR	AIC
Model 1	.01	1.72	.81	.79	.06 [.05, .07]	.07	716.49
Model 2	.002	2.01	.73	.70	.07 [.07, .08]	.08	818.45
Model 3	.01	1.76	.80	.78	.06 [.06, .07]	.07	729.05
Model 4	.01	1.78	.79	.77	.07 [.06, .07]	.08	735.50

Model 1 modified	.02	1.70	.82	.80	.06 [.05, .07]	.06	708.75
Model 3 modified	.01	1.74	.80	.79	.06 [.05,.07]	.07	721.42

Table 2

Descriptive Statistics, Cronbach's Alpha, and Correlations (Middle School Children)

Variable	*M*	*SD*	α	1	2	3	4	5
1 Positive work affectivity	4.28	.54	.75	-				
2 Positive work experience	4.53	.52	.81	.50***	-			
3 Negative work affectivity	1.75	.59	.80	-.49***	-.36***	-		
4 Negative work experience	1.84	.62	.70	-.35***	-.38***	.49***	-	
5 Engagement in school	4.55	.57	.83	.25***	.28***	-.15*	-.25***	-

*$p < .05$. *** $p < .001$

Partial Discussion

Results suggested that a non-hierarchical measurement model with positive and negative work affectivity and experiences factors yielded a better fit to the data. Although these findings do not support H1, they may suggest that children are still moving towards a more integrated understanding of work valences, along with cognitive, social-emotional and career development advances. In turn, results supported H2, as good internal consistency reliability was found. Additionally, H3 and H4 were sustained, with results suggesting that greater positive work affectivity and experiences were linked to greater engagement in school, whereas greater negative work affectivity and experiences were associated with lower engagement in school. These findings suggest a linkage between positive work affectivity and experiences and students' engagement in school (Lee & Porfeli, 2015). Still, it is worth acknowledging that this study was conducted with a small

sample size from northern Portugal. It would be useful to replicate this study with a larger sample including children from various geographic areas.

Study 2: Psychometric properties of the WVS with Portuguese adults

Method

Participants

A non-probabilistic convenience sampling approach was used. Participants included 384 working adults, 292 (76%) women and 92 (24%) men, aged 20 to 70 years old (M = 36.02, SD = 11.18). Most participants held a college degree (68%) and were employed in a field related to their degree (61.7%). Participants were enrolled either in part-time (10.7%) or full-time (89.3%) jobs and worked in their organization for one to more than 30 years. Most participants worked in-person (68.8%), but there were also cases of participants working in fully remote (4.2%) or hybrid in-person and remote (26.6%) work settings.

Measures

Work Valences Scale (WVS; Porfeli et al., 2012; adapted by Paquete, 2019). The European Portuguese version of the WVS was used (Paquete, 2019). Given previous translation, back-translation and adaptation processes, a tryout with four adults aged 24 to 59 years old was performed. This procedure affirmed that the measure was understandable, and individuals took an average of 10 minutes to complete the WVS.

Utrecht Work Engagement Scale-3 (UWES-3; Schaufeli et al., 2019). The ultra-short version of the UWES was used. It includes three items, answered in a Likert-type scale ranging from 1 “never” to 7 “everyday”. In this sample, a Cronbach’s alpha of .75 was obtained.

Procedures and Analyses

An online protocol was prepared using Google Forms, which was disseminated via email sent to several partner organizations and via LinkedIn. After filling in a consent form, participants accessed the protocol. Anonymity and confidentiality were safeguarded by following the principles established by the Deontological Code of the Portuguese Order of Psychologists and the APA ethical principles of psychologists and code of conduct.

The same analytical strategy from Study 1 was followed in Study 2. Evidence of multivariate non-normality was also found in this sample with 13 multivariate outliers. Like in Study 1, outliers were removed and the Bollen-Stine chi-square goodness-of-fit test with 500 bootstrap samples was considered. Cronbach's alpha was computed for all the constructs. Due to univariate non-normality as assessed by the Kolmogorov-Smirnov test, Spearman correlation coefficients were conducted to test the associations among the WVS and the UEWS-3.

Results

Results suggest that Models 1, 3 and 4 present a better fit to the data (Table 3). The goodness-of-fit of these models was reevaluated after correlating the errors of measurement associated with the same items reported in Study 1, as well as with the anticipated positive work experiences items "have a really good job" and "be a part of something important". A CFI recommended value was achieved after employing these modifications and similar fit results were found among the three measurement models.

Table 3

CFA Fit Indices Results (Adults)

Model	Bollen-Stine *p*	χ^2/df	CFI	TLI	RMSEA [90% CI]	SRMR	AIC
Model 1	.002	3.78	.84	.82	.09 [.08, .09]	.06	1423.38
Model 2	.002	5.08	.76	.74	.11 [.10, .11]	.07	1890.39
Model 3	.002	3.81	.84	.82	.09 [.08, .09]	.07	1437.22
Model 4	.002	3.81	.84	.82	.09 [.08, .09]	.07	1439.04
Model 1 modified	.002	2.80	.90	.89	.07 [.07,.08]	.06	1085.44
Model 3 modified	.002	2.80	.90	.89	.07 [.07, .08]	.06	1085.44
Model 4 modified	.002	2.80	.90	.89	.07 [.07, .08]	.06	1085.44

Statistically significant correlations were found between the WVS and the UWES-3 (Table 4). Individuals presenting greater positive work affectivity and experiences, greater positive work valences, and greater global work valence significantly demonstrated greater work engagement. Also, individuals with greater negative work affectivity and experiences, and greater negative work valences demonstrate lower work engagement.

Table 4

Descriptive Statistics, Cronbach's Alpha, and Correlations (Adults)

Variable	*M*	*SD*	*α*	1	2	3	4	5	6	7	8
1 Positive affectivity	3.61	.73	.88	-							
2 Positive experience	3.71	.81	.88	.70***	-						
3 Negative affectivity	2.14	.75	87	-.66***	-.66***	-					
4 Negative experience	2.36	.80	.80	-.54***	-.59***	.61***	-				
5 Positive valence	3.66	.71	.92	.90***	.93***	-.72***	-.62***	-			
6 Negative valence	2.25	.69	.88	-.67***	-.71***	.89***	.90***	-.75***	-		
7 Work valence	1.40	1.32	.94	.84***	.88***	-.86***	-.81***	.94***	-.93***	-	
8 Work engagement	3.90	1.23	.75	.61***	.62***	-.50***	-.32***	.67***	-.46***	.60***	-

*** $p < .001$

Partial Discussion

Results supported H1, with a three-level hierarchical measurement model best fitting the adults' data. Particularly, as Models 1, 3 and 4 offered a similar good fit to the data, these findings seem consistent with the WVS flexibility to enable the assessment of positive and negative work affectivity and experiences, or positive and negative work valences, or global work valence, depending on the research or practical purpose (Porfeli et al., 2012). H2 was also supported, as the WVS exhibited good internal consistency reliability among adults. H3 and H4 were supported, with results suggesting that greater positive work affectivity and experiences, greater positive work valences and greater work valences are linked to greater work engagement, while greater negative work affectivity and experiences, and greater negative work valences are associated with lower work

engagement. These results are consistent with evidence suggesting the important role of work valences in work approach motivation (Porfeli et al., 2012) and serving as a driving force for individuals' goal-directed behaviors (Carruthers, 2018; Shuman et al., 2013; Vroom, 1964). Still, it could be useful to test if these psychometric properties remain among unemployed adults.

Conclusion

This paper suggests that the WVS is a reliable and valid measure that can be used with Portuguese middle-school children and adults. A four-dimensional internal structure should be considered when using the WVS with Portuguese middle-school children, whereas a more flexible four-dimensional or hierarchical structure can be considered with Portuguese adults. These variations in the WVS internal structure seem to illustrate the assertion that "vocational development may serve to modify the structure of the work valence measurement model" (Porfeli et al., 2012, p. 342). These findings suggest that there is value in conducting a longitudinal study from childhood through adulthood to address changes in the WVS internal structure over time and to examine its joint associations with other human development features over time. The results also support continued cross-sectional research to examine, for example, the WVS psychometric properties with elementary-school children, middle- and high-school adolescents, as well as adults presenting various school levels and in different work situations to discern if model fit trends toward the presumed hierarchical measurement model. Future studies could also analyze the WVS measurement invariance for genders, social-economic levels, and work situations. Future studies investigating associations with other variables could offer additional support for the validity of the WVS and demonstrate its added value in theoretical models like identity development theory, social cognitive career theory, or the career construction model of adaptation. Taking the international literature into account (e.g., Lee et al., 2016; Porfeli et al., 2013), relationships between the WVS and measures of other constructs, such as career exploration, and academic/work motivation could be further examined.

Acknowledging common interests among the Career Psychology and the Work and Organizational Psychology fields (Arnold & Cohen, 2013; Kenny et al., 2019; Lent

& Brown, 2021), the WVS might be useful for future collaborative studies. For example, the socialization of children to work (Hartung et al., 2005) might constitute a topic of joint interest, as it can advance research regarding how parents' work valences might be influenced by organizational variables, how they may be associated with well-being, work-family dynamics, parenting practices, and impact offspring's work valences and childhood career development.

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