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Araştırma Makalesi

AN EXAMINATION OF THE STRUCTURE OF THE VOCATIONAL OUTCOME EXPECTATIONS SCALE WITH LATINA/O STUDENTS

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Abstract

In the current study, we investigated the psychometric properties of a meaningful measure of career development among Latina/o students. A confirmatory factor analysis (CFA) was used to evaluate structural validity of the Vocational Outcome Expectations scale. The results supported a modest one-factor structure for the VOE scale. Internal consistency was good as measured by coefficient alpha. Findings provide support for the reliability and validity of the VOE with Latina/o students. A discussion regarding the usefulness of this measure of career development is provided.

Keywords: Vocational outcome expectations, Latina/o students, assessment instruments.

MESLEKİ SONUÇ BEKLENTİLERİ ÖLÇEĞİNİN YAPISAL YÖNDEN LATİN ÖĞRENCİLER İLE İNCELENMESİ

Öz

Bu çalışmada anlamlı bir ölçme aracı olan kariyer gelişimi ölçeğinin psikometrik özellikleri Latin öğrenciler grubuyla incelendi. Bu anlamda, Mesleki Sonuç Beklentileri (MSB) ölçeğinin yapısal geçerliliğini değerlendirmek amacıyla doğrulayıcı faktör analizi (DFA) kullanılmıştır. Sonuçlar MSB ölçeğinin tek faktörlü yapısını desteklemiştir. Ölçeğin iç tutarlılık katsıyısı hesaplanmış ve iyi bir değere sahip olduğu görülmüştür. Bulgular MSB ölçeğinin Latin öğrenciler grubu ile kullanılması açısından geçerlilik ve güvenirliğe sahip olduğunu göstermiştir. Bulgular ışığında kariyer gelişimi açısından ölçeğin kullanışlılığı tartışılmıştır.

Anahtar Sözcükler: Mesleki sonuç beklentileri, Latin öğrenciler, ölçme araçları.

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Introduction

Demographers noted that the Hispanic population is one of the fastest growing groups in the United States (U.S.) with Mexican Americans making up the largest subgroup of the Hispanic population (U.S. Census Bureau, 2012). In the current study and similar to other researchers (Cavazos Vela, Flamez, Sparrow & Lerma, 2016), we use Latina/o to refer to individuals who are associated with one or more of the following: Cuban, Dominican, Mexican, Puerto Rican, Spanish, or communities from Central or South America (U.S. Census Bureau, 2008). Despite the demographic shift in the U.S., Latina/o students have low academic achievement and the highest high school dropout rates among major ethnic groups (American Council on Education, 2012). Additionally, the achievement gap between Latina/o students and their peers in terms of grades and test scores is well-known (American Council on Education, 2012). According to the Pew Research Center (2016), 15% of Latinas/os between ages 25 to 29 received a college degree compared with 40% of White adults. Latina/o students also rank low on college readiness compared with their White and Asian counterparts (Cavazos Vela et al., 2016; Texas Education Agency, 2011).

Preparing to college, increasing achievement motivation and obtaining a college degree are significant factors for career and college development (Fiebig, Braid, Ross, Tom & Prinzo, 2010). Although college and career services have improved for the growing Latina/o population, Mexican American students pursue postsecondary education and career selection with individual, interpersonal, and institutional challenges (Cavazos Vela et al., 2014). Given that researchers and counselors study or monitor students' career and college development, assessments that demonstrate strong psychometric support for use with Latina/o students need to be identified.

In the current study, we focus on vocational outcome expectations which refer to beliefs toward future outcomes. Given that vocational outcome expectations relate to individuals' career-related decisions and behaviors (McWhirter, Rasheed & Crothers, 2000), professional helpers, such as counselors and psychologists must find ways to measure and increase students' outcome expectations. We believe that the focus should be on those groups who struggle most with career decisions and behaviors such as Latina/o students. As a result, the purpose of the current study was to identify the factor structure of the Vocational Outcome Expectations scale (VOE) with Latina/o students in order to provide the field with a measure of career development that has evidence of validity.

Vocational Outcome Expectations

One of the most important factors in career development is vocational outcome expectations (Yeh & Borrero, 2012) which refers to beliefs regarding consequences of actions (Bandura, 1986) and career choice outcomes (McWhirter et al., 2000). Ali, McWhirter, and Chronister (2005) stated that vocational outcome expectations is related to Social Cognitive Career Theory (SCCT) which is partially based on Bandura's (1986, 1997) Social-Cognitive Theory. In the context of a SCCT, vocational outcome expectations refer to individuals' expected outcomes when pursuing goals (Fouad & Guillen, 2006). Vocational outcome expectations are important given the relationship with vocational and educational self-efficacy beliefs (Ali et al., 2005), meaning in life, and family support (Cavazos Vela et al., 2016). One popular measure for vocational outcome expectations is the VOE scale. The original VOE scale was a brief (6-item) self-report measure designed to evaluate perceptions of vocational outcome expectations. The VOE was initially developed and validated using 6-items that reflected outcome expectations. Test-retest reliability of the original scale was .59 with participants in health education while concurrent validity with a similar measure on outcome expectations was .54. Murray and Doren (2013) also used this scale to measure the impact of a school-based intervention with mostly White students. The coefficient alpha at time 1 of the intervention was .75 and .85 at time 2. In another investigation, Ali et al. (2005) examined the impact of self-efficacy and vocational outcome expectations among mostly White adolescents. The reliability coefficient for the 6-item VOE was .92. Despite promising psychometric properties, Metheny and McWhirter (2013) contended that the original scale was brief and included several items that were not specific to career choices. As a result, they added 6 additional items aligned with Bandura's types of outcome expectations and used an Exploratory Factor Analysis (EFA) with maximum likelihood extraction that resulted in a 12-item scale.

Researchers (Cavazos Vela et al., 2016; Isik, 2013; Metheny & McWhirter, 2013) have used the 12-item VOE scale to measure students' outcome expectations. A review of published studies revealed a trend for applications of scores in a unidimensional way as an outcome variable based on predictive models or as an outcome measure in program evaluation studies. Metheny and McWhirter (2013) examined the contributions of social status and family support to college students' self-efficacy and outcome expectations. Similar to researchers who used the 6-item VOE scale, participants in the current study were mainly White students. They found a strong reliability coefficient of .93, suggesting strong internal consistency among inventory items. In another investigation, Isik (2013) examined the impact of social support and locus of control as predictors of vocational outcome expectations. The coefficient alpha was .82 and test-

retest reliability was .85. Finally, Cavazos Vela et al. (2016) examined the effects of humanistic and positive psychology factors on vocational outcome expectations among Mexican American students from south Texas. A multiple regression analysis was conducted to determine how predictor variables influenced students' vocational outcome expectations. Results showed that family importance and presence of meaning in life were significant predictors of vocational outcome expectations. They reported a coefficient alpha of .92, providing additional evidence regarding internal consistency.

In addition to exploring vocational outcome expectations as outcome variables in prediction studies, other researchers investigated the impact of programs on increasing students' outcome expectations. McWhirter et al. (2000) investigated a 9-week career education class that was implemented in a school district. The purpose of this study was to determine the impact on higher decision-making efficacy, vocational skills self-efficacy, perceived educational barriers, and outcome expectations. Multivariate analysis of variance with repeated measures analysis found that the results from the post- and follow-up survey showed an increase in career decision-making self-efficacy, vocational skills self-efficacy, and short-term gains in outcome expectations for participants in the career education class. In another outcome-based study, Murray and Doren (2013) investigated the effects of the Working at Gaining Employment Skills (WAGES) curriculum on adolescents with disabilities. Participants were either assigned to a control (i.e., business as usual) or an intervention condition with the WAGES curriculum. Pre- and post-test results revealed that students in the intervention condition had higher levels of vocational outcome expectations, greater empathy, greater occupational skills, higher cooperation, and higher assertiveness than students in the control group. In summary, researchers have used the VOE scale in programs to measure changes and growth in students' career development and outcome expectations.

Purpose of Study

Although the revised 12-item VOE was used in the research reported, this instrument has not been psychometrically evaluated with Latina/o populations. Examining factorial stability with diverse populations is important to make sure that measures provide valid information about constructs of career development. We agree with Niles and Harris-Bowlsby (2016) who said that "career counselors must ensure that the instrument is valid, reliable, and appropriate for the client's cultural and linguistic context" (p. 119). While researchers have provided evidence of reliability (i.e., consistency), researchers have not examined validity (e.g., accuracy) with Latina/o students. This study is important given that Latinas/os have unique experiences related to language practices, acculturation, and family importance (Cavazos Vela

et al., 2016). Similar to other culturally-diverse populations (e.g., Turkish students- Haktanir, Lenz, Can & Watson, 2016; Fillipino students- Datu, Valdez & King, 2016), Latina/o students might also have different conceptualizations of variables of interest. As such, the purpose of the present study was to evaluate the psychometric properties of the revised VOE scale among a sample of Latina/o students. We aimed to identify a factor structure for vocational outcome expectation scores that could be sustained across Latina/o populations.

Method

Following Institutional Review Board approval, we completed a secondary analysis of data in previous studies (Cavazos Vela, Flamez & Clark, 2015; Cavazos et al., 2016) to evaluate the factor structure of the VOE scale with Latina/o participants who participated in research studies in the central Southern region of the U.S.

Participant Characteristics

Participants were Latina/o college students who participated in research studies at a Hispanic Serving Institution (HSI) in the southern region of the U.S. Participants were mostly young adults (n = 457) whose age ranged from 18 to 39 (M = 20.61, SD = 3.86). Our sample consisted of women (n = 169; 44%) and men (n = 214; 56%). Only participants who self-identified as Hispanic, Mexican, or Mexican American were included, resulting in several participants removed from data analysis. As previously mentioned, we use Latina/o to refer to participants in the current study.

Measurement of Construct

Vocational Outcome Expectations. The revised VOE scale (McWhirter et al., 2000; Metheny & McWhirter, 2013) measures participants' perceptions of their ability to accomplish career aspirations. Participants responded to a 12-point scale ranging from *strongly agree* (4) *to strongly disagree* (1). Sample items include, "My career planning will lead to a satisfying career for me," "I have control over my career decisions," and "The future looks bright for me." The mean score is computed with higher scores reflective of higher vocational outcome expectations. Reliability estimates range from .81 to .92 (Cavazos Vela et al., 2016; Fiebig et al., 2011; Ma & Yeh, 2010). For the current study, we also calculated a Cronbach's alpha of .94.

Data Analysis

Statistical power analysis. We conducted a power analysis to identify a sample size for detecting model fit using Stevens' (2009) criteria, $n/p \geq 20$. Given our sample size of 457, we consider our sample size sufficient for making statistical inferences about model fit.

Preliminary analysis. After transferring our data into a Statistical Package for the Social Sciences (SPSS; IBM Corporation, 2013) file, we followed two steps to clean the data. First, the data set was examined and one case were removed due to 12 unanswered questions reducing the initial sample to *n*= 457. The second step was to replace missing values within the data by using the SPSS series mean function. A descriptive statistic was run to find the percentage of missing values. The results showed that the percentage of missing values were .12%. As a result, missing values was replaced with mean scores.

Before conducting analyses, the assumption of normality was examined using the Kolmogorov-Smirnov test and was not met ($p < .05$). The visual inspection of histograms and normalized Q-Q plots of items showed that the data was positively skewed. In this situation, West, Finch, and Curran (1995) recommended Satorra-Bentler scaled x^2. However, AMOS does not provide this statistical value. Therefore, Bollen-Stine bootstrap test, which has been considered a better analysis than the Satorra-Bentler scaled x^2 (Fouladi, 1998; IBM, 2011), was used. Results showed that model fits the data (Bollen-Stine bootstrap, p= .08, n= 500). The correlations between all items, as well as items means and standard deviations for the VOE scale, are presented in Table 1.

Results

We analyzed model fit for the VOE using the SPSS Analysis of Moment Structures Software (AMOS), Version 23 (SPSS; Arbuckle, 2012; IBM Corporation, 2011). Based on the results of the EFA conducted by McWhirter et al. (2001), the researchers hypothesized that a one-factor model would be an appropriate fit with the data. We interpreted the chi square statistic (x^2) and *p*-values, as well as goodness of fit index (GFI), comparative fit index (CFI), Tucker-Lewis index (TLI), standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA) metrics of model fit. When inspecting these values, we used Dimitrov's (2012) standards in which an acceptable model fit is represented in values for the x^2 (p> .05), GFI > .90, CFI > .90, TLI > .90, SRMR< .08, and RMSEA < .08. Reliability estimates in the normative sample were evaluated using Cronbach's alpha (α) to assess internal consistency. An α value of .94 showed that VOE had a strong reliability estimate.

To demonstrate evidence of internal structure (AERA, APA & NCME, 2014) and to confirm factor structure of VOE, a CFA was conducted. The initial model included one latent variable with 12 items. Results of model fit indices showed that the x^2 was significant for the hypothesized model, $x^2(54) = 216.64$, $p< .001$. The fit indices indicated an acceptable fit for the data, GFI= .92, CFI= .96, TLI= .95, SRMR= .032, and RMSEA= .081. The results of model

indices showed that the RSMEA was not an acceptable level for close model fit (RMSEA < .08). Therefore, modification indices (MIs) were examined to identify if a better model fit could

Table 1: Correlations between Items, Means (M), and Standard Deviations (SD) of the Vocational Outcome Expectations Scale (N=457)

Item	1	2	3	4	5	6	7	8	9	10	11	12
1	___											
2	.67*	___										
3	.57*	.66*	___									
4	.58*	.57*	.57*	___								
5	.51*	.53*	.50*	.59*	___							
6	.58*	.59*	.59*	.55*	.64*	___						
7	.61*	.65*	.58*	.65*	.63*	.64*	___					
8	.52*	.58*	.53*	.52*	.51*	.58*	.61*	___				
9	.59*	.59*	.54*	.54*	.56*	.59*	.63*	.66*	___			
10	.63*	.68*	.61*	.61*	.58*	.66*	.75*	.58*	.64*	___		
11	.57*	.56*	.52*	.50*	.54*	.58*	.56*	.57*	.62*	.59*	___	
12	.55*	.58*	.55*	.50*	.52*	.57*	.58*	.68*	.62*	.59*	.56*	___
M	3.51	3.60	3.50	3.51	3.52	3.68	3.48	3.52	3.52	3.58	3.61	3.60
SD	0.74	0.64	0.69	0.74	0.74	0.65	0.75	0.71	0.74	0.70	0.74	0.72

*p <.01.

be attained. The error covariances between items 8 and 12 were correlated for the greatest decrease in x^2:

Item 8: My career/occupation choice will provide the income I need.

Item 12: My career/occupation choice will allow me to have the lifestyle that I want.

It was determined that these two items were written in a similar manner (i.e., My career/occupation choice will…). After re-running the model, the results indicated that the model with this modification was a stronger fit than the original model, $x^2(53) = 171.70$, $p < .001$, GFI= .94, CFI= .97, TLI= .96, SRMR= .029, and RMSEA= .070. The results indicated that all 12 factor loadings between the observed variables and the latent variable were significant ($p < .001$; see Figure 1). Although there were several additional modification possibilities, no additional changes were made since the results would not make a significant change in goodness-of-fit indices.

Effect size was calculated between this study's sample and other subgroups (i.e. African American) to compare the mean scores of VOE to see how practically significant the mean scores of the current study. As a result, the mean scores of this study's sample (i.e., Latino male students, n= 181) and Townsel's (2012) study sample (i.e. African American male adolescents, n= 124) were compared. We only included male participants from the current study since

Table 2: Means, Standard Deviations, and Internal Consistencies of the VOE across Samples

Study Sample	*M*	*SD*	α
Current Study: Latino male students (*n*= 181)	3.53	.76	.94
Townsel (2012): African American male adolescents (*n*= 124)	3.31	.75	.96

Townsel's (2012) study included African American male adolescents. There were two more studies (e.g. Turkish college students- Isik, 2013; Chinese immigrant youths- Ma & Yeh, 2010) potentially could be included in this comparison. However, due to unreported descriptive statistics (e.g. Items mean score, standard deviation), it would not be possible to calculate effect sizes. Table 2 provides descriptive data including means, standard deviations, and reliability scores. As proposed by Cohen (1992), effect sizes (*d*) were reported as small (.20), medium (.50), and large (.80). Effect size differences were noted between African American and Latino samples. Latino sample had higher level of vocational outcome expectations with a small effect size (*d*= .29).

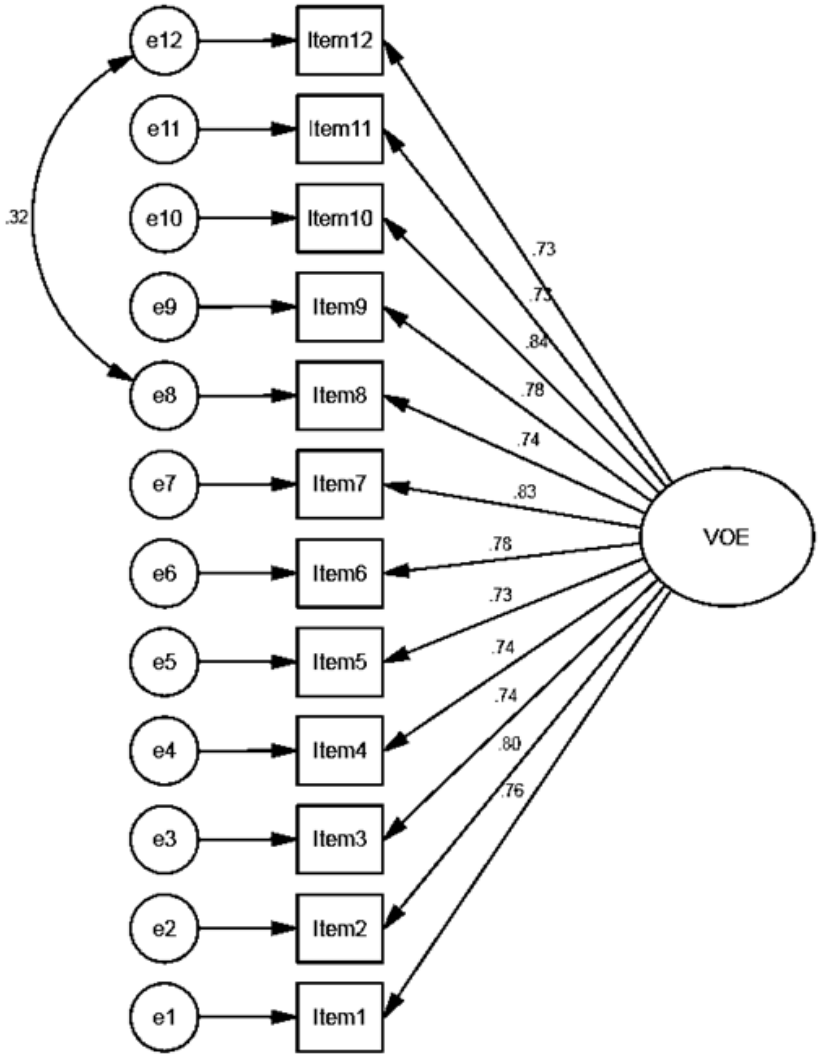

Figure 1: The Final Confirmatory Factor Analysis Model Tested with the Vocational Outcome Expectations (VOE) Scale. The Standardized Parameter Estimates for the VOE are Listed. Error Covariances were Added between Items 8 and 12. Rectangles Indicate the 12 Items on the VOE, and Oval Represents the Latent Factor.

Discussion

The purpose of this study was to identify a factor structure for the revised VOE scale that could be sustained across Latina/o students. There was evidence that the original one-factor model of VOE had an acceptable model fit based on the suggested cutoffs (GFI > .90, CFI > .90, TLI > .90, SRMR< .08, and RMSEA < .08; Dimitrov, 2012) with one indices. In the final model for VOE, error terms were paired between Item 8 (i.e., "My career/ occupation choice will provide the income I need") and Item 12 (i.e. "My career/ occupation choice will allow me to have the lifestyle that I want"). Dimitrov (2013) noted that "…correlations between errors are expected between errors when, for the most, errors have common sources…" (p. 394). We speculate that items 8 and 12 relate to future and preferred lifestyle. After reviewing items, we also found that both items were written in a similar manner (i.e., My career/ occupation choice will…). Future researchers who plan to use this instrument with Latinas/os should evaluate and think rewording these items. In addition, another explanation of this can be the difference between samples. Pairing MIs was likely the result of ethnic differences between the normative sample and Latina/o sample. Previous measures developed by dominantly white participant samples demonstrated a different factor structure when evaluated with other cultures and ethnicities (see Cokley, 2015; Korkut-Owen & Ogretmen, 2013; Lenz, Balkin, Soler & Martinez, 2016). Through mean comparison and effect size calculations, Latino male students had a higher score on vocational outcome expectations. This showed that the VOE scale measures different factors for members of different groups. This finding was also in line with previous research (Gnilka, Karpinski & Smith, 2015).

The final model yielded strong psychometric properties and supported a unidimensional factorial structure for counselors and researchers who work with Latina/o populations. Our results show that the VOE scale has evidence of reliability and validity to measure outcome expectations among Latina/o students. Through our CFA, a model with Latina/o students was identified for VOE, displaying utility in examining an important measure of career development that is related to career interests and choices (Lent, 2005) as well as meaning in life and family importance (Cavazos Vela et al., 2016). As a result, we suggest that this initial exploration of the VOE scale may provide researchers and counselors with measures to examine outcome expectations. This assessment can provide counselors with resources to evaluate changes in

career counseling and may assist researchers to identify predictive relationships with other factors. Finally, the VOE promotes the degree that career counselors can explore Latina/o students' perceptions of vocational outcome expectations.

Implications for Practice

Findings from the current study indicate that the VOE scale can serve as a measure of outcome expectations among Latina/o students. Given the importance of vocational outcome expectations on students' academic and career development outcomes (McWhirter et al., 2000), counselors should work to develop and measure vocational outcome expectations with Latina/o students. The VOE scale can be useful to help students understand the expectations that they hold toward future career pursuits and serve as guidance for counselors' interventions in helping individuals with low vocational outcome expectations. For example, counselors can develop interventions where this assessment serves as an instrument to help students transition from secondary school into work environments. Given that the VOE scale is directly related to the career development process, a career development intervention will likely benefit from the use of this scale. Counselors can use career development interventions and measure the efficacy in difference between VOE pre- and post-test scores. Additionally, Ali et al. (2005) found that perceived peer and sibling support influenced self-efficacy beliefs and indirectly influenced outcome expectations. Counselors can use the VOE scale to facilitate group therapy where peers and siblings can be involved in supporting those with low VOE scores. Finally, counselors can use individual items to further explore Latina/o students' vocational outcome expectations. As one example, if a Latina/o student reports feeling a "2" on an individual item with 4 being "high vocational outcome expectations," counselors can use the following solution-focused questions to explore: "What does this 2 look like? What needs to happen for you to feel like a 4?" Results from the current study provide evidence for counselors to use the VOE scale to measure and increase Latina/o students' vocational outcome expectations.

Implications for Research

Based on findings from the current study, there are directions for future research. First, understanding how these and other career attributes apply to Latina/o populations would be increased through additional studies with other Latino populations as well as Latina/o students who do attend predominantly Latina/o schools. Second, researchers should continue to validate this and other career development instruments (e.g., career-decision self-efficacy) with Latina/o students. These areas of research may help determine if some VOE items need to be revised as well as confirm factor structures of other important career development instruments. Additionally, investigations detecting relationships between vocational outcome expectations

and other constructs would be useful to demonstrate evidence of convergent, discriminant, and predictive validity regarding vocational outcome expectations. Important factors to consider include career self-efficacy, career interest, career goals, and college self-efficacy. Finally, researchers can use Single Case Research Designs (SCRDs; Lenz, 2015) to examine the impact of counseling interventions to increase Latina/o students' vocational outcome expectations. Potential counseling methods that could increase vocational outcome expectations include Narrative Therapy, Solution-Focused Therapy, Creative Journal Arts Therapy, Constructivist Counseling, and Positive Psychology.

Limitations

Despite practical implications for counselors and researchers to use the VOE scale, our results reveal limitations that indicate the need for further research. First, results of the model in the current study were exploratory and additional factor analyses may provide a more trustworthy depiction of the true factor model of this instrument (Cavazos Vela et al., 2016). Second, when calculating effect size, we only used one study with African American male students and we only compared male participants. However, the current study included both male and female students. This limited the comparison and generalizability of our findings. We also did not collect data from high school students who might be in a different stage of career development. Finally, we did not collect data to analyze test-retest reliability (Lo Presti et al., 2012).

Conclusion

In this study, we described the psychometric evaluation of the VOE scale with Latina/o college students. Our final model demonstrates a strong one-factor structure that has practical implications for counselors and researchers working with Latina/o students. Although further research is needed to evaluate the factor structure of the VOE scale, we believe that this study provides counselors and researchers with an instrument to measure career development among Latina/o students.

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