Teacher Self-Efficacy Scale for Autism: A Validation Study

Currently, 1 in 68 children in the US is diagnosed with autism spectrum disorder (ASD; Centers for Disease Control and Prevention, 2015). White, Smith, and Smith (2012) noted that this population of learners has become one of the most challenging groups to teach; therefore, investigating the processes involved in teaching children with ASD is an important and relevant area of research. This study focuses on teachers’ self-efficacy, the beliefs teachers hold about their ability to affect student learning (Bandura, 1997), specifically when teaching students with ASD and aims to provide a psychometrically strong measure by disseminating validation methods other researchers can rely on. The scale produced by this study is called the Teacher Self-Efficacy Scale for Autism (TSEA). This particular study worked to ensure the validation of scores derived from the TSEA, which included an assessment of the TSEA’s dimensionality and construct validity. Therefore, we asked: What is the internal structure of the TSEA? What is the relationship between the scores derived from the TSEA and measures intended to assess the same (teacher self-efficacy), related (job satisfaction), and different (self-regulation) constructs?

Method

An online survey was administered to a convenience sample of 134 certified teachers from the United States, Australia, Canada, and New Zealand, (25 men, 109 women). Self-reports indicated that 92% of the samples were White, 3% Black or African American, 2% Asian, and 3% from other ethnic groups. The mean age of the teachers was 37.81. Teachers indicated their primary teaching role as 38% elementary education, 20% high school, 12% special education, and 30% other subject areas such as physical education, music, or art.

Teachers responded not only to the newly developed teacher self-efficacy scale (TSEA), but also to three different scales to provide evidence of validity: a 14-item job satisfaction
measure with a five-point Likert-type response format scale (Brayfield & Rothe, 1951; α = .943), a 10-item self-regulation scale with a four-point Likert-type response format scale (Diehl, Semegon, & Schwarzer, 2010; α = .816), and a similar general teachers’ sense of efficacy scale consisting of 12-items on a nine-point Likert-type response format (Tschannen-Moran & Woolfolk Hoy, 2001; α = .903).

Two analyses were conducted within this study to evaluate the scores derived from the TSEA and confirm evidence of validity. An exploratory factor analysis (EFA) conducted in SPSS was completed to discover the internal structure of the TSEA. The TSEA was initially examined for factorability. Factor structure coefficients were examined and items with factor loadings greater than .5 were considered as loading on that factor. Secondly, convergent validity evidence was determined by assessing the correlation of this new measure and one other existing measure of teacher self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). Additional convergent validity evidence was achieved by assessing the correlation of the TSEA with a measure of a construct hypothesized in previous literature as having a high correlation with teacher self-efficacy instruments (job satisfaction), and discriminant validity evidence utilized a construct that was not hypothesized as having a high correlation with teacher self-efficacy instruments (self-regulation).

**Results**

Initially, the TSEA was examined for factorability. The Kaiser-Meyer-Olkin measure of sampling adequacy was conducted and was determined to be .853, above the recommended value. Bartlett’s test of sphericity was significant at 683.839, \( p < .001 \) demonstrating EFA is appropriate for use. Cattell’s scree procedure was used to determine two factors would be
extracted. Results supported a two factor structure within the TSEA using a geomin oblique rotation. Actual eigenvalues above the mean values helped determine the factor decision.

Results of the correlation analysis showed that all correlations were < .5, and strong relationships were not found as expected. We hypothesized that the relationship between TSES and TSEA would be the highest correlation; and this was supported by the results ($r = .45, p < .01$). A moderate positive relationship was hypothesized between TSEA and the job satisfaction instrument; results showed $r = .22, p < .05$. Finally, a weak or near zero relationship was hypothesized between the TSEA and self-regulation scale; and this result was $r = .26, p < .01$.

**Discussion**

Findings suggest our instrument requires further validation. Results supported both a two and one-factor solution; however, the two-factor solution is not supported by theory and item development. Therefore, the one-factor solution fits the data best. Further validation with additional samples will help to support this. In addition, we predicted scores resulting from the TSEA would have a high correlation with the TSES, moderate correlation with a measure of job satisfaction, and low or near-zero correlation with a measure of self-regulation. The present study yielded results that did not support this hypothesis; all relationships were weak ($r = .118-.450$).

One of the limitations of the study is the sample size. With 134 teachers in the sample, adequate analysis is difficult to achieve. Outliers were also observed in the data, which had a large effect on the correlational analysis and inferences made about the results from the instrument. Future studies should continue to focus on the validation of the TSEA with a larger and diverse sample to ensure that this measure accurately assesses the latent trait. Given the high reported levels of stress and high burnout rates of teachers, implications of the TSEA validation
include guiding the design and implementation of professional development that specifically reflect teachers’ beliefs about their ability to teach students with autism measured accurately by the TSEA.

References


