

Validity and reliability of adapted self-efficacy scales in Malaysian context using PLS-SEM approach

ABSTRACT

Self-efficacy scales have been used widely across curriculum and demographic structures, while retaining their objectivity in a specific domain. This pilot study aimed to test the validity and reliability of adapted scales that incorporated four sources of self-efficacy (mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states), as well as science self-efficacy in the Malaysian context. A total of 109 students participated in this study. Data were analyzed through confirmatory factor analysis (CFA), by using the partial least square structural equation modelling (PLS-SEM) approach. The reliability criteria were determined through outer loading and composite reliability (CR). The assessment of convergent validity was performed using the average variance extracted (AVE), while the discriminant validity of this instrument was confirmed using the heterotrait–monotrait criterion (HTMT), along with the bootstrapping procedure. The CR values were at a satisfactory level, and two indicators were eliminated (PM3 and PMPR6) to improve the AVE values of the construct. All the values were assessed in the HTMT criterion, along with the confidence intervals in the range recommended to prove discriminant validity. The assessment of validity and reliability, through PLS-SEM, indicated that the scales used in this study are valid and statistically reliable.