Reviewer’s report

Title: Psychometric Assessment of Three Newly Developed Implementation Outcome Measures

Version: 0 Date: 05 Jun 2017

Reviewer: Jordan Albritton

Reviewer’s report:

General: The article is well written, coherent, and organized. The paper addresses the need for consistency in the use of valid and reliable measures in implementation science. High quality work like this will help move the field towards higher comparability of findings, theoretical frameworks, and implementation tools across studies and contexts. In particular, I commend the authors for their thorough approach to developing and validating measures. The contribution is even more valuable as it serves as an example for others working to improve measurement in implementation science. I also look forward to the next phase where the authors test the predictive validity of the measures.

I recommend the following minor revisions/clarifications:

Lines 234-238: Did you use the same data for the EFA and CFA? Or did you split the sample in half? You may wish to explain/justify in the article. I appreciate the use of CFA since you have an a priori theoretical model. EFA may also be appropriate, but perhaps explain here why you chose to conduct EFA (it becomes clearer in the results section).

Line 216 and Line 277: The manuscript indicates Table 1 is to be inserted at both of these locations.

Lines 270-273: RMSEA is more likely to reject fit with small samples. It would be helpful if you added a test to compare change in fit between nested models. I recommend the Schwarz Bayesian Information Criteria, which will at least give you an estimate of how strongly the evidence favors one model over the other (see Raftery, A. Bayesian Model Selection in Social Research. Sociological Methodology, Vol. 25, 111-163. 1995).

Lines 330: You might consider the use of McDonald's Omega instead of Cronbach's alpha. Omega relaxes the assumption of tau-equivalence (equal factor loadings) between the items of a factor. Omega is equal to or greater than alpha. The factor loadings appear to be nearly tau-equivalent in figure 2, but not in figure 1.

Figures 1 and 2: Are all numbers significant at p<.05? It's difficult to tell if all or none of the numbers are bold. Can you make this clearer?

Lines 331-332: I expect the 3-factor CFA model is the same model identified in study 1, but please clarify.
Lines 334: I think you are calling the 1-factor model a "general concept of social validity", but it feels like you are introducing a new concept. Please clarify or refer the model as an omnibus 1-factor CFA as you do in line 353.

Line 342-343: Why trim the scale further... because shorter scales are more pragmatic? Do you favor one version of the scale over the other? Did you plan to produce a 4-item scale when you started the project?

Lines 353-357: Again it would make your argument stronger if you used the Schwarz BIC, which will likely give you "very strong” evidence in favor of the 3-factor model.

Lines 417-418 and 421-422: First you say you use the 5-item scales and then you say you used the 4-item scales. Please clarify.

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**Quality of written English**
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