Author’s response to reviews

Title: Organizational culture and climate profiles: Relationships with fidelity to three evidence-based practices for autism in elementary schools

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We thank the expert reviewers for their enthusiasm regarding the contribution of our study and their constructive suggestions for improving the manuscript. Below we present the reviewers’ comments and the revisions we made to the manuscript in response.

Reviewer #1:

COMMENT 1: Line 175: It appears that the use of the proper plural for curriculum; curricula, is warranted in this sentence.

RESPONSE: We have made this change on p. 8 of the manuscript.
COMMENT 2: Method; Lines 186 onward: The authors state that "teachers and classroom staff received training in three EBPs." Was this training done in this study? Because training approaches have important implications for EBP implementation, it is important to describe the training and (hopefully) the related coaching support for these teachers, relative to these EBPs. Also some notion of what they had been providing to students prior would be important. Were all teachers/classrooms trained in all 3 EBPs? If so, how are they integrated in the classroom and when are they used? How do they differ? What are the implications of teachers learning 3 EBPs at the same time?

RESPONSE: We have modified the manuscript on p. 8 to indicate that we conducted an observational study of factors related to implementation fidelity in school districts that had already decided to implement these 3 EBPs as part of their curricula in accordance with a national trend in the United States to improve school services for youth with autism. On pp. 8-9 we now indicate that, based on the school districts’ decision, training and coaching were already set to be provided by a purveyor organization to teachers and staff.

On pp. 9-10 we now provide additional details regarding the initial training and the ongoing coaching that was provided to teachers/staff throughout the school year. We also clarify on p. 9 that the 3 EBPs are all based on principles of applied behavior analysis and as such are complementary interventions that were presented to teachers and staff as a package of tools that they were expected to use with students with ASD in their classrooms. We now clarify on p. 9 how the EBPs are similar and different and we provide details regarding how teachers used these interventions to address a range of behaviors.

COMMENT 3: It would also be important to describe more about how the schools were recruited, and how/why they decided to participate. Participation in research studies of this type are often 'decided' upon by leadership, even though the teachers are the ones who are being asked to change their practices. In other words, was there buy in for change at all levels? What work was done to prepare the organizational conditions for practice change within these schools, prior to training?

RESPONSE: Additional information about school and teacher recruitment has been added to pages 10-11. We now clarify that all staff provided individual consent; teachers and staff could refuse even if the principal allowed the team in. We clarify on p. 11 that because our study was observational, we did not modify or add any implementation procedures outside of those already in use by the school.

COMMENT 4: Method; Lines 208 onwards: with what frequency was fidelity rated in each classroom, over what period of time? What are the psychometric properties of the fidelity measures used for these EBPs? Why only rate two observations, and why for 15 minutes each time? What's the likelihood of observing the 3 EBPs during this span of time? It might be expected that the more rigid environments took more time to get to the EBP components within the curriculum, no?
RESPONSE: We have revised p. 12 to clarify the frequency of observations, timing of observations, and the period of time when observations were conducted relative to each other. We now provide additional detail for the rationale of our fidelity observations on p. 12.

On p. 12 we have added information about the development of the fidelity scales, their coefficient alphas (i.e., reliability) in this sample, and validity evidence from prior research (Mandell et al., 2013; Stahmer et al. 2015; Pellecchia et al., 2015; Pellecchia et al., 2016).

COMMENT 5: Since the focus is on teacher practice change, why only report aggregate teacher fidelity data by school? How did teachers’ fidelity change over time, or did you not look at that?

RESPONSE: We have added information on p. 12 to clarify that our focus on aggregate fidelity reflects our unit of analysis, which was the school, and our theoretical frame in which school-level organizational culture and climate profiles were hypothesized to influence the fidelity/performance of teams of teachers and staff within these schools. Consistent with other implementation studies (Eccles et al., 2009), we conceptualize teachers and staff as teams who together meet the needs of an entire group of students. Because of this, our fidelity assessments did not focus on specific teachers or staff per se, but rather on the fidelity with which the EBPs were being implemented by team members during the observation period.

We clarify on p. 12 that our fidelity assessments focused on the middle of the school year when fidelity was expected to be optimal rather than examining change over time.


COMMENT 6: Results, p.12 onwards: In order to understand the results, the reader must know more about the training approach, the selection method (for schools and for teachers). The paper would benefit from adherence to StaRI or other implementation reporting guidelines, to ensure that the necessary information is shared with the reader (i.e., pertaining to both the EBPs and the implementation methods); see Equator Network.

RESPONSE: We have revised the method section to conform to the StaRI guideline, which we now cite on p. 10. Additional information about the training approach is provided on pp 9-10 and information about the selection method is now provided on p. 8. We have also completed the StaRI checklist and include it as a Supplemental file. Although our observational study does not test an implementation strategy, the StaRI guideline provided a nice structure for describing the implementation support activities that occurred within the schools.

COMMENT 7: Post Hoc analyses: Several other variables may account for your findings, based on CFIR, for instance, including characteristics of the teacher, training method, school
environment (competing initiatives), training method/coaching provided or not (train and hope approach?). These should be acknowledged in your limitations section.

RESPONSE: We agree and we have added an acknowledgement of these factors in the limitations section on p. 26.

COMMENT 8: Discussion, p. 16 onwards: I believe the word 'outcomes' is missing at the end of your sentence on line 387.

RESPONSE: We have revised this sentence (on p. 20).

COMMENT 9: I greatly appreciate how challenging it is to provide the requisite detail (as per reporting guidelines) for journal manuscripts that do not allow the space to do so and/or do not request use of reporting guidelines (this is a bigger publishing issue, of course). Perhaps you might add some details in additional files?

RESPONSE: We agree and thank the reviewer for this acknowledgement. We have added the StaRI checklist as a Supplemental file and incorporated the information called for by the StaRI guideline into the main body of the manuscript.

Reviewer #2:

COMMENT 1. Table 1 details participant demographics. Are there similar school/organizational demographics (besides size and % students who receive free lunch) that are available to better understand the sample of schools? While I understand that examining predictors of profile membership is beyond the scope, I cannot help but wonder about what's driving differences in contextual profiles. Also, region may be insufficiently granular to account for the unique policy/funding context in US schools which can vary dramatically by neighborhood in the US. (note: wasn't able to access supplemental file)

RESPONSE: We revised Table 1 so that it now includes demographic information about the schools including the racial composition of the schools and the percent of students on individualized education plans. We agree that the next step in this line of inquiry is to examine predictors of profile membership and we have added a discussion of this important direction for future research on p. 25; we also expanded our discussion of this limitation on p. 26.

COMMENT 2. This study would have been strengthened with qualitative data/member checking/stakeholder engagement around the findings. I'm wondering whether your stakeholders find the four profiles to be meaningful, whether your findings resonate with them, (e.g. is there some face validity here, given the importance of this work for advancing both theory and practice).
RESPONSE: We appreciate this feedback and agree that qualitative data would strengthen our findings. On p. 27 we have added a limitation stating that this manuscript would be strengthened with qualitative data and member checking.

COMMENT 3. Do you think that similar profiles would emerge if you focused on other types of health and human service organizations (and more of them)?

RESPONSE: On p. 21 we have added a discussion of other research, conducted outside of healthcare settings (Schulte et al., 2009) which suggests that some of our results may generalize to other types of healthcare organizations (and organizations more broadly).

COMMENT 4. Generally, I agree with the authors that the research questions are important for implementation. However, in both the intro (pg. 6) and throughout the discussion, please describe more specifically how your results have potential to advance implementation and theory. For instance, does your study have any implications for advancing causal theories of implementation (given the field's interest in mechanisms that underlie implementation)?

RESPONSE: This is a great point. We have added information in the Introduction on pp. 6-7 and in the Discussion on pp. 22-23 to describe some of the implications of a profile approach for understanding causal mechanisms in implementation science as well as for implementation theory and developing implementation strategies.

COMMENT 5. Also, when considering implications of these findings for implementation, what is the changeability of OSC over time? Does it change? How long does it take? Do we know how to change organizational culture/climate? This seems especially important for advancing other bigger outcomes beyond implementation that are also shaped by the social context. I'm thinking especially of your findings that only 9% of schools had a "comprehensive" context, suggesting that nearly all of the schools have some work to do re: building a comprehensive proficient and supportive context. However, they may need help in different ways (e.g. being less rigid vs building proficiency). Does this mean implementation strategies may vary depending on the contextual profile of the school?

RESPONSE: We have added information on p. 25 describing prior research which addresses the malleability of OSC, the length of time it takes to change, and interventions shown to change OSC in mental health services. We also added a discussion of the need for additional research to address the issue of matching implementation strategies to organizations based on their OSC profiles.

COMMENT 6. OSC measure/surveys. For the OSC surveys, could you add a sentence or two about length of time it took to administer, nature of response scales, etc. I know it's been published elsewhere, but would be helpful to have all in one place when considering the present study. Also, did survey items reference the general organizational environment or the
environment for implementing the specific EBP? There has been discussion in the literature about this (re: theory/conceptualization and measurement) - is it possible that the same workplace could be "comprehensive" in general, but only supportive for an individual EBP (e.g. low proficiency in that specific practice)? You begin to discuss this a bit on page 18 lines 417-423, and I'm left wondering whether your results imply that we should be measuring BOTH the general and specific contexts.

RESPONSE: We have added information on p. 13 describing the nature of the response scale for the OSC items and the time of administration. On pp. 22-23 we have added discussion of the generality of the proficiency culture items and the potential implications of this in terms of measurement and implementation theory. On p. 23 we now call for research examining how the more general construct of proficient culture relates to the more specific construct of implementation climate.

COMMENT 7. The authors highlight a tension between focusing on the gestalt context vs. individual dimensions, demonstrating that the context is more than the sum of its measured dimensions. Can you provide more specific recommendations for how we might begin to investigate this further? Would a combinatorial approach be useful? (identifying combinations of necessary/sufficient conditions).

RESPONSE: On p. 21 we have provided additional information on how investigators might study profiles using a combinatorial approach such as qualitative comparative analysis (QCA) that identifies necessary/sufficient conditions within a profile framework. We now cite a chapter that describes methods investigators can use to pursue a profile research agenda.

COMMENT 8. Why do you think the relationship between context and VS implementation was not significant?

RESPONSE: We have elaborated our discussion about the relationship between context and VS implementation on pages 24-25 of the revised manuscript.

COMMENT 9. Fidelity checklists - additional information would be helpful here. Are these existing checklists or created new? I'm assuming each item corresponds to key components of each intervention?

RESPONSE: Additional information regarding the fidelity checklists has been added to page 12 where we clarify that the checklists were developed in prior research and we summarize validity and reliability evidence for the scales.