Technical Review Comments on Mathematical Practices

Abercrombie:

I found the introduction very helpful. In particular, the description of the Standards for Mathematical Practice were explained very well, and after reading this I understood that these standards are identical across grade levels, that these standards express habits of mind that are fostered throughout mathematics education, and that these standards differ from the content standards which vary by grade.

I had no problem understanding how to read the standards or interpreting the structure of the standards. I was able to anticipate the presentation of the content standards and mathematical practice standards from the introduction.

Comment [MS1]: Thank you! The Mathematical Practices or process standards have consistent expectations across all grade levels. Each practice/process should reflect the developmental level of the specific grade level.

Achieve:

The ADSM revised the language for each of the eight Standards for Mathematical Practice and have helpfully included the practices at each grade level. Positioning the Practices with each grade's content standards shows a commitment to their emphasis and serves as a reminder for teachers to attend to them. Achieve recommends adding grade-specific descriptors for each grade level to tailor the message for different grade levels or bands to make them clearer and more actionable for educators.

Comment [MS2]: Based on Achieves comment for grade specific descriptors, examples will be included in support documents.

Carlson:

The introduction serves its primary purpose of telling people how to read the standards and how they are structured. There is also a very well-written set of narratives describing the mathematical practice standards and excellent examples on fluency progressions, and I appreciate the emphasis on building procedural fluency from conceptual understanding. Perhaps the best part of the introduction about what the standards are intended to do compared to what they are not intended to do (such as outline specific teaching practices).

Comment [MS3]: Thank you!

Milgram:

I am going to stay far away from all the mathematical practice standards and almost all of the statistics and data analysis standards in my review. There are too many issues with these areas for me to really be able to make constructive comments about them, but suffice it to say that comparing them to the requirements in the standards of the high achieving countries, this is the area where there are the greatest differences, and we should not lose sight of the fact that they get wonderful results and ours lag far behind.

Comment [MS4]: Since specific feedback on the Mathematical Practices was not included in the review, no action can be taken.

Pope:

The introduction does a good job clearly defining some key details and differences that should aid in reading, understanding and implementing the mathematics standards. Detailed information about the intended purpose of the standards, how they were created, and important research documents that were consulted in creating the standards is given. The introduction provides clear and detailed information about the "two types" of standards that compose the mathematics standards including definitions for each of the Mathematical Practice Standards that are consistent expectations across all grade levels.

Comment [MS5]: Thank you for noticing that there is a distinction between process and content standards. The Mathematical Practices or process standards have consistent expectations across all grade levels. Each practice/process should reflect the developmental level of the specific grade level.

Wurman:

I have already mentioned that the rewrite authors professed an interest in avoiding embedding instructional methods in the standards. Despite that, they religiously copied the eight Standards for Mathematical Practice into each and every grade, as if they were given from Mount Sinai. Yet what are those "standards" for mathematical practices if not instructional guidance par excellence? They are all about how student act, communicate, and discuss rather than about the content they are supposed to master. And much of what they discuss is difficult or impossible to measure on large-scale assessments.

Those SMPs should be deprecated and ideally eliminated from **content** standards – they have nothing to do with content. Their place is in auxiliary documents such as curriculum frameworks or model curricula.

Comment [MS6]: The Mathematical Practices standards are considered process standards not mathematical content standards. Unlike the mathematical content standards that can be taught in isolation, the Mathematical practice standards must be taught **through** the mathematical content standards. They are placed in the Introduction and at the end of each grade level document as an awareness of grade level habits of mind.

Milner:

No comment made on Mathematical Practices.