TITLE: Evaluation-via-Assessment: Measuring Students’ Understanding of Sources of Knowledge in Science
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Executive Summary. The contributions of the proposed work are (1) an instrument that measures how well students identify multiple, varied sources of science knowledge and (2) an evaluation of students’ proficiencies across development. The construct validity of the instrument is rooted in epistemological theory pertaining to understanding of SoK. In addition, the instrument will be validated by applying it in a real-world setting with a large sample of children grades 2-12, and by checking its statistical properties. The proposed work is only a first step towards an instrument, and full development will require substantial resources. Nonetheless, at a time when the national science education framework is grounded in the notion that students’ understanding of science knowledge is the key to their engagement in public discourse and their future learning, the need for such an instrument is great (NRC, 2012). It also follows that the proposed instrument is valuable for science educators’ evaluation of primary and secondary students’ science abilities as well as for post-secondary STEM educators. As such, results will be disseminated not only to researchers interested in cognitive development but to both pre-service teachers via GSU’s COE and to STEM faculty in A&S as well.