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Integrating Learning, Cognitive and Measurement Theories for Identifying Gifted Mathematics Students. Preliminary report.

Identifying and building an instrument to reliably and validly identify gifted mathematical students requires clearly defining the constructs associated with several complex skills. In this section, we will discuss advances in cognitive and learning theories towards specifying the skills and abilities of gifted mathematical students, and the mental processes they engage in when solving complex mathematical problems. Additionally, recent advances in measurement theories will be discussed with the goal of providing a framework for developing assessments that can elicit sufficient evidence of the degree to which students exhibit the constructs associated with gifted mathematical students, and how to use these assessments to identify and train these students. (Received September 13, 2019)