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## **Designing Cognitively Based Test Items through a Cognitive Diagnostic Framework**

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### **Abstract**

In an attempt to provide more than a single test score from item response data, the application of cognitive diagnostic models (CDMs) has become more prevalent in the context of educational measurement. This study highlights the use of and necessity for cognitively diagnostic assessments (CDAs) through the application of CDMs with the aim of providing diagnostic feedback to enhance students second language learning at Iran University of Medical Sciences, and touches upon the various issues involved in their development. In contrast to traditional test theories, i.e. item response theory or classical test theory, CDAs can provide valuable diagnostic information to guide student learning and enhance instruction in the classroom. Hence, in this study we have focused on the process of developing reading comprehension test items based on a cognitive diagnosis framework. To do so, we reflect on how the elements of CDA are situated in the assessment triangle framework and also evidence-centered design. Identifying attributes and developing test items in the context of CDA are explored and examples from relevant research are provided. The results of item development through a cognitive diagnostic framework can be beneficial to practitioners, test developers and students in enhancing teaching and learning in the context of second language learning.

**Keywords:** Assessment triangle framework; Cognitive Diagnostic Assessment (CDA); Cognitive Diagnostic Models (CDMs); Diagnostic feedback; Evidence-Centered Design (ECD)

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