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**Iranian students' measurement estimation performance involving linear and area attributes of real-world objects.**

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Summary: This article reports on an exploratory investigation of the measurement estimation performance of ten Iranian high school students on a set of real-world length and area measurement tasks. The results of a qualitative analysis of the data indicate that the students employed a variety of either mental or physically present Individual Frames of Reference as the non-tool units of measure in various estimation tasks. The analysis also found that a range of types of frames of reference was used across students in response to particular tasks and to the physical environments in which the tasks were situated. These results suggest that there is a complex interaction among a student's individual preference for a particular type of Individual Frame of Reference, the nature of the estimation activity, and the physical context in which the activity takes place. These findings, which contribute to an understanding of the nature of the measurement unit that is employed during an estimation process, provide a different perspective from other studies that focus on categorizing estimation strategies, or processes.

*Classification:* F73 G33

*Keywords:* high school students; measurement estimation tasks; linear measurement; area measurement; individual frame of reference; educational research

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