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Collecting Validity Evidence Through the Measurement of Eye Movement

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Item functioning is typically evaluated through pilot studies to identify problematic items and assess their performance. However, such analyses often fail to provide insights into the underlying causes of these problems. To address this gap, alternative strategies such as psychophysiological measures, including eye movements, may offer valuable insights into participants'response processes. This study investigates the potential of eye-tracking data to inform item functioning and provide validity evidence. Two studies were conducted. The first study had two phases: Phase 1 involved creating sentences with varying levels of legibility and examining corresponding eye movement patterns. In Phase 2, eye movements were analyzed in relation to three sentence features: syntactic complexity, lexical frequency, and sentence length. Results from both phases established criteria linking specific eye movement patterns to potentially problematic items. The second study compared two versions of an instrument administered to different groups. The first group responded to the original version, while the second group received a modified version with adjustments to reduce problematic elements.

Differences in responses between the groups demonstrated the extent to which eye-tracking data can guide the development of improved items. Conclusions include practical recommendations for researchers designing educational and psychological assessments. The study also highlights the utility of eye movements in providing validity evidence.

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