Validity of Automated vs. Hand-Scored Written **Expression Curriculum-Based** Measurement Samples

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BACKGROUND

- Scoring feasibility is a challenge for universal screening of writing skills.
- Can open-source automated text evaluation tools be used for this purpose?

METHOD

140 fourth-grade students completed 3-minute story writing samples in the Fall, Winter, and Spring of one school year. Their writing state test score (i.e., STAAR) was collected from the school district.

KEY FINDINGS

- More complex WE-CBM hand scoring (CIWS), proprietary automated text evaluation (Project Essay Grade), and open-source automated evaluation (with spelling) and grammar considered) all performed somewhat similarly.
- Variance explained (*R*²) and diagnostic accuracy (AUC) for state writing assessment scores improved when scores across the 3 screening samples were averaged.
- Single, 3-min screening samples are inadequate for decision making.





Automated text evaluation can feasibly assess writing quality for universal screening.





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WRITING SAMPLE SCORING



TABLE 1 Relations to State Writing Test (1 screening) sample)

	Fall		Winter		
Scoring	R ²	AUC	R ²	AUC	
TWW	.06	.63	.00	.54	
WSC	.08	.65	.01	.53	
CWS	.18	.76	.16	.72	
CIWS	.18	.75	.23	.83	
PEG	.08	.65	.18	.82	
RB	.14	.69	.14	.66	
Coh	.14	.69	.20	.67	
RB+SG	.17	.71	.20	.78	
Coh+SG	.17	.72	.25	.78	

TABLE 2

Relations to State Writing Test (average of 3 screening samples)

Scoring Method	R^2	
TWW	.08	
WSC	.10	
CWS	.27	
CIWS	.30	
Project Essay Grade (PEG)	.20	
ReaderBench (RB)	.25	
Coh-Metrix (Coh)	.26	
RB+Spelling/Grammar	.28	
Coh+Spelling/Grammar	.30	

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