

1. Title

Toward Process-Based Authorship Assessment Across Human and LLM-Generated Writing

2. Author information

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3. Abstract body

This study examines whether authorship can be distinguished through process-based evidence of engagement with a text, rather than through probabilistic classification of textual features. The widespread adoption of large language model (LLM)-assisted writing challenges the use of student texts as evidence of learning, as existing detection approaches rely on surface-level features and show limited reliability in educational contexts. Whereas prior research has focused on textual features alone, educational contexts allow direct engagement with learners. In such contexts, human authorship entails access to the decisions that produced a text, whereas LLM text generation does not. To operationalize these characteristics of the writing process, the Content Restoration Authorship Familiarity Test (CRAFT) was developed to assess authorship through writers' ability to recall and restore elements of word choice and text structure. Using a within-subjects design, 60 undergraduate English education majors completed CRAFT tasks based on both self-authored handwritten texts and LLM-generated texts on the same topics. Results showed a clear separation between conditions (Cohen's $d = 5.34$), indicating strong discriminative capacity between the two authorship conditions. Lexical restoration produced larger effects than structural restoration, while their combination yielded substantial separation. These findings suggest that authorship can be operationalized as access to cognitively encoded compositional decisions rather than inferred from textual features, grounding authorship verification in cognitive models of writing and evidence-centered approaches to assessment. The study offers an interpretable alternative to automated detection of LLM-generated text and supports process-based assessment practices that enable instructors to evaluate writers' engagement with planning, drafting, and revision.

4. Figures and tables, if any

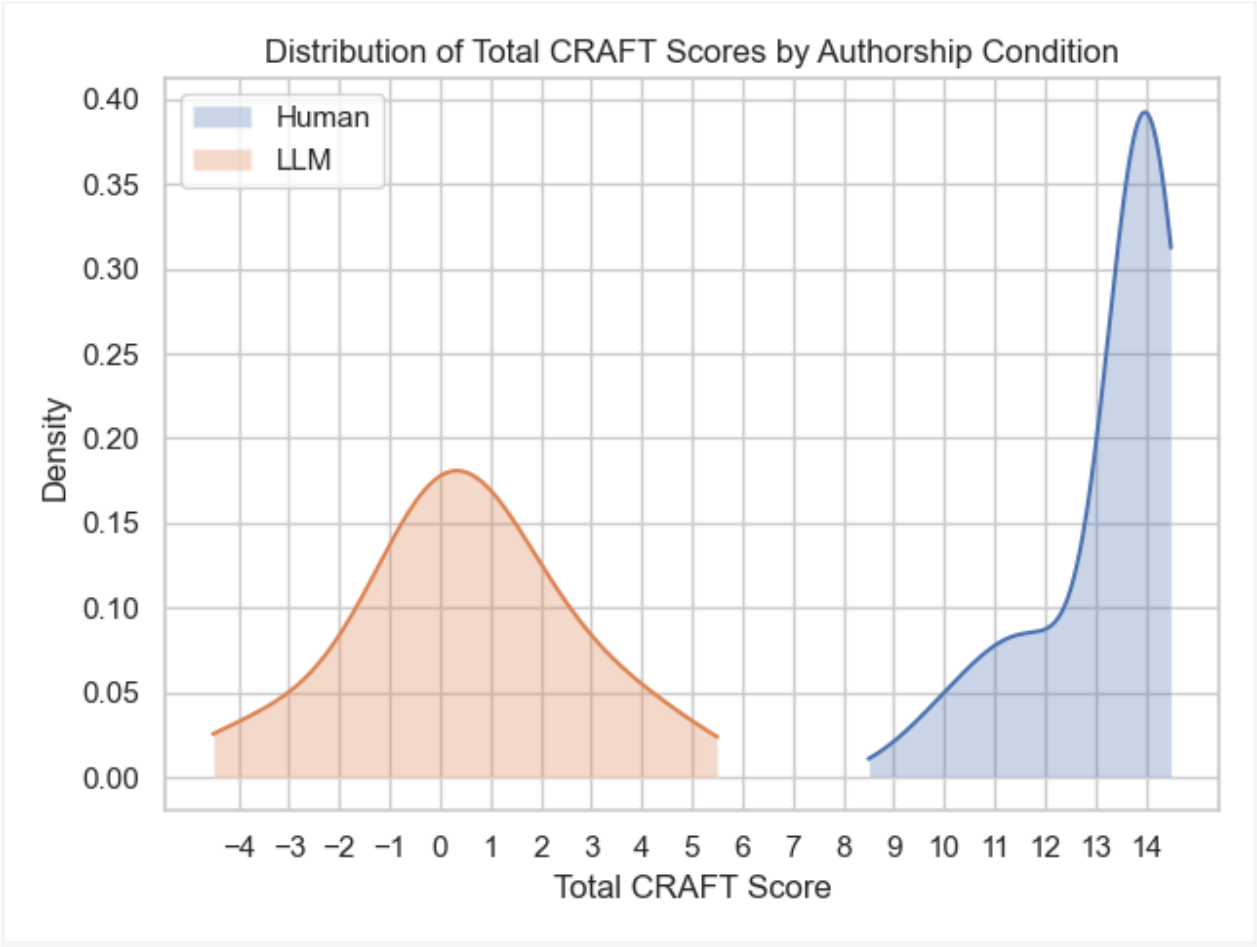
Table 1

CRAFT Performance by Authorship Condition

Measure	Human M (SD)	LLM-generated M (SD)	Δ M	Cohen's d	95% CI	N
Structural Restoration	3.97 (0.26)	-0.32 (1.32)	4.28	3.16	[3.93, 4.63]	60
Lexical Restoration	9.28 (1.33)	0.78 (1.30)	8.50	4.65	[8.03, 8.97]	60

Total	13.25 (1.36)	0.47 (2.09)	12.7 8	5.34	[12.16, 13.40]	60
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Figure 1
Distribution of Total CRAFT Scores by Authorship Condition



5. References

See final presentation slide for full reference list