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The dynamics of word production in smartphone writing: evidence for cascaded processing from kinematic data

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Writing is a complex cognitive activity involving both orthographic and motor components.
Over time, these processes have evolved in response to changes in writing media. The dual-route theoretical approach considered that orthographic and motor processes function independently and in a sequential fashion: once spelling retrieval is over motor execution
begins (McCloskey Rapp, 2017). Other studies using real-time writing data suggest that orthographic and motor processes interact and overlap temporally, such that spelling processes modulate the kinematics of motor production. During the symposium, we will present the results of three smartphone writing to dictation experiments in French and Italian.
The kinematic analyses revealed that orthographic and motor processes are active simultaneously. Once the orthographic representation of the letter string is retrieved, syllables appear to serve as functional units to keep information active at both motor and orthographic
levels. The data suggest that for polysyllabic words such as the Italian word scherma (/sker.ma/, fencing), peripheral processes begin after the first syllable (/sker/ = ‹scher›) is processed. While writing the letters of the initial syllable, we continue with the orthographic
processing of the second syllable (‹ma›). Moreover, linguistic variables - such as word length, orthographic consistency, and orthographic deepness - significantly influence the temporal dynamics of smartphone writing. This confirms an integration between orthographic and
motor processes, supporting the idea of cascading functioning proposed by the APOMI model (Kandel, 2023). The use of kinematic data thus proves to be a powerful tool for deepening our understanding of the mechanisms underlying written production.

If you're submitting a symposium talk, what's the symposium title?

Unpacking Digital Dexterity: Cognitive and Sensorimotor Perspectives on Mobile Typing

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

No

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