Dynamics of response preparation in word typing: Evidence from EEG.

Svetlana Pinet*[1]

[1]Laboratoire de psychologie cognitive (LPC) – Aix Marseille Université, CNRS : UMR7290 – Pôle 3 C, Case D 3 place Victor Hugo 13331 Marseille Cedex 3, France

Résumé

Typewriting is a pervasive phenomenon in modern information societies, yet its cognitive underpinnings remain poorly understood. Behavioural models of typewriting have postulated that inhibitory processes drive the serial production of keystrokes (Rumelhart & Norman, 1982). We used electrophysiological evidence to test for the existence of these inhibitory processes.
In our protocol, eight expert typists produced typewritten whole words in response to pictures depicting single visual objects. The object names comprised letters located on both sides of the keyboard, and hence typed with different hands. To focus on motor response production, EEG activity was examined time-locked to the first keystroke.
Preceding the motor response, we observed a negativity and positivity EEG pattern developing over, respectively, the contralateral and ipsilateral sensorimotor areas. This finding is interpreted by analogy with similar patterns previously observed in two-alternative forced choice tasks (e.g.,Vidal et al., 2003). It suggests that the activation of the contralateral primary motor cortex involved in the movement of the typing hand is accompanied by an inhibition of the ipsilateral motor cortex, involved in the movement of the other hand. We believe these data constitute the first electrophysiological demonstration of the existence of the inhibitory processes postulated by behavioural models of typewriting.

*Intervenant