



Rethinking the Cognitive Mechanisms Underlying Pantomime of Tool Use: Evidence from Alzheimer's Disease and Semantic Dementia

Submitted by Christophe Jarry on Tue, 01/15/2019 - 17:12

Titre	Rethinking the Cognitive Mechanisms Underlying Pantomime of Tool Use: Evidence from Alzheimer's Disease and Semantic Dementia
Type de publication	Article de revue
Auteur	Lesourd, Mathieu [1], Baumard, Josselin [2], Jarry, Christophe [3], Etcharry-Bouyx, Frédérique [4], Belliard, Serge [5], Moreaud, Olivier [6], Croisile, Bernard [7], Chauviré, Valérie [8], Granjon, Marine [9], Le Gall, Didier [10], Osiurak, François [11]
Editeur	Cambridge University Press (CUP)
Type	Article scientifique dans une revue à comité de lecture
Année	2017
Langue	Anglais
Date	Février 2017
Numéro	2
Pagination	128-138
Volume	23
Titre de la revue	Journal of the International Neuropsychological Society
ISSN	1469-7661
Mots-clés	Aged [12], Aged, 80 and over [13], Alzheimer Disease [14], Apraxias [15], Female [16], Follow-Up Studies [17], Frontotemporal dementia [18], Functional Laterality [19], Humans [20], Male [21], Middle Aged [22], Neuropsychological Tests [23], Problem Solving [24], Psychomotor Performance [25], Recognition (Psychology) [26], Statistics, Nonparametric [27]

OBJECTIVES: Pantomiming the use of familiar tools is a central test in the assessment of apraxia. However, surprisingly, the nature of the underlying cognitive mechanisms remains an unresolved issue. The aim of this study is to shed a new light on this issue by exploring the role of functional, mechanical, and manipulation knowledge in patients with Alzheimer's disease and semantic dementia and apraxia of tool use.

METHODS: We performed multiple regression analyses with the global performance and the nature of errors (i.e., production and conception) made during a pantomime of tool use task in patients and control participants as dependent variables and tasks investigating functional, mechanical, and manipulation knowledge as predictors.

Résumé en anglais

RESULTS: We found that mechanical problem solving, assessing mechanical knowledge, was a good predictor of the global performance of pantomime of tool use. We also found that occurrence of conception errors was robustly predicted by the task assessing functional knowledge whereas that of production errors was not explained by only one predictor.

CONCLUSIONS: Our results suggest that both functional and mechanical knowledge are important to pantomime the use of tools. To our knowledge, this is the first demonstration that mechanical knowledge plays a role in pantomime of tool use. Although impairment in pantomime of tool use tasks (i.e., apraxia) is widely explained by the disruption of manipulation knowledge, we propose that pantomime of tool use is a complex problem-solving task. (JINS, 2017, 23, 128-138).

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DOI

10.1017/S1355617716000618 [29]

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<https://www.cambridge.org/core/journals/journal-of-the-international-neu...> [30]

Titre abrégé J Int Neuropsychol Soc

Identifiant

(ID) PubMed 28205493 [31]

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