



Apraxia of tool use: more evidence for the technical reasoning hypothesis

Submitted by Emmanuel Lemoine on Wed, 04/22/2015 - 16:51

Titre	Apraxia of tool use: more evidence for the technical reasoning hypothesis
Type de publication	Article de revue
Auteur	Jarry, Christophe [1], Osiurak, F. [2], Delafuys, D. [3], Chauviré, Valérie [4], Etcharry-Bouyx, Frédérique [5], Le Gall, Didier [6]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2013
Langue	Anglais
Date	2013/03/30
Numéro	9
Pagination	2322-33
Volume	49
Titre de la revue	Cortex
ISSN	1973-8102
Mots-clés	Apraxia of tool use [7], Executive planning [8], Mechanical problem-solving [9], Semantic memory [10], Technical reasoning [11]
Résumé en anglais	<p>Various distinct cognitive processes such as semantic memory, executive planning or technical reasoning have been shown to support tool use. The aim of this study is to investigate the relationship between these processes. To do so, a large apraxia battery was submitted to 16 patients with left brain-damage (LBD) and aphasia and 19 healthy controls. The battery included: classical apraxia tests (Pantomime of Tool Use and Single Tool Use), familiar and novel tool use tests (Tool-Object Pairs and Sequential Mechanical Problem-Solving), semantic memory tests (Recognition of tool utilization gestures and Functional and Categorical Associations) as well as the Tower Of London. The Sequential Mechanical Problem-Solving task is a new task which permits the evaluation of pre-planning in unusual tool use situations. In this task as well as in the Tool-Object Pairs task, participants solved a tool use problem in a Choice and a No-Choice condition to examine the effect of tool selection. Globally, left brain damaged patients were impaired as compared to controls. We found high correlations in left brain damaged patients between performances on classical apraxia tests, familiar and novel tool use tests and Functional and Categorical Associations but no significant association between these performances and Tower Of London or Recognition of tool utilization gestures. Furthermore, the two conditions (Choice and No-Choice) of Tool-Object Pairs and Sequential Mechanical Problem-Solving were associated. In sum, all tasks involving tool use are strongly associated in LBD patients. Moreover, the ability to solve sequential mechanical problems does not depend on executive planning. Also, tool use appears to be associated with knowledge about object function but not with knowledge about tool manipulation. Taken together, these findings indicate that technical reasoning and, to a lesser extent, semantic memory may both play an important role in tool use.</p>

URL de la notice <http://okina.univ-angers.fr/publications/ua10141> [12]
DOI [10.1016/j.cortex.2013.02.011](https://doi.org/10.1016/j.cortex.2013.02.011) [13]
Lien vers le document <http://www.ncbi.nlm.nih.gov/pubmed/23537602> [14]
Titre abrégé Cortex

Liens

- [1] <http://okina.univ-angers.fr/christophe.jarry/publications>
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=17813](http://okina.univ-angers.fr/publications?f[author]=17813)
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=17866](http://okina.univ-angers.fr/publications?f[author]=17866)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=17668](http://okina.univ-angers.fr/publications?f[author]=17668)
- [5] <http://okina.univ-angers.fr/frederique.bouyx/publications>
- [6] <http://okina.univ-angers.fr/didier.legall/publications>
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=15871](http://okina.univ-angers.fr/publications?f[keyword]=15871)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=15874](http://okina.univ-angers.fr/publications?f[keyword]=15874)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=15872](http://okina.univ-angers.fr/publications?f[keyword]=15872)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=15873](http://okina.univ-angers.fr/publications?f[keyword]=15873)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=15875](http://okina.univ-angers.fr/publications?f[keyword]=15875)
- [12] <http://okina.univ-angers.fr/publications/ua10141>
- [13] <http://dx.doi.org/10.1016/j.cortex.2013.02.011>
- [14] <http://www.ncbi.nlm.nih.gov/pubmed/23537602>

Publié sur *Okina* (<http://okina.univ-angers.fr>)