REVIEWER A

Aim of this study is to investigate the temporal dynamics of the ventral and dorsal streams integration when a graspable object has to be identified. Two experiments are reported. In both cases stimuli consisted of the presentation of visual animations of different hand actions (prime), followed by a picture of a graspable object to be categorized into natural or artifact. In Experiment 1 (preliminary Experiment), in the final frame of the animation the object was superimposed with the hand; in Experiment 2 (main Experiment) a variable delay was interposed between prime offset and object presentation. Results show shorter responses when the action expressed by the prime was congruent with the object grasp than when it was not. However this *grasp-object* facilitation was limited in time. For the authors this limitation reflects temporal dynamics of dorsal areas activation.

Evaluation

Recent evidences show that the observation of an action may facilitate the recognition of an object graspable with a similar action, demonstrating that object recognition involves the processing of object motor information. The present study has the merit to explore to what extent it occurs. The results agree with previous results, but limit the grasp-object facilitation effect up to 500ms after prime offset. Although the manuscript explores interesting issues of the contemporary research, it presents a number of limitations that require major revision.

1. Introduction

A deeper and broader analysis of the literature should be carried out. In particular in pp.5-6 authors state that *The influence of dorsal temporal limitations on visuomotor facilitation has been shown previously (Tucker & Ellis, 2001).* However other studies actually reported that this is not always the case, for example Tucker & Ellis (2004) show *that an active object representation is sufficient to generate affordance compatibility effects based on associated actions whether or not the object is concurrently visible* (see also Riggio et al. 2008). To my eyes the logic of this study could widely benefit by the presentation and discussion of these different pattern of results in relation to the possible dorsal and ventral streams integration for object recognition.

2. Method & Analyses

The set of stimuli used in the main Experiment are very limited (one per category) and selected on the basis of the best results of the preliminary Experiment (p.7 *the more efficient stimulus for each size and category*). So one might wonder whether results are sufficiently general to support any firm conclusion. Even more importantly, no distinction between categories (man-made and natural objects) appears in the analyses of the data. Man-made objects, beyond being graspable, have an associated function that may involve a different mode of manipulation, like the two selected objects (deodorant recipient and screw) in the main Experiment of this study. This is not the case for natural objects. Since it has been demonstrated that man-made objects (see for example, Jax & Buxbaum,

Cognition 2010; Lee et al., JEP:HPP 2012) might recruit different actions with different activation characteristics, the two categories of objects (man-made and natural) should be treated separately in order to be sure that results are not the expression of a mean of different trends or expression of only a category of objects.

3. Discussion

On the basis of their results authors conclude in favor of a substantial difference for motor-related activation *when the object is seen than when it is remembered or evoked by other means*. However, as said before, there is broad evidence of a more complex picture. For example, Tucker & Ellis (2004) showed an equally strong effect from object words (see also Gough et al. Neuropsychologia 2011, for motor activation recruited by nouns of graspable objects). It is therefore possible that the results could critically depend on the particular paradigm used (see also T&E, 2004 on this point). Discussion therefore should be enriched taking into account the contrasting evidences and the possible reasons of such differences.

Minor points

- Throughout the manuscript, following the critical literature, the word *primer* should be changed in *prime*

- p. 4, line 4th from above: *form representation….* better to say *perceptual representation*

- p. 6, line 2nd from above: *when the primer was static grasp gesture…*please revise, T&E' study (2001) is incorrectly reported

- p.10, the headline : ***Results &*** has to be deleted

- p.10, line 5th: *functional information…* I guess that the word *functional* refers to the use of the object: I am not sure that it is possible to say this

- p.10, line 9th from below: … *before 300 ms….* I guess the authors intended to write *after*

-p. 14, line 4th from above: *object affordances…* this is the first time that these words are mentioned. Given their strong link with the concepts of visuomotor facilitation and visuomotor priming mentioned in the introduction, it should be better to introduce all these concepts together in the introduction

- pp. 21-22 , Figure 1 &2, panel b): the hand animations are quite different, is there any mistake?

REVIEWER B

Este artículo describe dos experimentos donde se evalúa el curso temporal del efecto de congruencia entre un prime consistente en un video de una forma de agarre (precision versus poweer grip) y un objeto (que podía ser pequeño o grande), en una tarea consistente en categorizar el objeto final como natural o artificial.

Creo que el estudio es interesante, el procedimiento es adecuado, los análisis y los resultados son claros, y las conclusiones se siguen bien del contexto teórico y los datos. Hay un resultado un tanto extraño, que es la falta de efecto a SOA cero en el segundo experimento, pero no es un resultado que invalide el estudio en su conjunto. Además, el artículo está muy bien escrito y se lee y comprende estupendamente. Por tanto, mi recomendación es la de su publicación en Psicológica tal cual está, tras corregir los siguientes pequeños detalles:

- p.10: el epígrafe "Results & Discussion" debería ser sólo "Discussion".

- p.12, línea 5: donde dice "... trials were faster (M=545) rather than to mismatch...", borrar "rather".

- "figure" debería ir siempre con mayúscula inicial.

- p.14, línea 2. donde dice "... that seems to lead an interference effect..." debería decir "... that seems to lead to an interference effect...".

- En vez de "primer" debería ser "prime".

- p.14, penúltima línea: en vez de "... do not involve motor dorsal areas dynamics...", creo que queda mejor "... do not involve dynamics of motor dorsal areas...".

- p.15, línea 1: en vez de "...understand as working memory..." debería ser "...understood as working memory...".

- p.15, línea 3: poner coma tras "however".

- p.15, línea 5: "The fact that that motor-related...", quitar el that repetido.

- p.15, línea 15: poner coma tras "Importantly". Y en la siguiente línea, poner coma tras "say".

- p.15, línea 21: en vez de "... suggest there is..." creo que debería ser "... suggest that there is...".