Reviewer’s report

Title: Are women better than men at multitasking?

Version: 4 Date: 15 August 2013

Reviewer: Raquel Benbunan-Fich

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Comments for the authors

In the second version of the manuscript, the authors made an effort to strengthen the literature review. I was pleased to see the incorporation Strayer et al.’s (2013) response to Mantyla (which was the only work they mentioned in the original version), as well as some other papers. They also tried to justify the expectation of gender differences. However, it is still not clear if cognitive differences, evolutionary demands (hunter and gatherers explanation), or a combination of the two account for the expectations that one gender is better than the other at multitasking. At times, they seem to be endorsing the evolutionary explanation, but at others they seem to follow the cognitive differences explanation. For example, the theoretical development seems to indicate that women are better at multitasking due to evolutionary environmental issues (hunters and gatherers explanation). In contrast, the rationale for experiment 2, which is based on more representative tasks, seems to indicate that the explanation of potential differences is in the cognitive abilities (executive control processes). For better theoretical and conceptual clarity, these two alternative explanations should be reconciled and used to justify the experimental designs. Although this can be further clarified in another round, the most important drawbacks of the revised version are related to the experimental manipulations and the nature of the results. These issues were raised in my previous review but not addressed in the revision.

Here is my point-by-point response to the authors regarding the issues raised in my first review (in quotes) that still need careful consideration.

1. “The authors should discuss all the relevant prior work upfront and explain how their approach differs from, and adds to, existing studies.”

In the revision, the previous empirical work is still presented at the end of the manuscript (section 3.1 Relation to previous work) instead of at the beginning. Furthermore, it is still not clear how the two experiments (one where the short tasks are performed in succession and another where longer tasks are performed in any manner) add to the existing literature. The main results of both experiments do not provide complementary or compelling evidence of the relation between gender and multitasking. According to the results of the first experiment, women experience less slow down due to mixing tasks than men, when short tasks are performed entirely and sequentially (no interleaving). The results of the second experiment only show that women are better than men at
one type of task (key search task). How is this result connected with multitasking?

In the revised version, it became clear to me that in experiment 1, the tasks are performed in succession (sequentially) and one could claim that there is no multitasking per se, as each task is completed before the next. Technically, this first experiment includes multiple short, independent and self-contained tasks that are not switched before their completion but rather performed sequentially with eventual task-type alternations (task mixing). In the second experiment, the tasks were fundamentally different (longer) and subjects were free to adopt any working strategy (including optionally answering a phone call in the middle of their experimental session, which would be a fourth task). How many participants interleaved tasks and how many executed them in sequence? Are the results due to the adoption of different working strategies?

2. “… the reporting of these two studies is incomplete. For example, were subjects in the first study compensated? More importantly, in the second study, were the strategies used by participants of both genders substantially different? How many of them decided to take the phone call in the middle of their other tasks? Did this decision influence the results? A more complete discussion of working strategies with additional evidence would help rule out alternative explanations and substantiate the results.”

In the revised manuscript, it is still not known if participants received any incentives. The disclosure of incentives (or lack thereof) is a good indication of the engagement of participants with the tasks, particularly when performance scores and response times are the key dependent variables. In addition, given the implementation of experiment 2 and the presentation of results, alternative explanations cannot be ruled out. Are the results due to gender and multitasking, despite the fact that participants were free to work in any way (including sequentially). A careful analysis of the results of experiment 2 would require a separation by gender and by working strategy to see how and whether the results are indeed related to multitasking. Unfortunately, the sample size of this experiment is small (47 women & 47 men) and the experimental manipulation lacked controls to ensure that participants were really multitasking, or were at least multitasking in the same way.

Given the results, the conclusions stated in the abstract are too strong in light of the reported findings. The abstract indicates ‘We conclude that women do outperform men in multitasking, both in structured experimental and more ecologically valid paradigms.’ However, in Experiment 1 there is only evidence of lower slowdown in women than in men when sequences of completed tasks are mixed and in Experiment 2, women are better than men at only one of the assigned tasks. Do these findings (separate or together) really indicate that women outperform men in multitasking?

3. ” Finally, it is advisable to use tables to report the results of the two empirical studies. For example, the information of Figures 1 and 3 should be presented in tables.”

I believe that the results of experiment 1 should also be reported in a Table.
However, the authors indicate in the response ‘We do not understand what the point of a table would be, given that we have reported the relevant statistics in the text.” I would have liked to see the exact means and errors for response times and scores (%) across the different conditions. The Y-axis markers of Figure 3 are too wide to appreciate the exact values of the dependent variables. Furthermore, the complexity of the results of experiment 1 (several dependent variables and factors) and the difference between the bars of Figure 3, make it necessary to present these results in a table. With regards to experiment 2, despite the use of tables, the reporting of the results is still incomplete and it is not known if (or how) participants multitasked. The results only speak to the superiority of women participants in one particular type of task but not to multi-tasking working strategies and the potential role of gender.