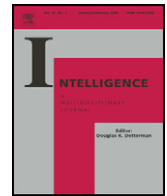




Contents lists available at ScienceDirect

Intelligence



A comment on “Fractionating Intelligence” and the peer review process

Richard J. Haier^{a,*}, Sherif Karama^{b,c}, Roberto Colom^d, Rex Jung^e, Wendy Johnson^f

^a School of Medicine (Emeritus), University of California, Irvine, CA, USA

^b McConnell Brain Imaging Center, Montreal Neurological Institute, McGill University, Montreal, Canada

^c Douglas Mental Health University Institute, Department of Psychiatry, McGill University, Montreal, Canada

^d Universidad Autónoma de Madrid-Fundación CIEN/Fundación Reina Sofía, Spain

^e Department of Neurosurgery, University of New Mexico, Albuquerque, NM, USA

^f MRC Centre for Cognitive Ageing and Cognitive Epidemiology, Department of Psychology, University of Edinburgh, UK

ARTICLE INFO

Article history:

Received 6 February 2014

Received in revised form 18 February 2014

Accepted 20 February 2014

Available online xxxx

Keywords:

g-Factor

Intelligence

Factor analysis

Brain imaging

Cognitive testing

ABSTRACT

Hampshire and colleagues used factor analyses and simulations to conclude that the g-factor is not a valid construct for general intelligence because it could be accounted for by at least two independent components defined by distinct brain networks. In our view, their results depend on a number of assumptions and subjective decisions that, at best, allow for different interpretations. We also had a unique role in the review process of their paper prior to its publication when we were invited to write a Preview. We detail that role here and describe how non-transparent editorial decision-making rejected our Preview and allowed publication despite our major concerns. The main purpose of this report is to invite Hampshire and colleagues to respond to our specific scientific concerns that aim to clarify their work and contribute a constructive discussion about the meaning of their findings.

© 2014 Published by Elsevier Inc.

Hampshire and colleagues challenged fundamental concepts about the g-factor based on cognitive performance data from a battery of 12 tests taken by over 44,000 people on the internet and on fMRI data collected on 16 subjects performing the same cognitive test battery (Hampshire, Highfield, Parkin, & Owen, 2012). Their conclusions are derived from complex factor analyses and simulations that, in our view, are open to alternative interpretations because they depend on a number of arguable assumptions. We also have a unique perspective on the publication process for their paper that raises some troubling issues.

We detail these issues here for both their report and the process that led to its publication. The issues are intertwined, so we organize this paper according to the chronology that

unfolded. We have an expectation that Dr. Hampshire and colleagues will respond to our substantive scientific points in a companion paper published simultaneously in this journal; he has been invited to do so both by us and by the editor. Such exchanges are common, constructive, and help advance the field. We have a hope but no expectation that the editors of *Neuron* will explain aspects of their peer review process that, in our view, created unnecessary confusion about the conclusions Hampshire et al. reached.

On July 13th, 2012 one of us (RH) received an invitation to write a Preview to highlight a paper by Hampshire et al. to be published in *Neuron*. The paper was due to be published soon and the deadline for the Preview was August 6th. RH agreed and received a copy of the accepted manuscript the same day. RH found many aspects of the paper quite difficult to understand and, more troubling, he worried that some main conclusions could be based on erroneous application and

* Corresponding author.

E-mail address: rich.haier@gmail.com (R.J. Haier).

interpretation of factor analysis. Given the rapidly approaching deadline, and the potential attention that a paper on intelligence would receive in *Neuron*, RH sent copies of the accepted manuscript to four colleagues with considerable expertise in brain imaging and psychometrics, especially factor analysis (SK, RC, RJ, WJ) and asked for their comments. We exchanged emails and phone calls, which confirmed that we shared a number of major concerns about the manuscript. We jointly wrote a Preview that noted these concerns and gave a context for the reader to consider the conclusions presented by Hampshire et al. We submitted the Preview on August 6th, 2012 and in a cover letter we informed *Neuron* that our concerns were so serious, that had any of us been original reviewers, we would not have recommended acceptance without major clarifications. This cover letter and the Preview are in [Appendix A](#). Throughout this paper, all the correspondences we reference are emails and all are preserved.

The next day, an editor at *Neuron* responded. They were clearly concerned and rightly wanted Hampshire et al. to respond to the issues we had raised. The editor invited us to send a more detailed critique that could be passed along to the original reviewers and to the authors. We did so on August 16th. That critique detailed 20 points; it is in [Appendix B](#). We were not told how our 20 concerns of August 16th were communicated to the original reviewers and to the authors, or how they responded. On October 31st 2012 *Neuron* informed us that publication of the Hampshire et al. manuscript would go forward with some minor changes. We were also informed that, after considerable internal discussion, the editorial board had decided that our Preview would not be published; no reason was given. We objected and asked if we could submit a modified Preview based on the modified manuscript (which was not shared with us). *Neuron* declined. One editor asked to have a confidential phone call with RH and that call took place on December 2nd. RH respects that confidentiality and can only say that he found the editorial process and decision-making hard to understand.

The editorial decision-making became even more troubling when the Hampshire paper was published on December 20th, 2012. We saw the final version with the modifications for the first time two days earlier when a science writer sent RH an embargoed copy and asked for a comment on the importance of the paper. We were surprised to see that the final version did not address our concerns in any substantial way. For example, the key point we raised among the 20 concerns in [Appendix B](#) was whether using a factor analysis technique that forced rotated factors to be independent could objectively serve as the basis for a conclusion that there was no unitary *g*-factor and hence the conclusion about “fractionating” intelligence.

The authors issued a press release from their university (The University of Western Ontario in Canada) the day before the *Neuron* publication on December 20th. This press release is in [Appendix C](#). The title is: “Western University-led research debunks the IQ myth.” The press release received some attention mostly in non-science media outlets and hyped the study as demonstrating definitively that IQ was a meaningless concept. For example, the senior author, Adrian Owen, was quoted as saying: “When we looked at the data, the bottom line is the whole concept of IQ – or of you having

a higher IQ than me – is a myth... There is no such thing as a single measure of IQ or a measure of general intelligence.” (thestar.com, 12/19/12). Of course, most psychologists understand that this is a classic “straw man” argument since no one claims that an IQ score (which is a composite of a test battery) measures the whole of human intelligence. It is also widely understood that the *g*-factor is not synonymous with IQ.

As far as we are aware, the Hampshire paper was not covered as newsworthy in any major science publications. However, our attention was drawn to a blog written by the Neuroskeptic (<http://blogs.discovermagazine.com/neuroskeptic>) on December 24th, 2012. The Hampshire paper was summarized and the Neuroskeptic (anonymously written) made several critical observations. A series of reader comments followed over the next several weeks, most written anonymously. There were several comments that suggested knowledge of our unpublished Preview. We determined that a graduate student had overheard a relevant discussion and decided to comment on the blog anonymously without our knowledge. One commenter on the blog responded to some of the scientific critiques with a lengthy detailed technical argument (see [Appendix D](#) for the full comment). This detailed comment also concluded in part with these sentences: “Finally, a critical comment was submitted to *Neuron* however, there was no ‘conspiracy’. It was decided, based on feedback from an independent reviewer, that the author of the comment was heavily biased and that the criticisms raised were lacking in substance. Also, the authors of the article demonstrated that they were both willing and able to address all of those criticisms point by point if the journal chose to publish them.”

Obviously someone with inside knowledge of the review process wrote this comment. We sent this comment to *Neuron* and asked if it were true that our 20 detailed concerns were communicated only to one of the original reviewers who then determined our concerns did not have substance and were biased. We also requested that *Neuron* provide any written responses to our 20 points made by the original reviewers or the authors. *Neuron* replied that discussions were all by phone and there were no written responses. *Neuron* would not confirm that only one original reviewer determined that our concerns were biased or that they had not required a point-by-point response. Finally, we asked *Neuron* if we could submit comments on the Hampshire et al. paper under the category of “Viewpoint” or “Perspective” and allow the authors to respond. We felt that this would be constructive and educational. *Neuron* declined.

Over the last year, we have exchanged a series of emails with Dr. Hampshire. He clarified some points and sent us some key correlation matrices (that were not published) so we could better understand some of the analyses. He also noted that he had responded to some of our 20 points at the request of *Neuron* and that his responses had been sent for review and that the review agreed with all of them; publication followed. He added that he had offered to publish a point-by-point response but *Neuron* declined. We told Dr. Hampshire that we were writing this paper and he was positive about responding to the 20 points. We have common interests about the importance of combining neuroimaging with psychometrics. In our work, for example, we have used

Download English Version:

<https://daneshyari.com/en/article/7294444>

Download Persian Version:

<https://daneshyari.com/article/7294444>

[Daneshyari.com](https://daneshyari.com)