WHEREVER THERE IS SIN...



THAT'S WHERE I MUST GO

Replicability in science – not just psychology

Problems replicating some findings

Paper in press in *Science* – 68 labs attempted to replicate over 90 findings in cognitive and social psychology

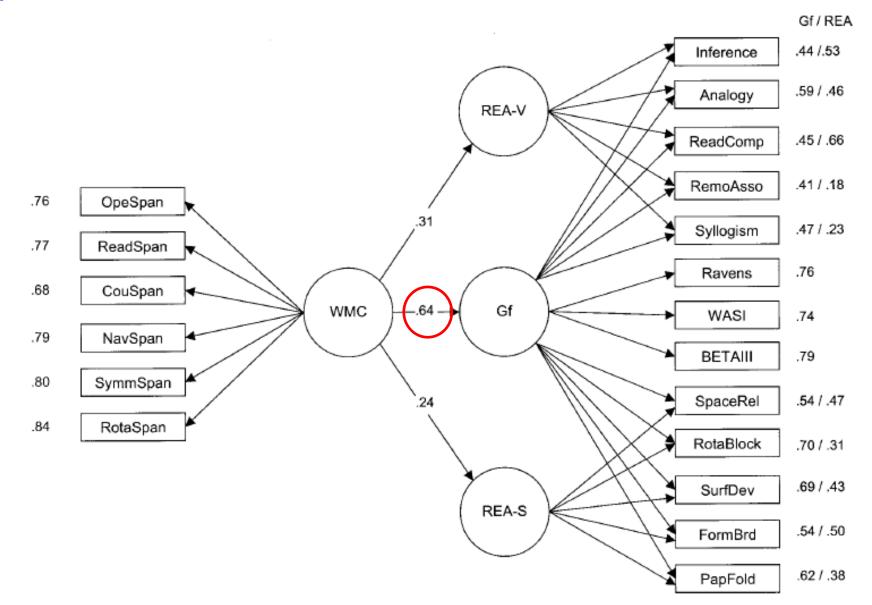
About 40% of cognitive and 30% social papers replicated – I remain optimistic

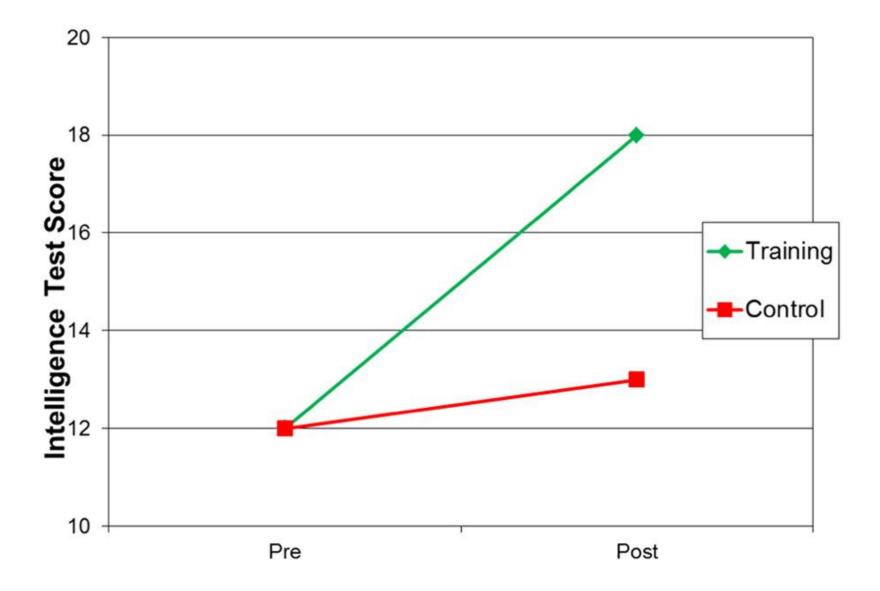
Problems are often small n, low reliability of the measures, regression to the mean,

faulty interpretation of statistics, and co-morbid variables among the **Subjects** other than the one of interest. Assumption that High/Low WM, High/Low Video users, Bilingual/Monolingual subjects are identical in every other way is a huge one.

WM training, Video games, Bilingualism

Relationship between WMC and Gf





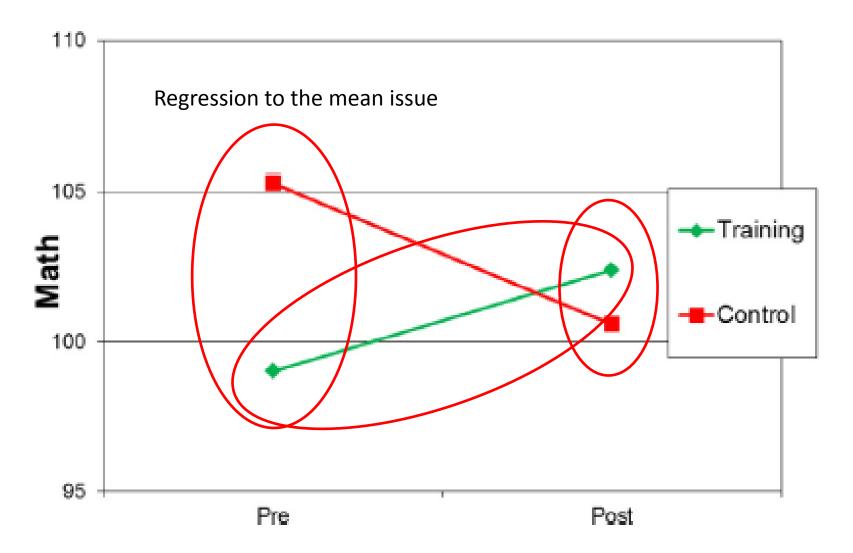


Fig. 2. Alloway (2012) transfer data on Numerical Operations test from the Wechsler Objective Numerical Dimensions as a function of group.

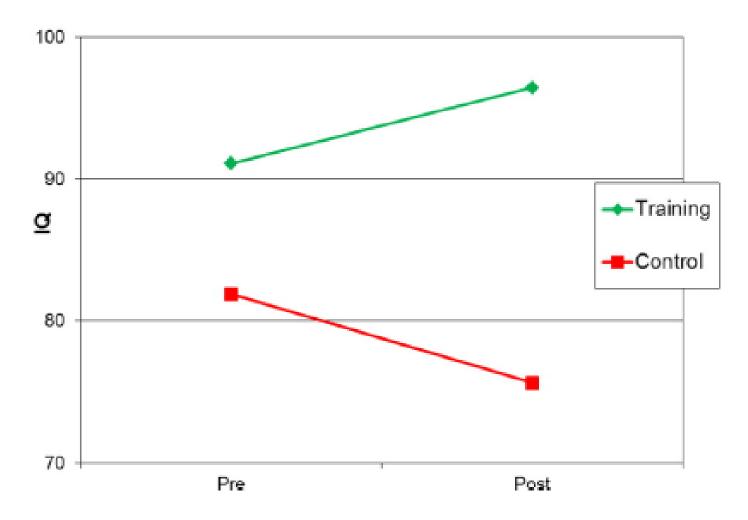


Fig. 3. Roughan and Hadwin (2011) transfer data on IQ composite as a function of group.

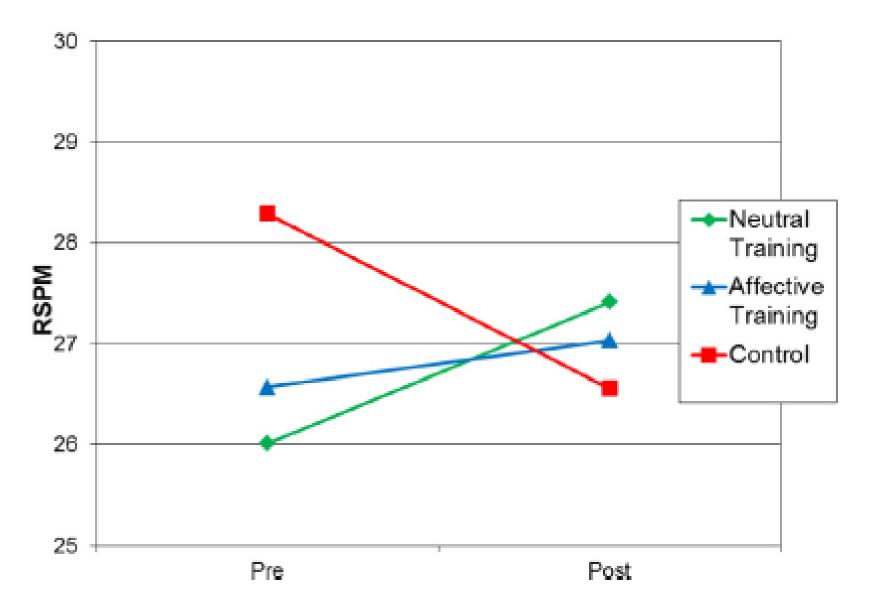


Fig. 4. Schweizer et al. (2011) transfer data on Raven Standard Progressive Matrices as a function of group.

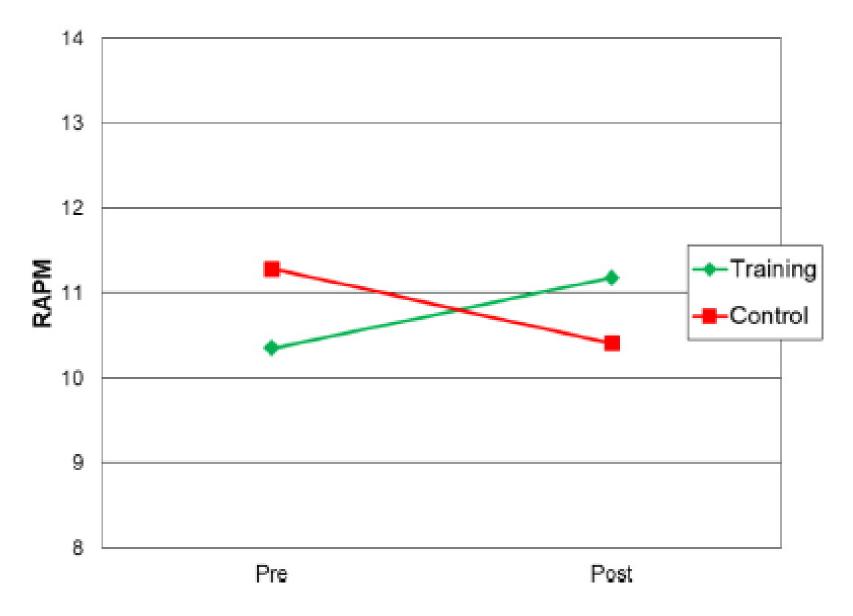


Fig. 5. Vartanian et al. (2013) transfer data on Raven Advanced Progressive Matrices as a function of group.

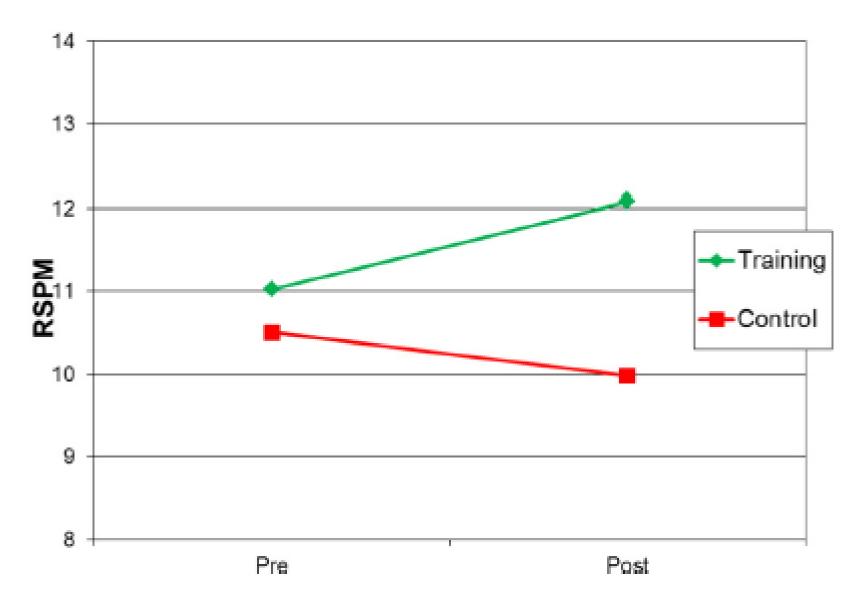


Fig. 6. Zinke et al. (2014) transfer data on Raven Standard Progressive Matrices as a function of group.

Even if there were effects, we don't know why – spatial skills??

Dissociation between mechanisms in WMC (maintenance) and Gf (Disengagement)

Meta analysis of studies – PBR and Perspectives papers

Monica Lervag-Melby, Charles Hulme, and Tom Redick

Study

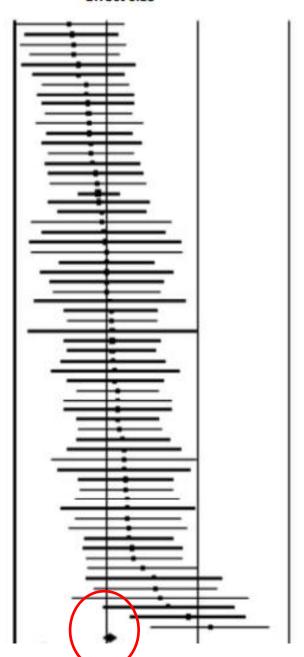
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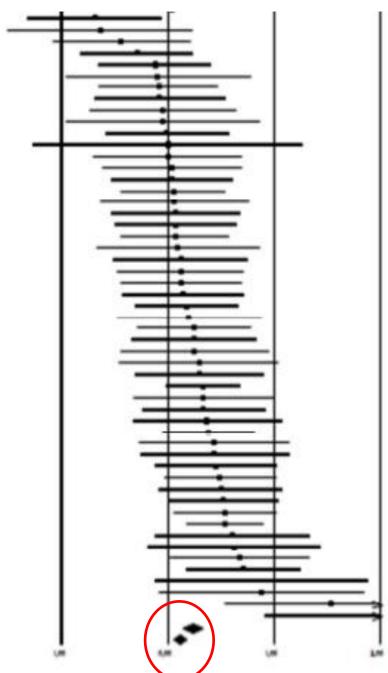
(Active)

Effect size



Untreated (Passive)

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Video Games

Problem with extreme groups designs – also relevant to bilingualism studies

Unsworth et al on extreme groups or full range – recent Psych Sci paper

Again, what are the mechanisms?

Bilingualism

I have always been open to these effects for several reasons.

- 1. One is that we are not talking about some magical 'increase intelligence' pill but actually modifying the mental behaviors we call executive functions. It makes sense to me that people might be trained to be better at doing those things we call functions.
- 2. The other thing is that there is a yin and yang quality to bilingualism that is really interesting and I expect plays a large role in the findings. So while bilinguals are putatively better at inhibition, particularly as it relates to non-verbal tasks, they are worse at vocabulary and, importantly for my work, fluency.

I don't know why these effects are sometimes found and sometimes not.

