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Debate

HOW INTELLECTUAL IS CHESS? – A REPLY TO HOWARD

MERIM BILALIĆ AND PETER MCLEOD

University of Oxford, UK

Summary. Howard's (2005) claim that male dominance in chess is 'consistent with the evolutionary psychology view that males predominate at high achievement levels at least partly because of ability differences' (p. 378) is based on the premise that top level chess skill depends on a high level of IQ and visuospatial abilities. This premise is not supported by empirical evidence. In 1927 Djakow *et al.* first showed that world-class chess players do not have exceptional intellectual abilities. This finding has subsequently been confirmed many times. Different participation rates, or differences in the amount of practice, motivation and interest for chess in male and female chess players, may provide a better explanation for gender differences in chess performance.

Howard (2005) presents an impressive amount of data showing that male chess players retain a consistent performance edge over their female colleagues and that this difference has not diminished over the last 20 years. In order to draw the conclusion that this is because of the gender difference in intellectual abilities, as Howard did, it is necessary: (a) to rule out selection bias as a possible explanation, and (b) to show the association between chess skill and intellectual abilities.

A possible explanation for the gender difference in chess, also mentioned by Howard, is that there are considerably fewer female than male chess players. Charness & Gerchak (1996, p. 46) show the difference to be expected between top performers of two groups based purely on the statistical fact that large samples are more likely to contain extreme values than small samples. When their formula is fitted to Howard's data (Table 2, p. 378), it predicts a difference of 93 in the rating of the top male and the top female player, which corresponds almost perfectly to that in reality (103). This offers a plausible explanation for the gender difference in chess without appealing to group differences in intellectual abilities.

The studies presented in the support of the claim that 'chess skill correlates with IQ and visuospatial abilities' (p. 373) are also not convincing. Both studies were with children who were hardly expert chess players. Furthermore, Horgan & Morgan

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(1990) did not find a significant correlation between the scores on Raven's matrices of fifteen players and their chess ratings once the variable of age was controlled (Table 5, p. 115). Similarly, Frydman & Lynn (1992) did not reported an association between Wechsler Intelligence Scale for Children (WISC) and chess rating. It is true that the children in both studies performed better than average on the intelligence tests. However, unless Howard believes that mere chess participation is evidence of intellectual abilities, these studies cannot be taken as evidence that top level chess requires a high level of IQ.

There are a number of studies, some of them conducted with expert chess players rather than children, which suggest that IQ and visuospatial abilities do not discriminate among established chess players (Ellis, 1973; Doll & Mayr, 1987; Schneider *et al*., 1993; Waters *et al*., 2003; see Gobet *et al*., 2004, for a review). These studies present just a sample from decades of unsuccessful efforts to connect any kind of visualspatial or general IQ measures to chess skill which started with Djakow *et al*. (1927). Howard's specific claim that in chess 'a threshold level of visuospatial ability is needed, beyond which general intelligence is more important' (p. 379) is, therefore, not borne out by the evidence.

People need years to become experts. Although it is plausible that in seemingly intellectual domains, such as chess, intelligence should help them in their endeavour, there is no evidence that expert performance can be reliably predicted by initial general or specific abilities (Ericsson & Charness, 1994). Howard's data more likely provide clues about gender discrepancies in the participation rates, or, eventually, in motivation, interest, and above all in amount of time spent practising chess than in general or visuospatial abilities. Otherwise, one could as well claim that Russians, who have been dominating chess for almost a century, are intellectually superior to other nations.

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