Intelligence 41 (2013) 607–614

Contents lists available at ScienceDirect

Intelligence

journal homepage:

The Savanna-IQ interaction hypothesis: A critical examination of the comprehensive case presented in Kanazawa's *The Intelligence Paradox*

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ARTICLE INFO

Article history:
Received 20 May 2013
Received in revised form 28 July 2013
Accepted 31 July 2013
Available online xxxx

Keywords:
Savanna-IQ Interaction Hypothesis
Falsifiability

ABSTRACT

Kanazawa (2012b) has recently presented the most comprehensive case yet for his Savanna-IQ Interaction Hypothesis. According to the hypothesis, intelligence is a domain-specific adaptation which has been selected for as humans have moved away from the (evolutionarily familiar) Savanna. As such, ability in 'evolutionarily novel' tasks and 'evolutionarily novel' preferences are positively correlated with high IQ. This article will present a critical examination of the hypothesis, arguing that there is a strong case against anchoring human nature on the Savanna, the hypothesis predicts contradictory findings, there is empirical evidence against it, it is not falsifiable, and it is not necessary to explain that data which Kanazawa presents.

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1. Introduction

Kanazawa's Savanna-IQ Interaction Hypothesis has been the subject of considerable criticism, most noticeably by Penke, Borsboom, Johnson, et al. (2011). They argue that Kanazawa's hypothesis is based on an unlikely and unproven assumption about the nature of *g*. This article will compliment, and develop, Penke et al.'s critique by examining the hypothesis in more detail and examining all of the successful and unsuccessful dimensions of it. The author has, of course, read and will cite Kanazawa's peer-reviewed articles to the extent that they are relevant to the Savanna-IQ Interaction Hypothesis. However, this article will draw extensively on Kanazawa's (2012b) *The Intelligence Paradox: Why the Intelligent Choice Isn't Always the Smart One,* because this is Kanazawa's most recent and comprehensive defense of his hypothesis. This article will show that the Savanna-IQ Interaction hypothesis makes the highly questionable assumption that human nature is anchored on the Savanna, that it makes predictions which are contradicted by other data and, most importantly, that Kanazawa's division between 'evolutionarily novel' and

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http://dx.doi.org/10.1016/j.intell.2013.07.024

'evolutionarily familiar' leads to contradictory predictions meaning that his theory cannot be falsified. Indeed, we will see that every piece of evidence which Kanazawa (2012b) presents in favor of his hypothesis can therefore be used to argue against his hypothesis.

2. The Savanna-IQ Interaction Hypothesis

According to Kanazawa's (2012b) Savanna-IQ Interaction Hypothesis, intelligence is a domain-specific adaptation which has been selected for as humans have moved away from the (evolutionarily familiar) Savanna. As such, 'evolutionarily novel' behavior and 'evolutionarily novel' preferences are correlated with high IQ. This, however, is not true of 'evolutionarily familiar' behavior and preferences. This is because intelligence is a domain-specific adaptation selected for specifically by evolutionarily novel environments.

Penke et al. focus on two problems with Kanazawa's hypothesis, based on their reading of Kanazawa (2010). Firstly, they note that the data does not support Kanazawa's proposal that *g* is a domain-specific adaptation. Kanazawa argued, in essence, that general intelligence is a universal human adaptation but that there are also individual differences in general intelligence. Kanazawa then inferred that *g*, an individual-differences variable, can be used as a 'measure' or 'indicator' of a general intelligence adaptation. Penke et al. argue that the fundamental problem with this argument is that *g* is a psychometric construct which underpins the positive relationship between scores on different kinds of cognitive tests. The data does not permit us to infer that *g* is anything more than that. Accordingly, the existence of *g* does not indicate that general intelligence is present in every normal human, only that, in a sufficiently large sample, there is a statistically significant positive correlation among individuals between scores on the different kinds of cognitive tests. In addition, Penke et al. point out that there may be multiple adaptations underpinning this relationship and there is no reason to assume that there is just one. Indeed, Penke et al. cite studies indicating that, 'Different individuals seem to use their brains differently to solve intelligence tests equally well, and different rare (probably private or family-specific) mutations likely contribute substantially to the genetics of *g* in different individuals' (Penke et al. p.1). So, this would seem to imply that *g* is underpinned by multiple adaptations, as if it were underpinned by one then people with the same *g* score should obtain that score for the same reasons. Thus, Kanazawa's hypothesis makes the unwarranted assumption that *g* is a domain-specific adaptation.

Secondly, they criticize Kanazawa's distinction between 'evolutionarily familiar' and 'evolutionarily novel' domains. They interpret Kanazawa as arguing that evolutionarily novel domains cause us to encounter problems which are logically solvable, selecting for higher intelligence, but they ask, with reference to Kanazawa's data, 'what is logically correct about being politically liberal when living in unrelated groups or about being slightly more nocturnal when having electric light?' This criticism will be discussed in more detail below, as it raises an even more important criticism. In this article, I will take Penke et al's critique further by highlighting all of the problems with the Savanna-IQ Interaction Hypothesis and, most significantly, showing that the Savanna-IQ Interaction Hypothesis is fundamentally unfalsifiable, meaning that it cannot be regarded as a scientific theory. But first I would like to look at Kanazawa's theory in more detail.

Kanazawa (2012b) argues that the human mind is adapted to life on the African Savanna in the Pleistocene period around 130,000 years ago (e.g. Cosmides & Tooby, 2002). Many cognitive mechanisms evolved to optimize human ability in tasks which were vital at the time, such as foraging. Known as the 'Savanna Principle' this premise implies that the human brain may have difficulty dealing with entities which were not present in the ancestral environment; which are, in Kanazawa's terms, 'evolutionarily novel' rather than 'evolutionarily familiar.' The Savanna Principle is evidenced, according to Kanazawa, by experiments indicating that humans cannot distinguish between real friends and 'TV friends' (see Kanazawa, 2002) or others indicating that people will not act in the rational manner that theories such as Game Theory (see Poundstone, 1992) would predict, but rather in a way that would have made sense on the Savanna (see Kanazawa, 2002, 2006, 2012b).

Kanazawa further argues that intelligence is a domain specific adaptation which developed as we moved away from the Savanna as a means of helping us solve the increasing number of evolutionarily novel problems by which we were confronted. The Savanna would have selected for intelligence to a limited degree, because some non-recurrent evolutionarily novel events would have occurred, but the selection pressure would have been much greater as we moved away from the Savanna. Accordingly, Kanazawa argues that intelligence would predict being attracted to that which is evolutionarily novel. The further we move from the ancestral environment, the less useful our Savanna instincts become. As such, there is increasing selection against solving problems by instinct and in favor of solving them by intelligence. Kanazawa also presents what he calls the 'intelligence paradox.' Kanazawa argues that people tend to prefer values which they can understand, the more intelligent are more able to understand values which are not instinctive, so they are more likely to adopt and espouse evolutionarily novel values and forms of behavior. As discussed, in defining intelligence in the way he does, Kanazawa departs from accepted definitions of it, but he insists that only his model can explain the robust positive correlation between IQ and Openness–Intellect of about 0.3 (see DeYoung, Quilty, Peterson, & Gray, in press). Kanazawa claims that there is a strong broader body of evidence for the general association between evolutionary novelty and high intelligence. This can be seen in studies of the positive association between high intelligence and liberalism (defined to mean caring about genetically unrelated others), vegetarianism, healthiness and maintaining an exercise regime, nocturnal activity, experimentation with drugs, binge drinking, monogamy, homosexuality and atheism, among others (see Kanazawa, 2012b for review). Kanazawa (2012b) also notes that IQ does broadly increase as we move away from the Savanna (see also Ash & Gallup, 2007 or Lynn & Vanhanen, 2012).

3. Problems with the Savanna-IQ Interaction Hypothesis

There are a number of problems with this theory.

The most obvious problem is that, as we have discussed, it relies on a controversial understanding of intelligence as a