WHY THE LESS INTELLIGENT MAY ENJOY TELEVISION MORE THAN THE MORE INTELLIGENT[*]

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Abstract. Kanazawa (2004a) proposes that the human brain may have difficulty comprehending entities and situations that did not exist in the ancestral environment, and, as one empirical demonstration of this Savanna Principle, Kanazawa (2002) shows that people who watch certain types of TV shows are more satisfied with their friendships, suggesting that they may have difficulty distinguishing TV characters from real friends. In an entirely different line of research, Kanazawa (2004b) advances an evolutionary psychological theory of the evolution of general intelligence, which proposes that general intelligence evolved in order to handle evolutionarily-novel problems. The logical convergence of these two separate lines of research leads to the prediction that the human difficulty in dealing with evolutionarily-novel stimuli interacts with general intelligence, such that the Savanna Principle holds stronger among the less intelligent than among the more intelligent. Further analyses of the U.S. General Social Survey demonstrate that less intelligent men and women may have greater difficulty separating TV characters from their real friends than more intelligent men and women.

Keywords: evolutionary psychology, the Savanna Principle, general intelligence

1. THE SAVANNA PRINCIPLE

The human brain, just like any other part of any other organism, is an evolved organ adapted to its environment of evolutionary adaptedness (EEA) (TOOBY and COSMIDES, 1990). This fundamental observation of evolutionary psychology leads Kanazawa (2004a) to propose the Savanna Principle, which states that the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the EEA, including virtually everything in the modern society, except for people and many social relationships (mateships, parenthood, kin relationships). Kanazawa (2004a) uses the Savanna Principle to explain why some otherwise elegant scientific theories of human behavior, such as microeconomic subjective ex-

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pected utility maximization theory and game theory, often fail empirically, because they posit entities and situations that did not exist in the EEA and thus are difficult for the human brain to comprehend fully. For example, he speculates that many players of one-shot Prisoner's Dilemma games make the theoretically irrational choice to cooperate with their partner, because the human brain has difficulty comprehending completely anonymous social exchange and absolutely no possibility of future interactions, situations that did not exist in the EEA but are logically crucial for the game-theoretic prediction of universal defection (KANAZAWA 2004a: 44–45).

As but one empirical demonstration of the Savanna Principle, Kanazawa (2002) shows that men and women who watch certain types of TV shows are more satisfied with their friendships as if they had more friends or socialized with them more frequently. Kanazawa (2002) reasons that this may be because television (or any other realistic representations of fellow humans, such as films, videos and photographs) did not exist in the EEA, and thus the human brain has difficulty distinguishing their real friends from their "TV friends," characters that they repeatedly see on the television screen. In the ancestral environment, other humans that one repeatedly encountered in nonhostile situations were friends, and thus the human brain might be designed to perceive all such characters as real friends. Hence, Kanazawa argues, watching TV increases our satisfaction with genuine friends. Further, there are sex differences in this pattern. Because women are more likely to be friends with their kin (CAMPBELL 1988; FISCHER and OLIKER 1983; KANAZAWA 2001a; MARSDEN 1987), their satisfaction with friendships increases with greater frequency of viewing dramas and situation comedies, which often depict people in family situations. In contrast, because men are more likely to be friends with their coworkers, their satisfaction with friendships increases with greater frequency of viewing news and public television (PBS) shows, which often depict people in their work situations.

2. THE EVOLUTION OF GENERAL INTELLIGENCE

In an entirely different line of research, Kanazawa (2004b) advances an evolutionary psychological theory of the evolution of general intelligence. In contrast to views expressed by Cosmides and Tooby (2002) and Chiappe and MacDonald (2003), Kanazawa proposes that what is now known as general intelligence originally evolved as a domain-specific adaptation to deal with evolutionarily-novel, nonrecurrent problems. The human mind consists of numerous domain-specific adaptations to solve recurrent adaptive problems. In this sense, our ancestors did not really have to think, in order to solve such recurrent problems. Evolution has already done all the thinking, so to speak, and equipped the human brain with the appropriate psychological mechanisms, which engender preferences, desires, cognitions, and emotions, and motivate adaptive behavior in the context of the ancestral environment (KANAZAWA 2001b).

Even in the extreme continuity and constancy of the EEA, however, there were occasional problems that were evolutionarily novel and nonrecurrent, which required our ancestors to think and reason, deductively and inductively, in order to solve. To the extent these evolutionarily-novel, nonrecurrent problems happened frequently enough in the EEA (different problem each time) and had serious enough consequences for survival and reproduction, then any genetic mutation that allowed its carrier to think and reason would have been selected for, and what we now call "general intelligence" could have evolved as a domain-specific adaptation for solving evolutionarily-novel, nonrecurrent problems. Kanazawa (2004b) suggests that general intelligence has become universally important in modern life (GOTTFRED-SON 1997; HERRNSTEIN and MURRAY 1994; JENSEN 1998) only because our current environment is almost entirely evolutionarily novel. Kanazawa (2004b) then derives, and empirically supports, a hypothesis that intelligent (high-g) individuals are better than less intelligent (low-g) individuals at solving problems *only if* they are evolutionarily novel, and that intelligent individuals are *no better* than less intelligent individuals at solving evolutionarily-familiar problems, such as those in the domains of mating, parenting, interpersonal relationships, and wayfinding.

While these two lines of research (the Savanna Principle and the theory of the evolution of general intelligence) have hitherto existed entirely separately, their logical conjunction suggests a qualification of the Savanna Principle. The human brain's difficulty in comprehending and dealing with entities and situations that did not exist in the EEA should statistically interact with general intelligence, such that the Savanna Principle holds stronger among less intelligent individuals than among more intelligent individuals. High-g individuals should be better able to comprehend and deal with evolutionarily-novel stimuli than low-g individuals. In the context of satisfaction with friendships examined in Kanazawa (2002), this hypothesis translates into the prediction that watching certain types of TV shows increases satisfaction with friendships more among low-g individuals than among high-g individuals. I will test this prediction with the original 1993 U.S. General Social Survey used in Kanazawa (2002).

3. EMPIRICAL ANALYSES

3.1. Data

The National Opinion Research Center at the University of Chicago has administered the General Social Surveys (GSS) either annually or biennially since 1972. Personal interviews are conducted with a nationally representative sample of non-institutionalized adults in the U.S. The sample size is about 1,500 for each annual survey, and about 3,000 for each biennial one. The exact questions asked in the survey vary by the year.

3.2. Response Variable

The GSS routinely asks its respondents how satisfied they are in different areas of their lives (1 = none; 2 = a little; 3 = some; 4 = a fair amount; 5 = quite a bit; 6 = a great deal; 7 = a very great deal), and one of these areas is their friendships. Note that this question measures the respondents' *subjective* assessment of their satisfaction with friendships. As in Kanazawa (2002), I use this measure of subjective satisfaction as the response variable.

3.3. Explanatory Variables

3.3.1. TV shows. In 1993 only, the GSS asks its respondents how often they watch different kinds of television shows ("prime-time drama or situation comedy programs," "world or national news programs," and "programs shown on public television") (1 = never; 2 = rarely; 3 = several times a month; 4 = several times a week; 5 = every day). In Kanazawa (2002), men most strongly respond to watching public television ($p < .01$), and women most strongly respond to watching dramas and situation comedies ($p < .05$). I therefore use these two types of TV shows in the subsequent analysis, dropping news programs, to which men respond but only marginally significantly ($p < .10$).

3.3.2. General intelligence. The GSS measures the verbal intelligence of its respondents by asking them to select a synonym for a word out of five candidates. Half of the respondents in the 1993 GSS sample answer 10 of these questions, and their total score (the number of correct responses) varies from 0 to 10. I use this score as a crude measure of verbal intelligence. Verbal intelligence is known to be highly correlated with (and thus load heavily on) general intelligence. Miner's (1957) extensive review of 36 studies shows that the median correlation between vocabulary and general intelligence is .83. Wolfe (1980) reports that the correlation between a full-scale IQ test (Army General Classification Test) and the GSS synonyms measure that I use here is .71. As a result, the GSS synonyms measure has been used by intelligence researchers to assess trends in general intelligence (HUANG and HAUSER 1998).

I control for the total number of hours that the respondents spend watching TV in my multiple regression analyses, *only because* Kanazawa (2002) does so. However, not controlling for the number of hours of TV views does not alter the substantive findings below at all.

3.4. Results

Table 1, Column (1), shows that, in a sample of both men and women, viewing dramas and situation comedies ("D/S") or public television shows ("PBS") does not uniformly increase the respondent's subjective satisfaction with friendships. This is

because, as Kanazawa (2002) shows, men and women respond to these two types of shows differently, canceling out each other's effect. In *Table 1*, Column (2), *both* the interaction term between D/S and sex *and* the one between PBS and sex show the expected significant effect ($ps < .05$). Men's subjective satisfaction with friendships increases with greater frequency of watching PBS shows, and women's with greater frequency of watching dramas and sitcoms. This result is not new; it merely replicates Kanazawa's (2002) finding with the same data in a statistically different specification (interaction effects with sex, rather than in male and female subsamples).

Table 1. The effects of TV friends on satisfaction with friendships by sex and general intelligence
General Social Survey 1993

	Model			
	(1)	(2)	(3)	(4)
Sex (1 = male)	−.2990*** (.0794) −.1153	−.2576 (.2967) −.0994	.1422 (.4496) .0560	.0407 (.4536) .0160
TV hours per day	−.0784**** (.0194) −.1298	−.0792**** (.0194) −.1312	−.0275 (.0264) −.0487	−.0281 (.0272) −.0500
Dramas/Sitcoms (D/S)	.0314 (.0342) .0298	.0948* (.0440) .0902	.1022 (.0633) .0953	.1023 (.0645) .0984
PBS	.0519 (.0321) .0507	−.0071 (.0415) −.0069	−.0311 (.0591) −.0305	−.0396 (.0601) −.0387
D/S*Sex		**−.1444*** **(.0666)** **−.2103**	−.4986** (.1575) −.7630	−.4817** (.1631) −.7364
PBS*Sex		**.1381*** **(.0651)** **.1972**	.4720** (.1568) .6910	.4730** (.1617) .6940
D/S*Sex*IQ			**.0484*** **(.0218)** **.4918**	**.0464*** **(.0226)** **.4726**

Table 1. cont.

	Model			
	(1)	(2)	(3)	(4)
PBS*Sex*IQ			**−.0653**</br>**(.0228)**</br>*−.6480*	**−.0622**</br>**(.0234)**</br>*−.6182*
Verbal IQ			.0790*</br>(.0335)</br>*.1386*	.0796*</br>(.0359)</br>*.1395*
Age				−.0008</br>(.0034)</br>*−.0107*
Race</br>(1 = black)				−.1197</br>(.1948)</br>*−.0280*
Education				−.0176</br>(.0223)</br>*−.0422*
Marital status</br>(1 = currently married)				.2307*</br>(.1148)</br>*.0907*
Constant	5.8255</br>(.1487)	5.7999</br>(.1836)	5.1876</br>(.3415)	5.3626</br>(.4672)
*R*2	.0289	.0362	.0638	.0703
n	1,042	1,042	505	503

Note: Main entries are unstandardized regression coefficients.
(Numbers in parentheses are standard errors.)
Numbers in italics are standardized regression coefficients (beta weights).
* $p < .05$ ** $p < .01$ *** $p < .001$ **** $p < .0001$

Table 1, Column (3), presents new results, and strongly confirms the prediction derived above. *Both* the three-way interaction effect between D/S and sex and verbal intelligence ($p < .05$) *and* the one between PBS and sex and verbal intelligence ($p < .01$) are statistically significant in the expected direction. This means that both

the men's tendency to respond to PBS shows and women's tendency to respond to dramas and sitcoms significantly interact with general intelligence. Both tendencies are stronger among less intelligent respondents than among more intelligent ones. Not only are the coefficients statistically significant, but they are also substantively large (standardized beta: .4918 for women's response to D/S and −.6480 for men's response to PBS shows).

Table 1, Column (4), shows that the results in Column (3) remain even after I control for a set of demographic factors: age (in years), race (1 = black), education (in years), and marital status (1 = currently married). The coefficients for the two three-way interaction effects retain both their statistical and substantive significance (*b* = .0464, *p* < .05, beta = .4726 for women's response to D/S, and *b* = .0622, *p* < .01, beta = −.6182 for men's response to PBS shows). *Table 1*, Column (4), demonstrates that my main findings are not confounded by demographic and cultural factors. In fact, none except marital status have any significant effect on satisfaction with friendships.
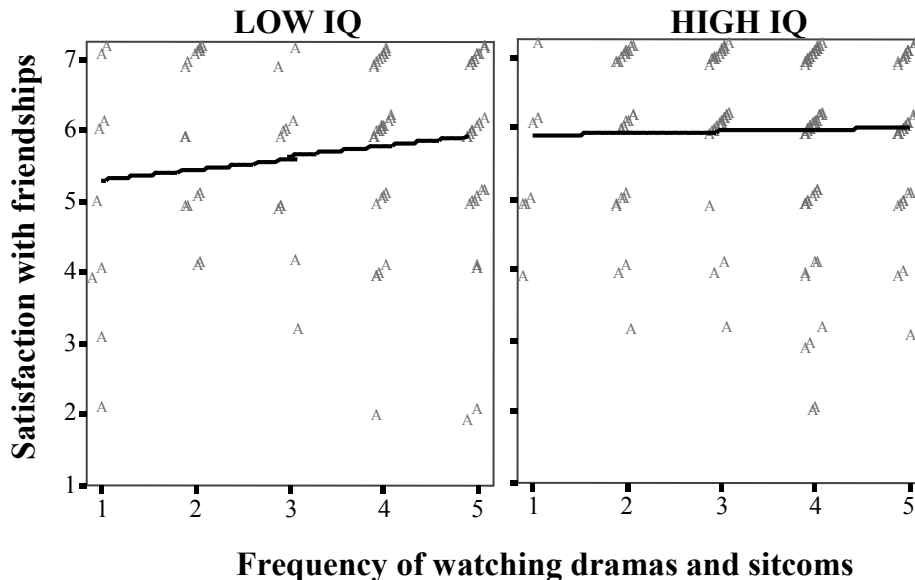

Figure 1. The relationship between the frequency of watching TV dramas and sitcoms and satisfaction with friendships, among women, by general intelligence. General Social Survey 1993

Figures 1 and *2* show this statistical interaction graphically. I first divide the male and female samples into high-IQ and low-IQ groups at the median score of 6 out of 10. *Figure 1* shows the relationship between the frequency of watching dramas and sitcoms and satisfaction with friendships among high- and low-IQ women

separately. The two scatterplots show that the relationship is much more positive among low-IQ women than among high-IQ women, among whom the relationship is essentially null. As *Table 1*, Column (3), indicates, the difference between these slopes is statistically significant ($p < .05$).

   Figure 2 shows the relationship between the frequency of watching PBS shows and satisfaction with friendships separately for high- and low-IQ men. The two scatterplots show once again that the relationship is much more positive among low-IQ men than among high-IQ men, among whom the relationship is slightly (though not significantly) negative. As *Table 1*, Column (3), indicates, the difference between these slopes is statistically significant ($p < .01$).

4. DISCUSSION

The results presented in *Table 1* and *Figures 1* and *2* show that the effect of TV viewing on satisfaction with friendships, first discovered in Kanazawa (2002), is largely limited to respondents who are below the median in verbal intelligence. My admittedly highly speculative interpretation of these empirical patterns is that low-*g* men and women may be much more prone to respond to TV characters as if they were real friends than their high-*g* counterparts, hence their greater satisfaction with friendships as a result of watching TV.
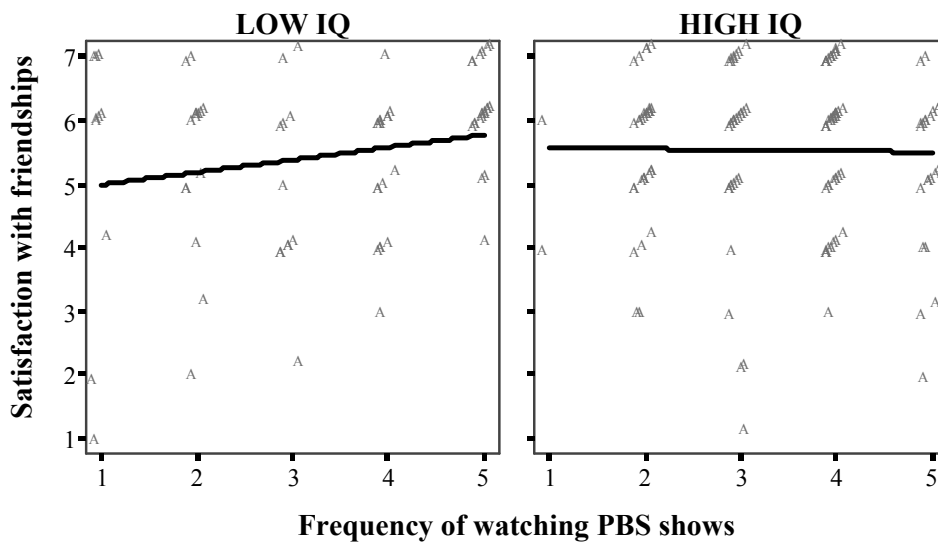

Figure 2. The relationship between the frequency of watching PBS and satisfaction with friendships, among men, by general intelligence. General Social Survey 1993

Other interpretations of the present empirical results are possible, however. One alternative explanation is that high-*g* individuals are more critical in their social orientation, be it TV or real friendships, and thus are more likely to be dissatisfied.[*] Apart from the fact that this interpretation cannot explain the sexually-dimorphic response to TV viewing (where women respond to dramas and sitcoms, but not to PBS shows, and men respond to PBS shows, but not to dramas and sitcoms), it does not appear to be consistent with empirical data, at least with the GSS. First, high-*g* individuals are significantly more satisfied with friendships and socialize with their friends more frequently than low-*g* individuals (satisfaction with friendships: $M = 5.87$ vs. 5.59, $t = -12.01$, $p < .0001$; frequency of socializing with friends: $M = 4.14$ vs. 3.97, $t = -6.07$, $p < .0001$). More importantly, the correlation between the frequency of socializing with friends and satisfaction with friendships is actually greater among high-*g* individuals than among low-*g* individuals ($r = .1560$ vs. .1345). In other words, high-*g* individuals' satisfaction with friendships responds more strongly to socializing with friends than does low-*g* individuals' satisfaction with friendships, although the difference is not statistically significant.

If my interpretation is correct, then the human brain's difficulty in comprehending and dealing with entities and situations that did not exist in the EEA (proposed in the Savanna Principle) might interact with the individual's general intelligence. Apart from suggesting further elaborations on the results first presented in Kanazawa (2002), the present findings provide indirect support for Kanazawa's (2004b) theory of the evolution of general intelligence in an entirely new empirical domain (TV viewing). The results presented here are consistent with the theory's contention that general intelligence evolved as a domain-specific adaptation for evolutionary novelty. The present results are also consistent with other empirical support for Kanazawa's theory, such as that more intelligent individuals are better able to handle evolutionarily-novel means of modern birth control and exercise better control of their fertility voluntarily (KANAZAWA 2005) and that more intelligent individuals are better able to avoid evolutionarily-novel modern hazards to health and live longer and stay healthier (KANAZAWA, forthcoming).

Further research is necessary to subject the current hypothesis to additional empirical tests. If supported by more studies, then the present findings suggest other possible hypotheses. *If* some people make the theoretically irrational choice to cooperate in a one-shot Prisoner's Dilemma game or participate in a large-scale collective action because their brain has difficulty comprehending some evolutionarily-novel features such as complete anonymity or a large population size, as Kanazawa (2004a) argues, and *if* the operation of this Savanna Principle interacts with general intelligence so that it holds stronger among low-intelligence individuals than among high-intelligence individuals, as the current study suggests, *then* the logical conclusion of these two postulates is that low-intelligence individuals are more likely than high-intelligence individuals to cooperate in one-shot Prisoner's Dilemma games or

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participate in large-scale collective action (such as voting in national elections). These intriguing possibilities await empirical investigation.

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