

Born Happy: How Much Does Genetics Determine our Happiness Throughout Our Lives?

Stephanie Girona
Christine Micucci
Diana C. Nearhos
Jennifer Roach

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INTRODUCTION:

In this paper we explore how much genetics determines our happiness throughout our lives. The classic “Nature versus Nurture” debate has caused a rift within the scientific community, with researchers and theorists passionately defending both sides of the argument. This holds especially true in the discourse on the determination of one's happiness. Researchers debate human biological makeup is an unchanging influence on life events, or if humans possess the power to overcome predetermined fates and alter their inner being. A new flame was added to the controversial fire, however, in the late 1800s with the birth of behavioral genetics. Its novel approach to scientific analysis – fusing biology, psychology and sociology – was convincing to some researchers, but also thought of as unsubstantiated and too restrictive by others. The divisive line between those that supported the study of genetics within human behavioral research and those that simply dismissed its findings only grew with time, as more controversial theories and concepts began to emerge.

A result of this conflict between nature and nurture is a lack of communication between both sides of the argument. Researchers tend to view genetics and life events as separate entities – working to determine which one has greater power over the other in shaping emotional status. Genetics theorists such as David Lykken and Auke Tellegen focus most of their experiments on data analysis and genetics testing, while proponents of life events research such as Richard Lucas and Sonja Lyubomirsky use more of the qualitative methods, surveying specific individuals, as was familiar to sociologists. Though the differences between the two sides are stark, the two arguments can work together. Through the revelation of behavioral genetics research it is undeniable that new, significant findings in the realm of sociology will emerge. It cannot be counted out as a major force within the development of human emotion. Nevertheless, the inability of the two sides of this conflict to work together has led to numerous holes in research and conclusions by both points of view. In this paper we intend to prove that behavioral genetics greatly influences human behavior and emotion and should be taken into account in all sociological research on individual happiness levels. However, we also feel it imperative for researchers to address the inconsistencies already present within genetics studies; specifically flaws within set-point theory and the field's failure to account for major sociological theories of human emotion.

We will first outline the research on genetics with respect to happiness and how it has evolved. Then we will look at the response to the genetic research by those who argue that happiness is determined by life-events. The final part of the literature review will be a discussion of the integration of genetics and life-events, which will include the research which has been completed and that which we believe will further the field. We will then conclude the paper with a summary of the arguments and which side our study has led us to.

LITERATURE REVIEW:

Genetics:

Though genetics research started to gain momentum in the late nineteenth century in other fields, at the time it was not seen as a relevant field within sociological study. As sociology's study of human emotion and behavior became a more promising and legitimized field, however, it began to gain wider acceptance among more traditional scientific disciplines. In 1969, the

National Academy of Scientists of the United States (NAS) declared their support of the sociological study of human emotion, and organized a committee of scientists to help sociologists develop a new approach to their research: behavioral genetics. Their intention was to gather new data about human behavior, arguing that how people react emotionally and behaviorally is dependent on more than just life events and environment. Factors such as personality traits and temperament, they said, were caused more by one's genetic makeup.

This new fusion of genetics research in the study of human emotion greatly expanded the potential research possibilities for sociologists. Soon, many sociologists themselves were conducting more scientific, quantitative studies to help advance the ongoing discussion and debate on why individuals react differently in various life situations. Two overarching topics within behavioral genetics research became the major focuses of sociological study in the area: set-point research and heritability research.

Brickman, Coates, and Janoff-Bulman first introduced set-point research in the late 1970s with a study which found that lottery winners and paraplegic accident victims were both equally satisfied with their lives a year after the incident (Schnittker, J., 2008). The findings led sociologists to question the long-accepted notion that life events determine one's overall happiness. In the late 1990s, behavioral geneticists Lykken and Tellegen published their study, *Happiness is a stochastic phenomenon*. The paper argued there is a set point of happiness specific to his or her individual genetic make-up around which one's emotions may fluctuate, but that one will always return to. The two researchers found that external factors like socioeconomic status, education level and income accounted for no more than three percent of one's change in well-being over time. Genetics, they said, caused 44 to 53 percent of the change in mood those studied experienced.

Closely linked to the notion of set-point research is the concept of heritability of happiness. Researchers of set-point theory argue that areas that have long been considered "environmental components" of happiness, such as marital status and education level, actually have strong heritable influences. For example, McGue and Lykken (1992) and Johnson et al. (2004) both concluded that there are major heritable components to determining one's likelihood to enjoy married life (such as marital dissolution in the past or their personal desire to be married). Heritable studies contend that demographics cannot be the sole determinant of happiness levels, as they are often too limiting in perspective. Table 2 shows the findings of Johnson's study.

Through these initial findings, more in-depth and specific types of research studies in the field of behavioral genetics have emerged. One of the most common forms of research has been studies conducted looking at twins, fraternal and identical, and raised together and separately, to see how their environmental differences have affected their happiness levels. This is the most common means of gathering empirical data on the genetics of happiness. One of the first studies completed was on "Personality Similarity in Twins Reared Apart and Together" by Lykken and Tellegen. This study was conducted by administering the Multidimensional Personality questionnaire (MPQ) to monozygotic (identical) and dizygotic (fraternal) twins reared-together and reared-apart. Lykken and Tellegen reported that "about 50% of measured personality diversity can be attributed to genetic diversity" (Tellegen, A., Lykken, D., et. al, 1988, p.1035).

Lykken and Tellegen's study is also an example of another branch of genetic behavioral studies: adoptive and family studies. These examine natural genetic personality traits, rather than those taught based on the environment in which one is raised. Another such study is Julia M. Braungart and Robert Plomin's study on infant temperament in adoptive and nonadoptive siblings and twins. The study used tester ratings on the Infant Behavior Record (IBR) at 1 and 2

years for pairs of adoptive and biological siblings; it also analyzed data reported on identical and fraternal twins of the same ages. Both forms of research led to evidence of "significant genetic influence" (Braungart, J.M., Plomin, R. et al, 1992, p. 40). Their analysis claimed that heritability "accounts for 42% of the variance on average at 12 and 24 months for affect-extroversion, 47% for activity, and 44% for task orientation" (Braungart, J.M., Plomin, R. et al, 1992, p. 46). The studies completed by Lykken and Tellegen and by Braungart and Plomin used different means, one of genetics of personality one of infant temperament, to determine how much of one's personality and behavior is determined by genetics.

As more research is done on behaviors and subjective well-being and how they relate to each other and how genetics affects each, theories on happiness are being adapted. Two of the biggest adaptations in the field have been those concerning the set-point theory and those melding the study of genetics and the study of the environment as factors in one's happiness.

Originally, set-point theory stated that everyone had a set point at which his happiness started and to which it would always return, though life events may temporarily alter his state of happiness. Frank Fujita and Ed Diener did a study to test this theory and see if it did in fact hold up. Their research found that 24% of participants experienced a significant change in the baseline of their happiness over the course of half a decade. This number was over four times what the original stable baseline hypothesis predicted would experience changes. Table 1 in appendix A of this paper shows their findings. Their study suggests that one's happiness may not be maintained at one specific set point for the entirety of one's life (Fujita, F., Diener, E., 2005). A view of happiness solely considering genetics ignores any effect circumstances in an individual's life may have on him. Current literature proposes that life events do have a lasting effect on one's subjective well-being. This suggests that the set-point theory is not entirely true and must be revised.

Many sociologists argued at the time of its inception that behavioral genetics research was too often at odds with the sociological perspective, as it relies too heavily on social construct. For example, its findings can lead to the conclusion that a certain genetic makeup is superior to others in determining one's capacity for happiness, creating a specific "naturally" constructed idea of what it means to be happy. It assumes that all individuals are impacted by a specific genetic makeup in the same way (i.e. if subject one and subject two have the same "type A" genetic makeup, they will have the same set emotional level of happiness). Sociologists, on the other hand, argue that the study of the environment's effects on human emotion and well-being is the focal point of their research. To argue that something as intrinsic and permanent as genetics plays a role in the field is tampering with the entire notion of sociological study in the first place. Sociologist Jason Schnittker explains this position, writing, "A core idea in sociology, embodied in the social structure and personality approach, is that social position affects psychological states through assorted processes of exchange, reinforcement, and learning. This approach generally argues that the correlation between social position and happiness largely reflects the effects of the former on the latter" (Schnittker, J., 2008, p. 4). Schnittker goes on to say that genetics research "forcloses on sociological thinking" by assuming genes and heritability have too significant a role in one's day to day life and environment even into their adulthood.

Life Events:

Contrary to the argument that genetics determines one's sustainable happiness is the position that happiness changes throughout one's life as a result of life circumstances and

intentional activities. Therefore, one is not simply born with a permanent disposition to happiness as genetics research suggests. Sociologists have conducted studies and research to demonstrate how individuals' lives are notably shaped by the events, circumstances, intentions and goals that occur throughout their lives.

Life circumstances include the national, geographical, cultural region in which one resides as well as one's demographic factors, personal history and life status variables. Furthermore, life circumstances usually denote the aspects of one's life which one has little to no control over. According to set-point theory, individuals react to these circumstances and then return to a baseline level of happiness determined by genetics. However, contrary to this argument, circumstances such as widowhood, divorce and continued unemployment have a sustained impact on one's happiness (Lucas, R.E., et al, 2004). Moreover, long-term research suggests that individuals who experience such events do not return to a genetic set-point level.

Recent research conveys that unemployment has a significant impact on one's happiness levels. A 2004 study conducted by Richard E. Lucas and his team examines long-term adaptation by tracking changes in life satisfaction before, during, and after the experiences of unemployment. The results demonstrate that people were less satisfied in the years following unemployment and this decline in happiness occurred even though individuals ultimately obtained employment again. Moreover, individuals in this study did not return to their original levels of happiness for many years after the unemployment struggle. Similar to Lucas' argument, research done by Diener and Seligman (2004) also shows that unemployed individuals have much lower levels of well-being than the employed and they also tend to have higher levels of suicide as well. They also suggest that individuals who become unemployed later on in life do not start off with a lower life satisfaction, but rather their life satisfaction drops dramatically around the time of their layoff. Furthermore, these individuals do not recover from these dramatic drops in life satisfaction according to Diener and Seligman. After losing their jobs they tend to experience continual lower levels of well being because they lack structure and feelings of purpose in their life. Therefore, the life circumstance of unemployment has been shown to express lasting declines in people's overall satisfaction (Diener and Seligman, 2004).

More recently, Ingelhart and Klingemann (2000) have stated that they do not deny the fact that genetic factors do play an important role in determining one's overall happiness, however, there is also compelling information that shows that happiness levels vary cross-culturally. Furthermore, since cultures are created by humans, it is not possible that happiness it created only through one's genetic makeup (p. 182). Comparitively speaking to Lucas, according to Ingelhart and Klingemann (2000), when talking about how economically successful a society is, it has been seen that this has a great impact on one's happiness. Though this does not provide a linear interpretation, it should be known that as an individual moves up the economic scale, one's happiness increases as well (p. 171). According to Ingelhart and Klingemann, the economic development for a society tend's to shape the overall baseline for the level of happiness the society will experience.

Similar to the effects of employment, just as marriage affects individuals positively, the termination of a marriage has the reverse effects. Though it is clear that marriage can be extremely rewarding to individuals and provide a boost of self-esteem to the couple, widowhood and divorce have been seen as "the two most stressful events in adulthood, and both events were rated as being more stressful than going to jail" (Lucas, R.E., et. el, 2003). Evidence has also been provided by Easterlin that individuals who are divorced, separated or widowed are

significantly less happy than individuals who remain with their significant other for the rest of their lives (Easterlin, R.A., 2006).

Widowhood affects individuals' emotions, behavior and health and can often lead to depression and anxiety symptoms. It also creates financial and economic difficulties as one must adjust to new household roles and responsibilities (Michael, K. & Ben-Zur, H., 2007). Widowhood affects individuals' emotions, behavior and health and can often lead to depression and anxiety symptoms.

Intentional activities are actions or practices which people choose to engage in and describe how people act on circumstances. Intentional activities, such as behavioral, cognitive and volitional can contribute to increases in happiness beyond one's set point. Behavioral activities include actions such as exercising regularly or acting kind towards others. Cognitive activities include positive thinking or counting blessings and have the effect of minimizing suffering or negative affects. In addition, volitional activities include striving for personal goals or putting forth effort to meaningful causes (Lyubomirsky, S. & Sheldon, K.M., 2005). Although individuals have control over such activities, they have the effect of changing their levels of happiness.

Sheldon and Houser-Marker specifically studied the effects of goal attainment on well-being. According to their research, students who attained their personal goals during their first semester experienced emotional well-being. Furthermore, these students maintained their enhanced level of well-being by continuing to attain goals. Although the potential for adaptation exists, this study demonstrates that the effect of activity changes is characterized by less hedonic adaptation. One important explanation is that people can vary intentional activities to meet their specific well-being needs. In addition, intentional activity can directly combat the problem caused by adaptation. By pausing to think about the good aspects of one's life, one is drawing attention to the features that initiated his/her original happiness and he/she is not taking them for granted as hedonic adaptation would suggest (Lyubomirsky, S. & Sheldon, K.M., 2005).

Furthermore, as an intentional activity, goal-setting has a noteworthy effect on individuals' levels of happiness. Non-zero sum goals include commitment to family, friends, as well as social and political involvement. Zero-sum goals include commitment to career success and material gains. Hypotheses propose that the greater emphasis individuals place on non-zero sum goals, the higher their life satisfaction will be and the greater emphasis that individuals place on zero-sum goals, the lower their life satisfaction will be. Therefore, these hypotheses suggest that those who value and invest time in social relationships will be more satisfied with their life than those who value financial gains and competition. Results of studies support the hypotheses that non-zero sum goals improve individuals' overall life satisfaction, while zero-sum goals are damaging to overall life satisfaction (Headey, B., 2007). Headey's findings are displayed in Table 3.

Life events research also discusses the importance of social and cultural norms that exist in society and govern the way in which people act. According to the dramaturgical theory of human emotion, individuals act strategically in accordance with cultural scripts as they interact with others. Individuals are described as actors who use the logic, rules, ideologies and vocabulary of culture to express emotions. Society has specific expectations for how individuals should react to certain events or circumstances within their lives. For example, soon after the death of a loved one, an individual is expected to grieve for a period of time. After this relatively short period of time, cultural norms expect the individual to move on with his/her life and eventually return to functioning well in society and expressing happiness. One issue with the life events side of the argument is the absence of an explanation for an individual's starting point for happiness.

Integrating Genetics and Life Events:

In order for sociology to advance its study of human emotions, more attention needs to be paid to behavioral genetics research. While many sociologists have emerged in the field as experts on the topic, still too few are addressing its inevitable impact in their research. Sociologist Kerry Jang stresses the value and necessity of using of what she calls quantitative genetic theory in all sociological research on human behavior. Jang's argument here is that too often in sociological study still today, researchers choose to pursue the question of happiness through the lens of either nature or nurture. Too many fail to acknowledge that the two sides of the debate actually more accurately work together to create individual happiness levels. For sociologists to truly advance their knowledge of human emotions such as happiness, they need to examine all variables, both the internal and external implications of human life. Darrin McMahon, author of *Happiness: A History*, makes this point in his book, stating, "As a chastened Lykken and many of his colleagues who study happiness take pain to insist, accepting heritability of happiness does not mean that we must simply bow down before the fate of our genes. The interactions of inherited traits with environmental factors remains and extremely complicated process... 'The true formula is not Nature *versus* Nature,' Lykken writes, 'but rather, Nature via Nature.' We can go along at the mercy of what he calls our 'genetic steersman' or we can make efforts to help guide them" (McMahon D. M., p.476). For the most accurate results, therefore, both genetics and one's external environment need to be taken into account.

One of the best means of achieving this better integrated approach to human behavioral studies is for more sociologists to use Gene-Environment Correlation theories in their research. These theories propose that while both genetics and environment play a role in human development, it is genetics that ultimately drives our experience. Jang gives an example in her book of when "a parent notes that their child has natural musical ability while banging spoons on pots and as a result provides music lessons and a piano. The joint occurrence of the spontaneous onset of musical ability (the gene) and the piano lessons (the environment) is a form of genetic-environment correlation" (Jang, K.L, p.77). Sociologists Sandra Scarr and Kathleen McCartney in their study of gene-environment effects, explain what is wrong with only focusing on one side of the debate and not the other, writing, "The major problem with attempts to separate environmental from genetic effects and their combinations is that people evoke and select their own environments to a great extent" (Scarr, S. and McCartney, K., 1983, p. 426). They go on to explain that there are two distinct forms of genotypes: passive and active. As a child, genetic influences on one's environment are passive, meaning they come either subconsciously or at the will of one's upbringing (which in turn is affected by the genetics of the parents). As one ages, however, genetic influences on their environment become more of an active process. Based on our upbringing or developed personality, we selected certain life events for ourselves (such as getting married, or moving to a new city). Such research is successful in its ability to realize there is a strong relationship between genetics and environment, and to ignore one side of the equation is doing a great disservice to sociological research.

CONCLUSION:

Our research sought to determine the role of genetics in influencing individuals' happiness throughout their lives. Current happiness research expresses genetics and life events as separate entities with an emphasis on the impact of life events. However, in order for sociologists to advance their study of human emotions, they need to acknowledge that genetics plays a much bigger role than has been previously accepted, and must be considered alongside life events.

Through our literature review and analysis, we've learned that to study the sociology of human emotions effectively, one must also take into account natural sciences. Genetic factors have a strong effect and necessitate more than qualitative methods of research, but also concrete data analysis. Based on the findings of Sandra Scarr and Kathleen McCartney, it is clear that genetics impacts the development of human emotions not only in one's youth, but as they age and have more extensive life experiences. While the events that occur in one's life do shape their personality and levels of happiness, Scarr and McCartney make the important point that active genotypes – the result of having genetic influences throughout one's childhood – continue to shape human behavior well into adulthood. We believe these insights show that genetics is not only a fleeting influence of one's infancy, but that it plays a significant role in determining human happiness at all stages in life. When sociologists fail to acknowledge that behind one's life events will always be the inherent effects of genetics, they leave out a major determining factor of individual happiness.

In order for the study of happiness to completely advance, however, researchers need to close the disconnect between sociological and scientific research. These concepts are not mutually exclusive and comprehending how they work together will lead to a greater understanding of happiness. The current research makes it clear that specific life events, such as widowhood and unemployment alter one's genetic disposition to happiness. Although these findings cannot be disputed, we believe that one's genetic make-up plays a much more prominent role than currently acknowledged. Once a balance between the research of genetics and life events is achieved, the study of happiness will change for the better and develop past this controversy.

Tables:

Table 1.

Table 1 Raw Data for 5 Respondents at the 25th, 50th, and 75th Percentiles of Variability (Standard Deviation) Across 17 Years of Life Satisfaction Judgments																	
Respondent	Year																
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
25th percentile																	
1	9	7	6	5	7	6	6	7	7	6	8	7	7	7	7	7	6
2	5	3	4	5	5	5	5	5	5	6	7	5	5	4	6	5	4
3	6	4	6	5	6	6	8	6	7	7	6	6	7	6	7	7	6
4	9	9	8	8	7	8	10	10	10	9	10	9	9	9	8	8	8
5	8	10	8	8	7	6	8	9	7	9	8	9	8	8	8	8	8
50th percentile																	
1	5	4	3	2	1	4	3	4	5	4	4	4	5	3	5	4	6
2	8	10	10	7	10	9	7	9	6	7	9	7	9	8	8	9	9
3	7	8	6	7	6	5	5	4	5	4	5	6	5	6	6	8	7
4	8	6	7	3	8	8	8	7	7	6	7	7	7	6	7	8	7
5	7	8	5	5	6	8	7	7	6	8	6	8	4	6	6	5	6
75th percentile																	
1	4	4	4	5	7	6	8	8	5	8	8	8	8	7	8	6	7
2	10	8	8	7	5	6	7	3	7	6	7	5	5	7	5	7	7
3	4	9	7	9	9	5	7	6	6	5	6	6	6	4	6	5	5
4	4	6	4	5	6	4	6	7	5	4	5	3	1	2	3	3	3
5	8	9	7	5	8	7	6	8	7	4	3	6	7	8	6	6	5

Note. Data are from German Socio-Economic Panel Study—2000 (Waves 1984–2000) [Data-file], by the German Institute for Economic Research (DIW), 2002, Berlin, Germany. Copyright 2002 by the German Institute for Economic Research. Reprinted with permission.

(Fujita, F. and Diener, E., 1995, p. 160)

Table 2.

<i>Personality Scale Means, Effect Size Estimates, and Analysis of Variance Results Relating Marital Status to Multidimensional Personality Questionnaire (MPQ) Scale Scores</i>								
Trait scale	Women				Men			
	<i>M</i>		<i>p</i>	Effect size	<i>M</i>		<i>p</i>	Effect size
Ever-married	Never-married	Ever-married			Never-married			
Full sample ^a								
Well-Being	.01	-.11	.02	.12	.04	-.29	< .001	.33
Social Potency	-.02	.11	.01	-.13	.04	-.30	< .001	.34
Achievement	.00	.07	.18	-.07	.05	-.25	< .001	.30
Social Closeness	.03	-.23	< .001	.26	.04	-.20	< .001	.24
Stress Reactivity	.01	-.04	.33	.05	-.01	.14	.01	-.15
Alienation	-.01	.18	< .001	-.19	-.03	.19	< .001	-.22
Aggression	-.01	.10	.04	-.11	.02	-.15	.003	.17
Control	.00	-.02	.66	.02	-.01	.02	.62	-.03
Harm Avoidance	.03	-.30	< .001	.33	.00	-.08	.15	.08
Traditionalism	.02	-.27	< .001	.29	.03	-.22	< .001	.25
Absorption	-.01	.12	.01	-.13	-.01	.15	.003	-.16
Discordant MZ pairs ^b								
Well-Being	-.04	.06	.42	-.10	-.06	-.13	.64	.07
Social Potency	-.09	.07	.17	-.16	-.32	-.38	.59	.06
Achievement	.08	.17	.45	-.09	-.08	-.21	.43	.13
Social Closeness	-.21	-.24	.81	.03	-.06	-.21	.32	.15
Stress Reactivity	-.04	-.15	.37	.11	.04	-.07	.49	.10
Alienation	-.08	-.10	.92	.02	-.22	-.10	.25	-.14
Aggression	-.04	-.16	.31	.13	-.02	-.20	.17	.17
Control	.02	.09	.60	-.07	.28	.27	.94	.01
Harm Avoidance	-.09	-.21	.39	.11	.06	-.08	.30	.12
Traditionalism	-.20	-.30	.41	.09	-.12	-.20	.55	.08
Absorption	.06	.00	.63	.06	-.16	.05	.22	-.19

Note. MPQ scale scores were age corrected within sex. They are thus standardized residuals, with $M = 0$ and $SD = 1.00$. Discordant MZ pairs are twin pairs, one of whom has married, the other not. There were 72 discordant MZ female pairs and 55 discordant MZ male pairs. Effect size is (mean score ever-married – mean score never-married)/total standard deviation. MZ = monozygotic.
^a Women: $n = 4,225$; men: $n = 2,869$. ^b Women: $n = 144$ individuals; men, $n = 110$ individuals.

(Johnson, W. et. el, 2004, p.290)

Table 3.

The importance of...	Zero sum goal: success	Non-zero sum goal: family life	Non-zero sum goal: altruism
Being able to buy things	0.71		-0.31
Fulfilling your potential	0.71		
Success in job	0.70		
Travel	0.53		0.32
Having children		0.77	
Having a good marriage		0.74	
Having a car		0.63	
Being involved in social and political activities			0.81
Helping other people		0.37	0.44

(Headey, B., 2007, p.220)

Table 4.

Possible state of nature		
Belief	Individual differences in intelligence are largely genetic in origin	Individual differences in intelligence are largely environmental in origin
Individual differences in intelligence are largely environmental in origin	Type II error ^a Possible consequences: Individuals encouraged to attempt tasks that some of them cannot master, leading to frustration, guilt, aggression caused by failure Belief in untrue American Dream	Correct decision Possible consequences: Cultural imperialism Equal access to American Dream Orwell's <i>1984</i> ; Huxley's <i>Brave New World</i>
Individual differences in intelligence are largely genetic in origin	Correct decision Possible consequences: Social Darwinism Socialized medicine, guaranteed Annual income, etc. Inventing new American Dream	Type I error ^b Possible consequences: Inappropriate special schools for minority groups Inappropriate marriage, adoption, and miscegenation laws Waste of intellectual talents of many citizens

^a This would consist in incorrectly believing in environmental determination of individual differences in intelligence.

^b This would consist in incorrectly believing in genetic determination of individual differences in intelligence.

(Jang, K., p. 11)

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