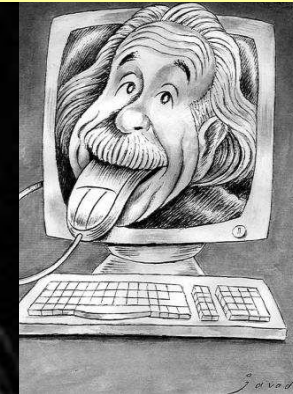
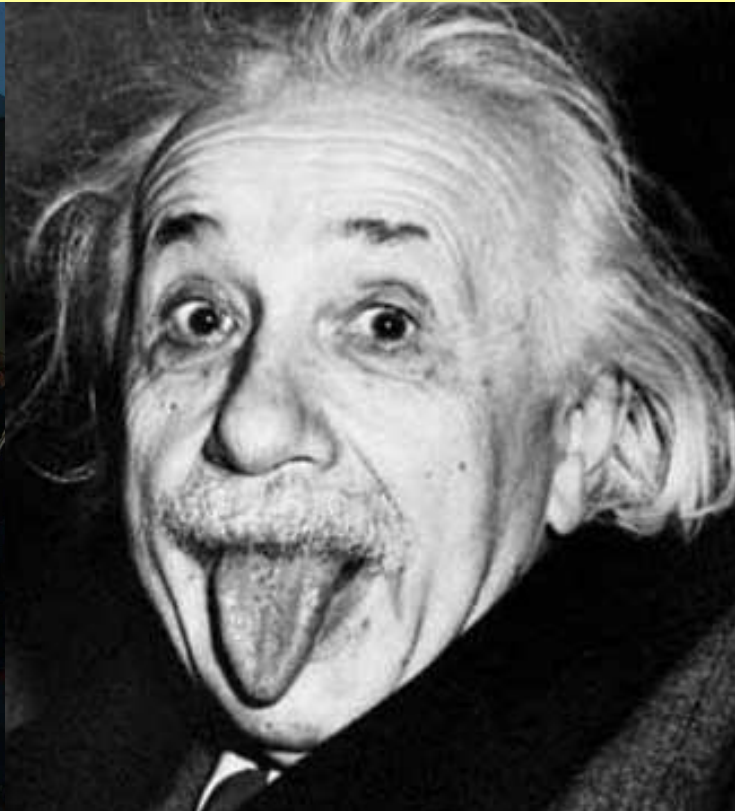




# อัจฉริยะสร้างได้ ... จริงหรือ ?



ดร.นำชัย ชีววิวรรณ

สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.)

☑ อัจริยะ คือ อะไร (กันแน่) ?

☑ วัด “อัจริยภาพ” ได้อย่างไร ?

☑ ฟังเพลงคลาสสิกแล้วฉลาดขึ้น จริงหรือ ?

☑ เสริมสร้าง “อัจริยภาพ” ได้ จริงหรือ ?

☑ สรุป : อัจริยะสร้างได้ จริงหรือ ?

อัจริยะ คือ อะไร (กั้นแน่) ?



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Main page  
Contents  
Featured content  
Current events  
Random article  
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Recent changes  
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## References

1. ^ "genius". *Oxford English Dictionary* (2 ed.). Oxford, England: Oxford University Press. 1989.
2. ^ Peters, Pam (2004). *The Cambridge guide to English usage*. Cambridge, UK: Cambridge University Press.

# Genius

From Wikipedia, the free encyclopedia

*For other uses, see [Genius \(disambiguation\)](#).*

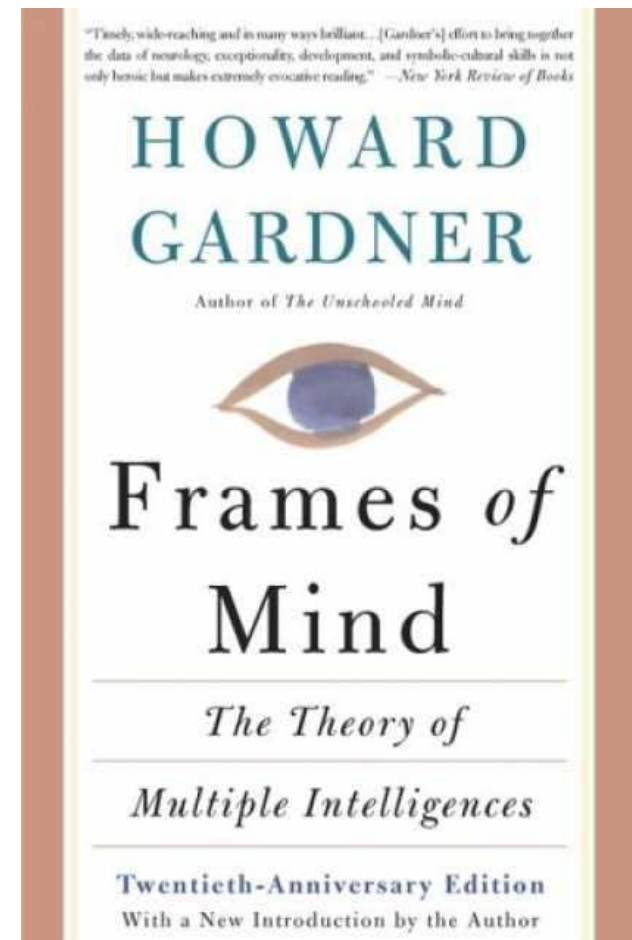
**Genius** (plural *geniuses*<sup>[1][2]</sup>) is something or someone embodying exceptional intellectual ability, creativity, or originality, typically to a degree that is associated with the achievement of unprecedented insight.

There is no scientifically precise definition of genius, and indeed the question of whether the notion itself has any real meaning is a subject of current debate. The term is used in various ways: to refer to a particular aspect of an individual, or the individual in their entirety; to a scholar in many subjects (e.g. Leonardo DaVinci)<sup>[3]</sup>*[Need quotation to verify]* or a scholar in a single subject (e.g. Albert Einstein or Thomas Edison). Research into what causes genius and mastery is still in its early stages, but psychology already offers relevant insights.

A controversial hypothesis called **multiple intelligences** put forth by Harvard University professor **Howard Gardner** in his 1983 book *Frames of Mind* states there are at least seven types of intelligences, each with its own type of genius.

The theory's eight currently accepted intelligences are:

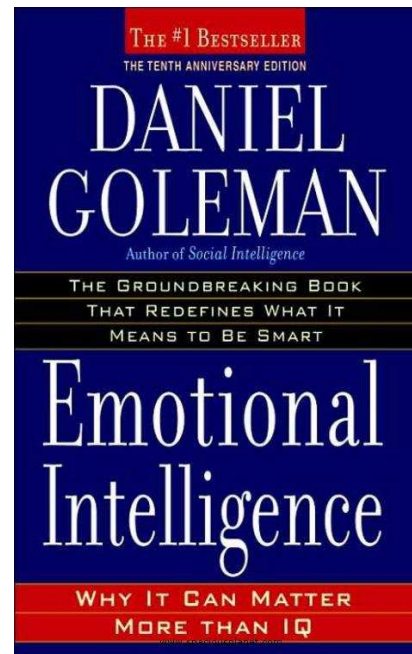
- Spatial
- Linguistic
- Logical-mathematical
- Bodily-kinesthetic
- Musical
- Interpersonal
- Intrapersonal
- Naturalistic



# Emotional Intelligence

The first use of the term "emotional intelligence" is usually attributed to Wayne Payne's [doctoral thesis](#), *A Study of Emotion: Developing Emotional Intelligence* from 1985.<sup>[6]</sup> However, prior to this, the term "emotional intelligence" had appeared in Leuner (1966).<sup>[7]</sup> Greenspan (1989) also put forward an EI model, followed by Salovey and Mayer (1990), and [Daniel Goleman](#) (1995). The distinction between trait emotional intelligence and ability emotional intelligence was introduced in 2000.<sup>[8]</sup>

## Criticisms



Measure Only **Personality** & General Intelligence

**Not** a Form of Intelligence

Little **Predictive** Value

☑ อัจริยะ คือ อะไร (กั้นแน่) ?

ยังงง ๆ กั้นอยู่ !!!  
แต่พอมีไอเดียคร่าว ๆ

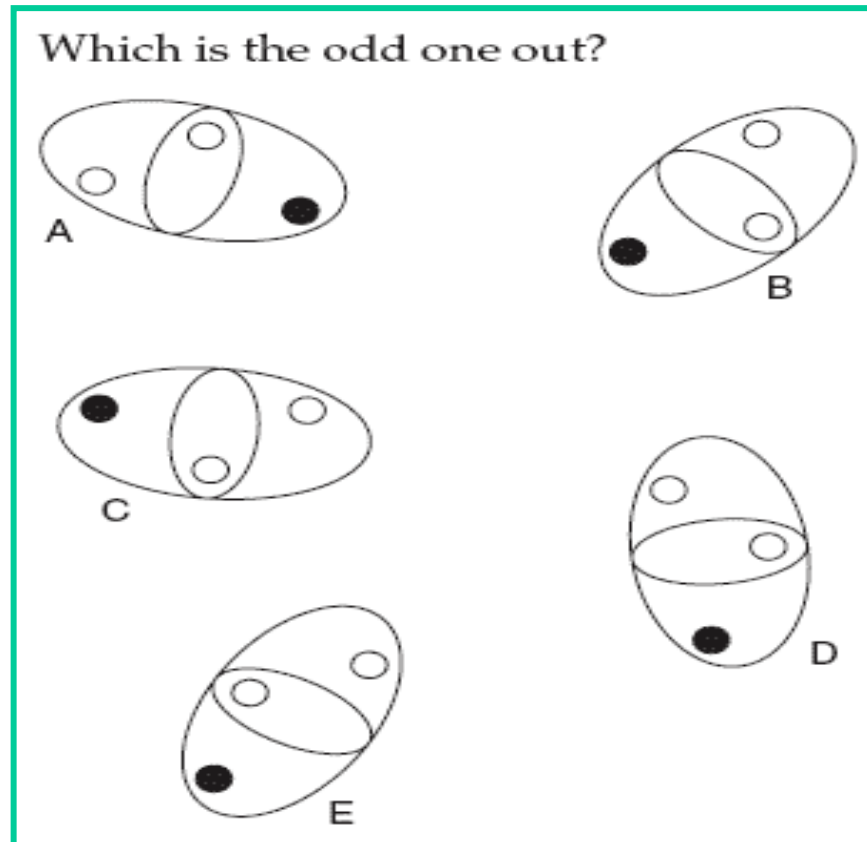
☑ อัจริยะ คือ อะไร (กั้นแน่) ?

☑ วัด “อัจริยภาพ” ได้อย่างไร ?

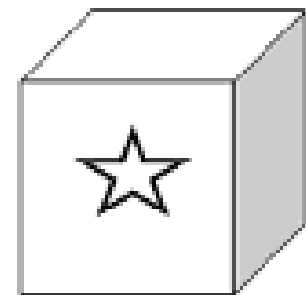
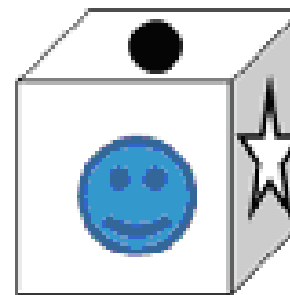
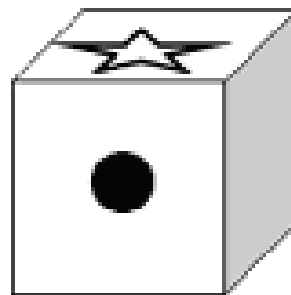
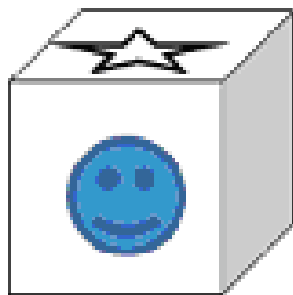
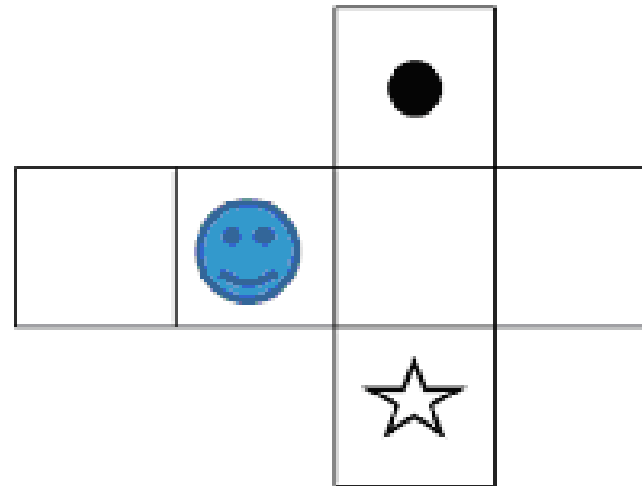


## IQ Test

- **Classification skills** - Provides us with the ability to organize a collection of items by finding similarities and differences between them.



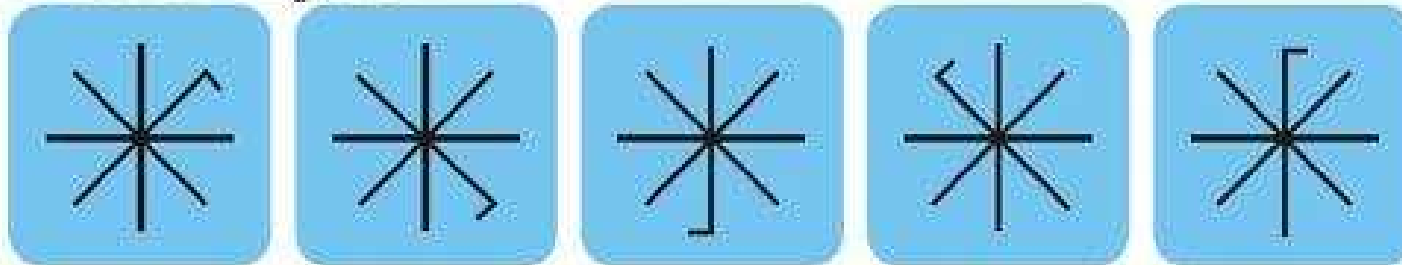
- **Spatial skills** - The perceptual and cognitive abilities associated with the visualization and orientation of objects in space.



- **Pattern Recognition** – Provides us with the ability to create order out of chaos.

**Problem figures**

www.smart-kit.com



**a**

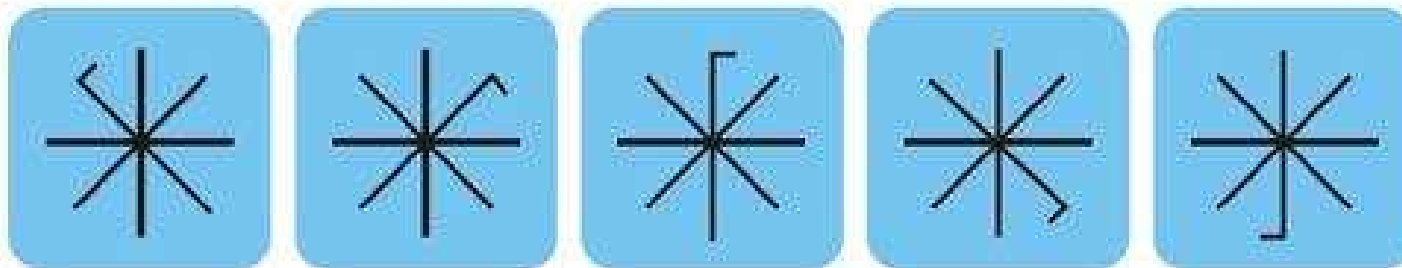
**b**

**c**

**d**

**e**

**Answer figures**



**1**

**2**

**3**

**4**

**5**

- Logical reasoning - Provides us with the ability to make deductions that lead to rational conclusions.
- General knowledge - A very good indicator of crystallized intelligence i.e. mental skills acquired through education and experience.



Only the most intelligent will be able to ascertain the true meaning of this.



## Normal or Genius or Else ?

### Terman's Stanford-Binet Fourth Revision classification

IQ Range ("Deviation IQ")	Intelligence Classification
164 and over	Genius and near genius
148 - 164	Very superior intelligence
132 - 148	Superior intelligence
116 - 132	Above average intelligence
84 - 116	Normal or average intelligence
68 - 84	Dullness
52 - 68	Borderline deficiency
Below 52	Mental Deficiency

### Wechsler's classification

IQ Range ("Deviation IQ")	Intelligence Classification
$\geq 130$	Very superior
120 - 130	Superior
110 - 120	Bright normal
90 - 110	Normal
80 - 90	Dull normal
70 - 79	Borderline
50-55 to $\sim 70$	Mild mental retardation (MR)
35-40 to 50-55	Moderate MR
20-25 to 35-40	Severe MR
$\leq 20-25$	Profound MR

[http://en.wikipedia.org/wiki/IQ\\_reference\\_chart](http://en.wikipedia.org/wiki/IQ_reference_chart)

# Real-life accomplishments

Average adult IQs associated with real-life accomplishments:<sup>[5]</sup>

- MDs or PhDs 125
- College graduates 115
- 1-3 years of college 105-110
- Clerical and sales workers 100-105
- High school graduates, skilled workers (e.g., electricians, cabinetmakers) 100
- 1-3 years of high school (completed 9-11 years of school) 95
- Semi-skilled workers (e.g., truck drivers, factory workers) 90-95
- Elementary school graduates (completed eighth grade) 90
- Elementary school dropouts (completed 0-7 years of school) 80-85
- Have 50/50 chance of reaching high school 75

## [http://en.wikipedia.org/wiki/Intelligence\\_quotient](http://en.wikipedia.org/wiki/Intelligence_quotient)

Average IQ of various occupational groups:<sup>[5]</sup>

- Professional and technical 112
- Managers and administrators 104
- Clerical workers; sales workers; skilled workers, craftsmen, and foremen 101
- Semi-skilled workers (operatives, service workers, including private household; farmers and farm managers) 92
- Unskilled workers 87

Type of work that can be accomplished:<sup>[5]</sup>

- Adults can harvest vegetables, repair furniture 60
- Adults can do domestic work, simple carpentry 50
- Adults can mow lawns, do simple laundry 40

## Criticism and views

[edit]

### Relation between IQ and intelligence

[edit]

*See also:* [Intelligence](#)

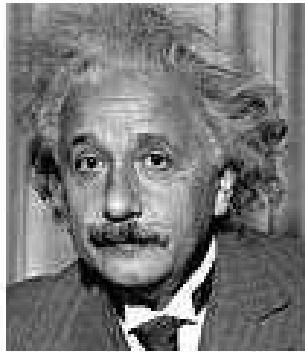


IQ is the most researched approach to [intelligence](#) and by far the most widely used in practical setting. There are critics, who do not dispute the stability of IQ test scores or the fact that they predict certain forms of achievement rather effectively. They do argue, however, that to base a concept of intelligence on IQ test scores alone is to ignore many important aspects of mental ability.<sup>[1][119]</sup>





<http://www.kids-iq-tests.com/famous-people.html>



Albert Einstein  
IQ Score 160



Bill Gates



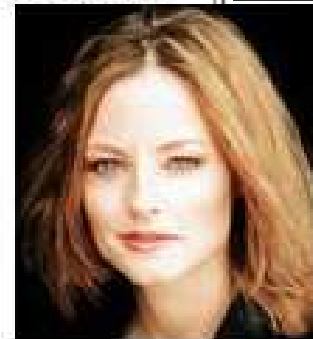
Garry Kasparov



George W. Bush



Madonna



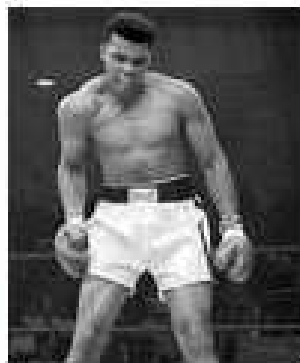
Jodie Foster



Stephen Hawking



Arnold  
Schwarzenegger



Muhammad Ali



Bill Clinton



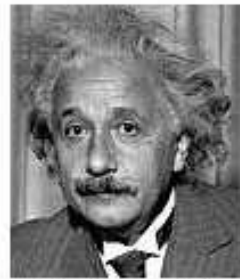
Quentin  
Tarantino



John F. Kennedy



Garry Kasparov  
IQ Score 190



Albert Einstein  
IQ Score 160



Bill Gates  
IQ Score 160



Stephen Hawking  
IQ Score 160



Quentin  
Tarantino  
IQ Score 160



Madonna  
IQ Score 140



Bill Clinton  
IQ Score 137



Arnold  
Schwarzenegger  
IQ Score 135



Jodie Foster  
IQ Score 132



George W. Bush  
IQ Score 125



John F. Kennedy  
IQ Score 119

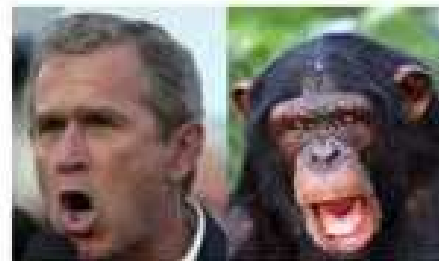


George H.W.  
Bush  
IQ Score 98



Muhammad Ali  
IQ Score 78





I apologize for this latest entry. I can't find a chimp making a face as dumb as this one  
-Rich



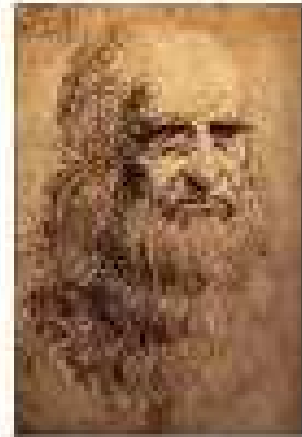


## Champ เชื้อน Champ : IQ



Marilyn Vos  
Savant

IQ Score 228



Leonardo Da  
Vinci

IQ Score 220



Johann Goethe

IQ Score 210



Kim Ung Yong

IQ Score 210

# Marilyn vos Savant


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From Wikipedia, the free encyclopedia



**Marilyn vos Savant** (pronounced /ˌvɒs seɪˈvɑːnt/; born August 11, 1946) is an [American](#) magazine columnist, author, lecturer, and playwright who rose to fame through her listing in the *Guinness Book of World Records* under "Highest IQ". Guinness retired the category of "Highest IQ" in 1990, after concluding that IQ tests are not reliable enough to designate a single world record holder. Since 1986 she has written "Ask Marilyn", a Sunday column in *Parade* magazine in which she solves puzzles and answers questions from readers on a variety of subjects.

<http://www.merriam-webster.com/dictionary/>


sa·vant  *noun*

\sa-'vānt, sa-, -'vāŋ; sə-'vant, 'sa-vant\

### Definition of SAVANT

**1** : a person of learning; *especially* : one with detailed knowledge in some specialized field (as of science or literature)

**2** : IDIOT SAVANT **1**

 See [savant](#) defined for English-language learners »

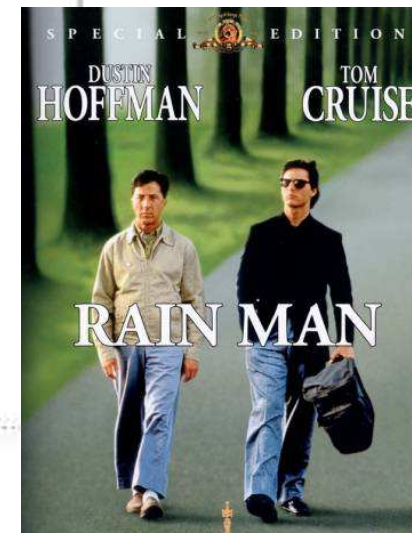
### Examples of SAVANT

- <a *savant* in the field of medical ethics>

### Origin of SAVANT

French, from Middle French, from present participle of *savoir* to know, from Latin *sapere* to be wise — more at **SAGE**

First Known Use: 1719



***Homo sapien***



# Johann Wolfgang von Goethe

From Wikipedia, the free encyclopedia

*"Goethe" redirects here. For other uses, see [Goethe \(disambiguation\)](#).*

**Johann Wolfgang von Goethe** (German pronunciation: [ˈjoːhan ˈvɔlfɡaŋ fɔn ˈɡøːtə]  ( listen), 28 August 1749 – 22 March 1832) was a German writer and polymath.<sup>[1]</sup> Goethe is considered

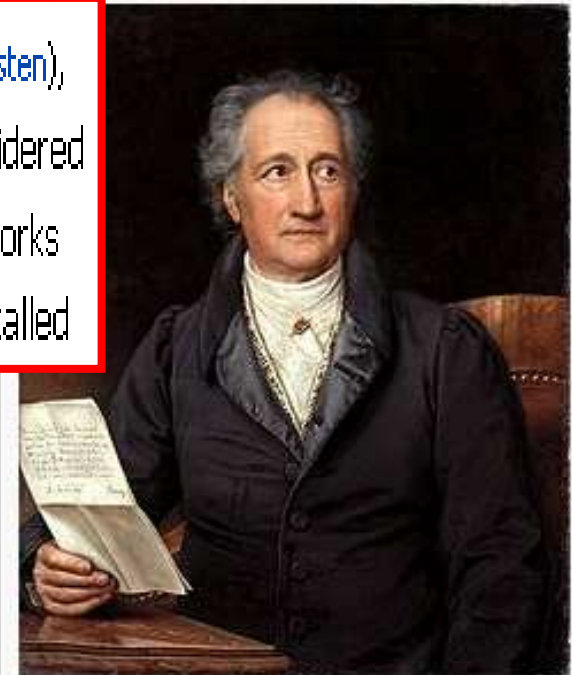
**Johann Wolfgang von Goethe** (German pronunciation: [ˈjoːhan ˈvɔlfɡaŋ fɔn ˈɡøːtə]  ( listen), 28 August 1749 – 22 March 1832) was a German writer and polymath.<sup>[1]</sup> Goethe is considered the supreme genius of modern German literature side by side with Schiller.<sup>[2]</sup> Goethe's works span the fields of poetry, drama, literature, philosophy, and science. His *Faust* has been called

author of the scientific text *Theory of Colours*, his influential ideas on plant and animal morphology and homology were extended and developed by 19th century naturalists including Charles Darwin.<sup>[3][4]</sup> He also served at length as the Privy Councilor of the duchy of Saxe-Weimar.

In politics Goethe was conservative. At the time of the French Revolution, he thought the enthusiasm of the students and professors to be a perversion of their energy and remained skeptical of the ability of the masses to govern.<sup>[5]</sup> Likewise, he "did not oppose the War of Liberation waged by the German states against Napoleon, but remained aloof from the patriotic efforts to unite the various parts of Germany into one nation; he advocated instead the maintenance of small principalities ruled by benevolent despots." <sup>[6]</sup>

Goethe's influence spread across Europe, and for the next century his works were a major

Johann Wolfgang von Goethe



<b>Born</b>	28 August 1749 Free Imperial City of Frankfurt or Frankfurt on Main, Holy Roman Empire
<b>Died</b>	22 March 1832 (aged 82)

# Kim Ung-yong

From Wikipedia, the free encyclopedia



This **biographical article** needs additional citations for verification. reliable sources. Contentious material about living persons that is unsource **must be removed immediately**, especially if potentially libelous or harmful. *(March 2010)*

*This is a Korean name; the family name is "Kim".*

**Kim Ung-Yong** (born March 8, 1962) is a Korean former child prodigy. Kim was listed in the Guinness Book of World Records under "Highest IQ"; the book estimated the boy's score at about 210.<sup>[1]</sup>



## Kim Ung-yong

Hangul

김웅용

Hanja

金雄龍

Kim was a guest student of physics at [Hanyang University](#) auditing courses from the age of 4 until he was 7. In 1970, at the age of 8, he was invited to the [United States](#) by [NASA](#). He finished his university studies, eventually getting a Ph.D. in physics at [Colorado State University](#). In 1974, during his university studies, he began his research work at NASA and continued this work until his return to Korea in 1978.<sup>[3]</sup>

Back in Korea, he decided to switch from physics to [civil engineering](#) and eventually received a doctorate in that field. He eventually published about 90 papers on [hydraulics](#) in scientific journals.<sup>[3]</sup> As of 2007 he also serves as adjunct faculty at [Chungbuk National University](#).

☑ วัด “อัจริยภาพ” ได้อย่างไร ?

มีวิธีวัดอยู่ แต่ก็ ...

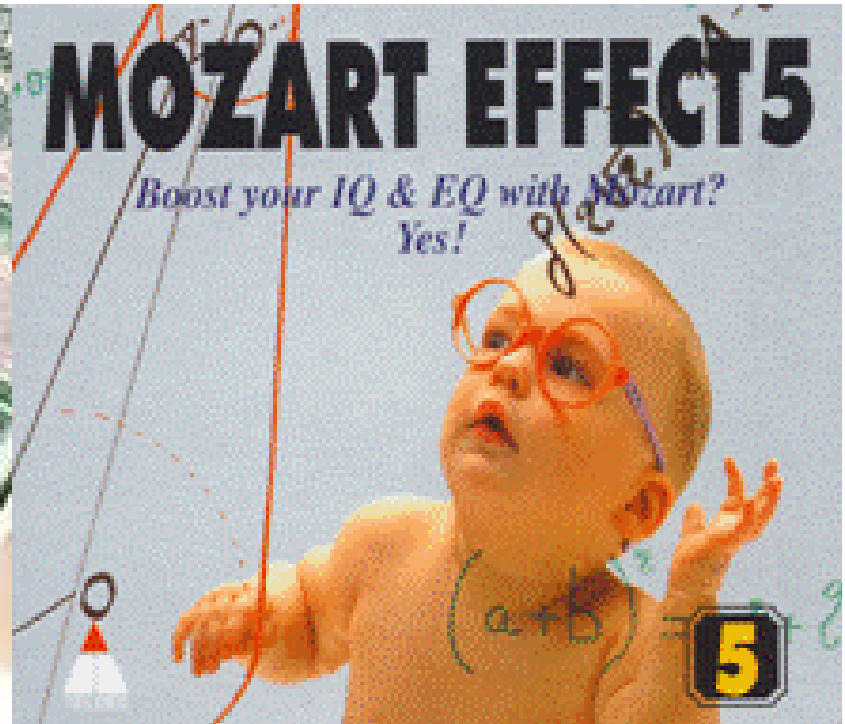
มี จุดอ่อน

☑ อัจริยะ คือ อะไร (กันแน่) ?

☑ วัด “อัจริยภาพ” ได้อย่างไร ?

☑ ฟังเพลงคลาสสิกแล้วฉลาดขึ้น จริงหรือ ?

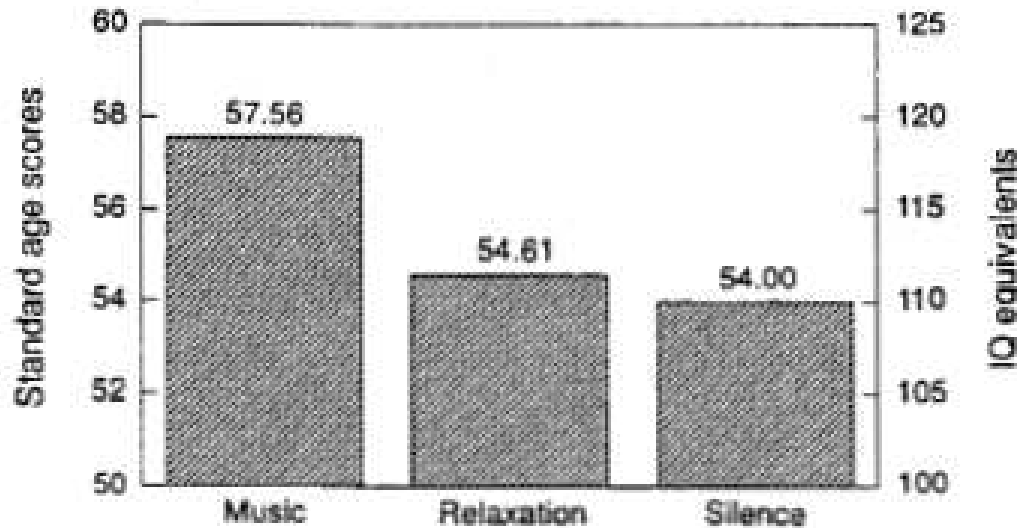
# Mozart Effect – เรื่องจริงหรือ ?



SCIENTIFIC CORRESPONDENCE

Music and spatial task performance

SIR— There are correlational and anecdotal<sup>3</sup> relationships between music cognition and other cognitive functions<sup>1</sup>, but no causal link has been demonstrated between music cognition and cognition of abstract operations such as spatial reasoning. We



Standard age scores for each of the three listening conditions.

**Testing procedure.** In the music condition, the subject listened to 10 min of the Mozart piece. The relaxation condition required the subject to listen to 10 min of relaxation

Mozart Sonata for Two Pianos in D Major

conditions. The abstract/spatial reasoning tasks consisted of

should also be examined. We predict that music lacking complexity or which is too repetitive may interfere with, rather than enhance, reasoning. Also, a comparison of the effect of different types of music on musicians, it would be interesting to compare these two groups.



*Journal of Experimental Psychology: Applied*  
 Department of Psychology,  
 University of Illinois,  
 Urbana, IL 61801, USA

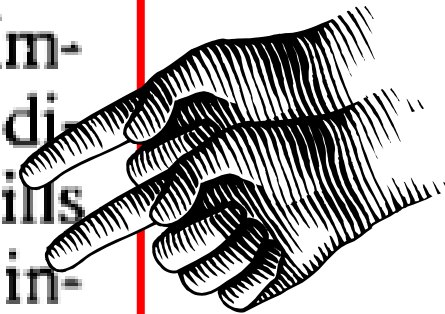
significance. We were thus able to treat them as measures of abstract reasoning ability.  
**Scoring.** Raw scores were calculated by subtracting the number of items failed from the highest item number attempted. These were then converted to SAS using the Stanford-Binet's SAS conversion table of normalized standard scores with a mean set at 50 and a standard deviation of 16. IQ equivalents were calculated by first multiplying each SAS by the number of subjects required by the Stanford-Binet for calculating IQs. We then used their area score conversion table, designed to have a mean of 100 and a standard deviation of 16, to obtain SAS IQ equivalents.

experiment in which students were each given three sets of standard IQ spatial reasoning tasks; each task was preceded by 10 minutes of (1) listening to Mozart's sonata for two pianos in D major, (2) listening to a relaxation tape; or (3) silence. Performance was improved for those tasks immediately following the first condition compared to the second two.

Thirty-six college students participated in all three listening conditions. Immediately following each condition, the student's spatial reasoning tasks were tested using the Stanford-Binet Intelligence Scale<sup>4</sup>. The mean SAS for the three conditions are shown in the figure. The music condition yielded a mean SAS of 57.56, the relaxation condition yielded a mean SAS of 54.61 and the silence condition yielded a mean SAS of 54.00. To obtain IQ equivalents of these scores, we "translated" them to

those tasks immediately following the first condition compared to the second two.

Thirty-six college students participated in all three listening conditions. Immediately following each listening condition, the student's spatial reasoning skills were tested using the Stanford-Binet intelligence scale<sup>4</sup>. The mean standard age scores (SAS) for the three listening condi-



**STM**

**&**

**LTM**

## l task performance

<sup>2</sup> spatial IQ scores of 119, 111 and 110, respectively. Thus, the IQs of subjects participating in the music condition were 8–9 points above their IQ scores in the other two conditions. A one-factor





## ABSTRACT

major (KV 448) is referred to as the Mozart effect since its first observation by Rauscher, Shaw, and Ky (1993). These findings turned out to be amazingly hard to replicate, thus leading to an

largest, most comprehensive, and up-to-date meta-analysis (nearly 40 studies, over 3000 subjects), including a diversity of unpublished research papers to finally clarify the scientific question of whether or not a specific Mozart effect exists. We could show that the overall

largest, most comprehensive, and up-to-date meta-analysis (nearly 40 studies, over 3000 subjects), including a diversity of unpublished research papers to finally clarify the scientific

Furthermore, formal tests yielded evidence for confounding publication bias, requiring downward correction of effects. The central finding of the present paper however, is certainly the noticeably higher overall effect in studies performed by Rauscher and colleagues than in studies performed by other researchers, indicating systematically

colleagues than in studies performed by other researchers, indicating systematic moderating effects of lab affiliation. On the whole, there is little evidence left for a specific, performance-enhancing Mozart effect.

**Table 1**  
Study characteristics.

Study	n	d	SE	Measure	Treatment condition
Rauscher et al. (1993) <sup>b</sup>	36	1.500	0.44	PF & C	MO-NM
Kenealy and Monsef (1994)	24	-0.221	0.44	PF & C	MO-NM
Carstens, Huskins, and Hounshell (1995)	51	0.082	0.28	Minnesota Form Board Test	OM-NM
Flohr et al. (1995) (1)	68	0.140	0.25	Visual Perspective Taking Test	MO-NM
Flohr et al. (1995) (2)	92	0.161	0.21	Visual Perspective Taking Test	MO-NM
Wells (1995) <sup>a</sup>	40	-0.181	0.33	PF & C	MO-NM
Rideout and Laubach (1996) <sup>b</sup>	8	1.540	1.13	PF & C	MO-NM
Wilson and Brown (1997)	14	0.847	0.66	Maze Task	MO-NM
Rideout and Taylor (1997) <sup>b</sup>	32	1.008	0.42	PF & C	MO-NM
Rideout, Dougherty, and Wernert (1998) (1) <sup>b</sup>	16	1.008	0.62	PF & C	MO-NM
Rideout, Dougherty, and Wernert (1998) (2) <sup>b</sup>	16	0.881	0.30	PF & C	OM-NM
Garrison and DeFosco (1998) (1) <sup>a</sup>	16	1.805	0.75	PF & C	OM-NM
Garrison and DeFosco (1998) (2) <sup>a</sup>	38	-0.221	0.34	PF & C	MO-NM

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Garrison and DeFosco (1998) (1) <sup>a</sup>	16	1.805	0.75	PF & C	OM-NM
Garrison and DeFosco (1998) (2) <sup>a</sup>	38	-0.221	0.34	PF & C	MO-NM

Garrison and DeFosco (1998) (1) <sup>a</sup>	16	1.805	0.75	PF & C	OM-NM
M. H. Jones et al. (2006)	41	0.915	0.33	PF & C	MO-NM
M. H. Jones et al. (2007)	86	0.542	0.22	PF & C	MO-NM

All employed tests measure spatial ability. EST—Endless Loops Test [Endlosschleifen-test], IBS—Iowa Test of Basic Skills (maps and diagrams subtest), PF & C—Paper Folding and Cutting Task, PF-ETS—Paper Folding Task as developed by the Educational Testing Service, PFT—Paper Folding Task, SMMR—Shepard-Metzler Mental Rotation Task, WPPSI-R—Wechsler Preschool and Primary Scale of Intelligence-Revised, MO-NM—Mozart samples (KV 448) vs. samples with non-musical stimulus or no stimulus at all, MO-OM—Mozart samples (KV 448) vs. samples with any other kind of musical stimulus, OM-NM—samples with any other kind of musical stimulus vs. samples with non-musical stimulus or no stimulus at all, SE—standard error of study effect.

<sup>a</sup> Unpublished study.  
<sup>b</sup> Rauscher/Rideout lab.

เพลง (คลาสสิก) อาจฟังแล้วดี

แต่ ... เพิ่ม IQ ไม่ได้ !!!

In summary, this study shows that there is little support for a Mozart effect considering the cumulative empirical evidence. The large effect demonstrated in the initial publication faded away as more research was done on this subject. Overall effects turned out to be significant but small and not substantially different from effects of other kinds of music. Possible publication bias turned out to be an additional

ฟังเพลงคลาสสิกแล้วฉลาดขึ้น จริงหรือ ?

หลักฐานล่าสุด ยืนยันว่า ...  
เพลงคลาสสิกไม่ช่วยเพิ่ม IQ

☑ อัจริยะ คือ อะไร (กันแน่) ?

☑ วัด “อัจริยภาพ” ได้อย่างไร ?

☑ ฟังเพลงคลาสสิกแล้วฉลาดขึ้น จริงหรือ ?

☑ เสริมสร้าง “อัจริยภาพ” ได้ จริงหรือ ?

# The heritability of IQ

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IQ heritability, the portion of a population's IQ variability attributable to the effects of genes<sup>1</sup>, has been investigated for nearly a century, yet it remains controversial. Covariance between relatives may be due not only to genes, but also to shared environments, and most previous models have assumed different degrees of similarity induced by environments specific to twins, to non-twin siblings (henceforth siblings), and to parents and offspring. We now evaluate an alternative model that replaces these

three environments by two maternal womb environments, one for twins and another for siblings, along with a common home environment. Meta-analysis of 212 previous studies shows that our 'maternal-effects' model fits the data better than the 'family-environments' model. Maternal effects, often assumed to be negligible, account for 20% of covariance between twins and 5% between siblings, and the effects of genes are correspondingly

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this set with some new twin studies published after 1981: a study of monozygotic twins reared apart<sup>10</sup>, the Swedish adoption/twin study of aging of monozygotic twins reared together and apart and dizygotic twins reared together<sup>11</sup>, and two studies of monozygotic and dizygotic adult twins reared together<sup>12</sup>.

Each IQ correlation and related sample size is classified by kind of study (Fig. 1). We evaluate these data using a standard quantitative genetic model for the components of variance (Table 1) and Bayesian meta-analysis<sup>13</sup>, a standard technique for combining information across studies. Our model is built on two levels of distributional assumptions: we assume a likelihood model for the observed correlations among relatives in each type of study; and we specify a prior distribution for the parameters of the model. We assume any standardized component of variance (positive correla-

**Table 2 Posterior means for IQ correlations by study type**

Relationship	Raised	Type	Model				
			0	I	II	III	IV
Monozygotic twins	Together	1	0.85	0.85	0.85	0.85	0.85
Monozygotic twins	Apart	2	0.74	0.68	0.50	0.68	0.74
Dizygotic twins	Together	3	0.59	0.46	0.59	0.59	0.60
Siblings	Together	4	0.46	0.46	0.44	0.44	0.44
Siblings	Apart	5	0.24	0.28	0.23	0.27	0.28
Midparent/child	Together	6	0.50	0.51	0.52	0.51	0.50
Single-parent/child	Together	7	0.41	0.43	0.40	0.39	0.40
Single-parent/child	Apart	8	0.24	0.25	0.23	0.22	0.21
Adopting parent/child	Together	9	0.20	0.18	0.17	0.17	0.18

Column 0 contains the weighted average of the observed correlations, and columns I–IV contain the predicted values of these correlations from models I–IV. The predicted correlations are obtained through a Bayesian simulation procedure that evaluates integrals numerically<sup>14</sup>.

# Beyond Heritability

## Twin Studies in Behavioral Research

Wendy Johnson,<sup>1,2</sup> Eric Turkheimer,<sup>3</sup> Irving I. Gottesman,<sup>2,3,4</sup> and Thomas J. Bouchard, Jr.<sup>2</sup>

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**ABSTRACT**—The new and testable studies. We see the stability of individual twin study is far existence of parents means that selection of the causal effects samples continuous causal effects in environmental contexts discordant twin environmental transactions.

**KEYWORDS**—heredity, mental influences, environment transactions

In his characteristic vivid Lykken once arranged the furniture and again that

psychopathology, shows genetic influence. It was on Saturday afternoon when arising out of boredom when behavior genetics moved the behavioral chair over near the genetic lamp. The new arrangement was more accurate: The chair was better placed for scientific reading. By now we have a fundamental understanding that genetic influences are involved in all aspects of psychology and behavior. Turkheimer (2000) even enshrined this as the First Law of Behavioral Genetics, and the law actually underlies all of behavioral science.

Classic twin studies carried out by literally hundreds of researchers have provided an abundance of evidence for this.

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# Beyond Heritability

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pathology, disease, and whether particular kinds of circumstances such as substance abuse, poverty, or specific clinical interventions have causal effects on important life outcomes. But studies that can establish causal effects conclusively are rare because of ethical limitations on experimentation in humans, artificiality of laboratory conditions, and uncertainties of extrapolating from experiments with nonhuman animals to humans. Ironically, once we acknowledge the presence of genetic influences on behavior, the value of twin studies shifts from their ability to demonstrate genetic influences to their ability to illuminate causal environmental influences.

To understand why heritability estimates are no longer important, it is necessary to understand that they are completely dependent on the specifics of the samples and environmental conditions from which they are taken. When environments are homogeneous for all, all individual differences become herita-



[ ถ้า *Review* นี้ถูกต้อง ] แสดงว่า  
IQ ขึ้นกับ พันธุกรรม เป็นหลัก  
แต่ ... ก็ขึ้นกับ สิ่งแวดล้อม ด้วย !!!

broad, continuous, and clearly polygenic, which alone produce stability in the estimates. Moreover, we tend to average these estimates in our heads. In reality, estimates of heritability of general intelligence commonly range from 50 to 80%, personality from 20 to 50%, and even height from 70 to 95%. Such ranges can be demonstrated even within samples (e.g., Krueger, South, Johnson, & Iacono, 2008). We are only beginning to un-

☑ เสริมสร้าง “อัจฉริยภาพ” ได้ จริงหรือ ?

จากข้อมูลที่น่าเสนอไป  
สร้างอัจฉริยะได้ในกรณีเดียวเท่านั้น  
คือ ... คน ๆ นั้นต้อง  
พร้อมเป็นอัจฉริยะอยู่แล้ว !!!

“

*Talent hits a target no one else can hit; Genius hits a target no one else can see.*

”

—Arthur Schopenhauer



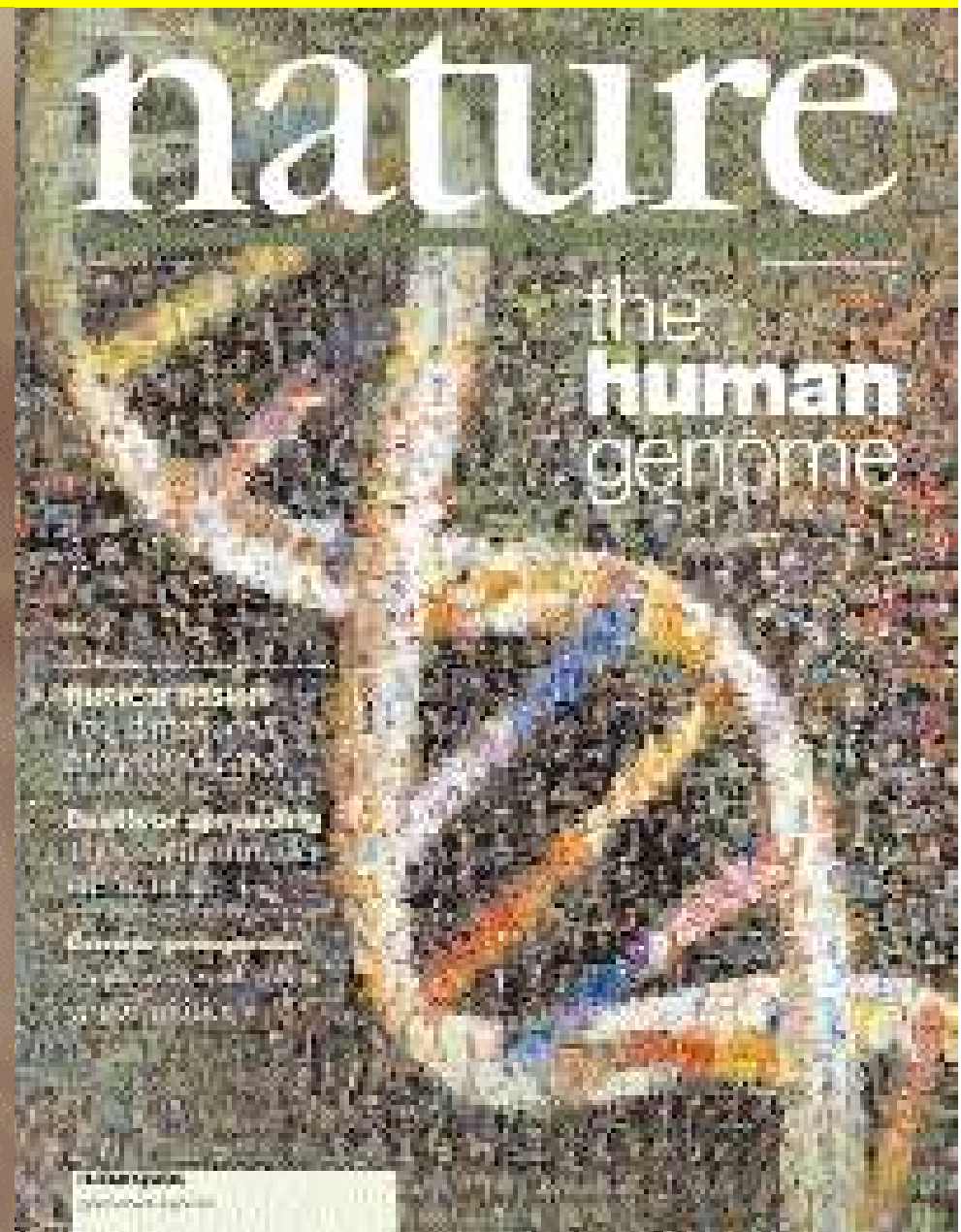
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☑ เสริมสร้าง “อัจริยภาพ” ได้ จริงหรือ ?

✓ รูป : อัจริยะสร้างได้ จริงหรือ ?



*It is not the strongest of the species that survives,  
nor the most intelligent that survives.  
It is the one that is **the most adaptable to change.***



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