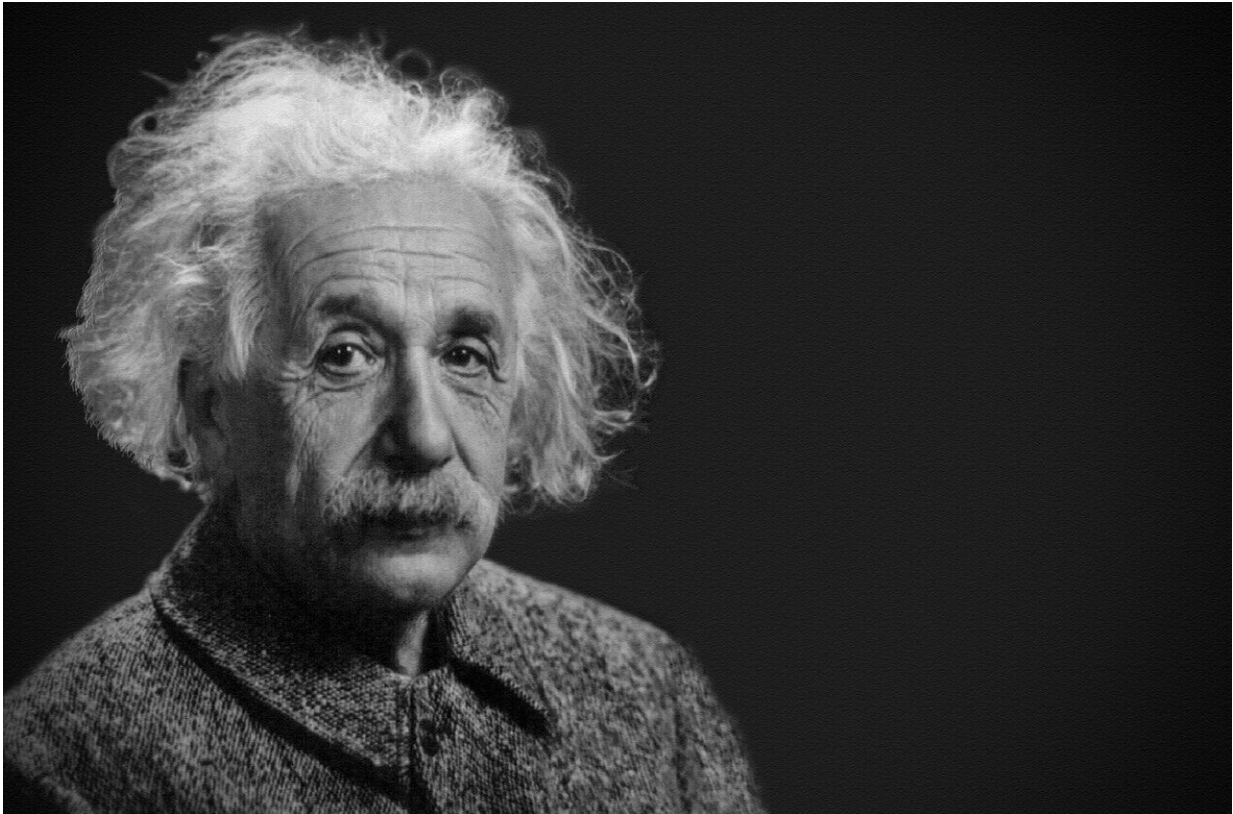


# Examining common myths about IQ

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Intelligence is innate and highly gifted people are all nerds. These are but two of the many widely held assumptions about intelligence. We asked LMU psychologist Markus Bühner about the basis for these and other opinions relating to IQ.

Everybody has decided views on the topic of intelligence, and most of us wish we had an IQ greater than 130, which would admit us to the exclusive club of the highly gifted. But is there any real basis for such notions? A conversation with Markus Bühner, Professor of Psychological Methodologies and Diagnostics at LMU, suggests that many of these commonplaces are in fact misconceptions. Here we weigh the evidence for the validity of eight clichés.

## **Whether it be 112 or 144, everyone has a fixed IQ?**

Sharon Stone reputedly has an IQ of 154, Bill Gates hits 160 and, at 190, Gary Kasparov tops both of them comfortably. Indeed, if frequent reports in the media are to be believed, many [famous people](#) are superintelligent. "But an IQ score is not a fixed quantity," as Markus Bühner points out. "An intelligence quotient is nothing more than a norm that allows one to make comparisons." An IQ score quantifies a person's performance in an [intelligence test](#) in relation to a control group. Its validity derives solely from comparison with the performances of others who have taken the same test and belong to the same population group. "The important question with respect to any such score is—In what test and in comparison with whom was the score assigned?" In other words, every individual has many IQs—depending on how many different tests one takes and on the nature of the comparison group in each. A person with an average level of intelligence will get a lower score if the control group consists of exceptionally gifted people than when the comparison is made with a group of people of average intelligence.

## **An IQ test measures intelligence in the same way as a yardstick measures height?**

IQ tests are based on particular definitions of intelligence. The cognitive skills that are measured reflect the model of intelligence that underlies

the test. As a rule, tests are designed to assess the ability to think logically, recognize anomalies and make reliable inferences rapidly. Sometimes, they also call on imagination and ingenuity. But no single test can consistently measure all cognitive abilities. Instead different tests focus on particular aspects of intelligence, depending on the purpose for which the test is set. In the context of personnel recruitment, an IQ test may be combined with other types of personality test to ensure that the final decision does not depend on the outcome of the IQ test alone. "An IQ test is not like a yardstick, in the sense that a person with an IQ of 123 is automatically better qualified for a position than a candidate with a score of 119. "In occupations that require the performance of complex tasks, one can assume that one's colleagues are all on the upper flank of the normal peak, but they will of course differ from each other in one way or another. Whether or not these differences are meaningful is a different question," Bühner says. By the way, the longer the test, the more precise and reliable the result will be. The leading IQ test, which is based on the Cattell-Horn-Carroll model, takes several hours.

## **Intelligence is innately determined?**

Some people will tell you that every child can in principle be turned into a highly intelligent adult, while others argue that everything depends on one's genetic endowment. In this debate, Markus Bühner's position is unequivocal: "The evidence clearly shows that intelligence is in part inborn. Whether the fraction is closer to 50% or 70% seems irrelevant to me. But that does not mean that there is no way one can alter one's cognitive capabilities. On the contrary, we can enhance the capacities of our genetic endowment to a greater or lesser extent. The fact that intelligence is in part genetically determined is no excuse for shrugging one's shoulders—it should instead motivate us to build on what we have." Even highly intelligent people must make an effort, although they generally find it easier to do so than their less gifted fellow humans.

Learning improves comprehension, no matter what one's IQ happens to be.

## **Highly gifted people are all nerds?**

Is there anything in those stories about highly gifted individuals who allegedly find it difficult to interact with their 'normal' contemporaries and the world around them? The answer to this question is, basically, no. Long-term studies show that highly intelligent children do not differ in their emotional or social development from their less gifted contemporaries. In fact, generally speaking, intelligence is a gift that keeps giving throughout the course of one's life. "Studies show that, on average, intelligent people are more successful in all areas of life." This however does not imply that individuals with an average IQ are necessarily less likely to have satisfying and fulfilling lives. As is usually the case, the results of such studies reflect generalized conclusions, based on average values drawn from observations of large cohorts of people who were followed over long periods.

## **You can't train yourself for an IQ test?**

Tasks such as continuing numerical series, memorizing shapes or finding synonyms suggest that IQ tests are highly systematic. Nevertheless, researchers generally agree that there is little to be gained by practicing for an upcoming test, the precise content of which will inevitably differ from those of the practice set. "It is of course helpful to be familiar with the [test](#) situation as such and the types of tasks that may be expected," says Markus Böhner. But that does not mean that practice will significantly improve one's score.

## **Intellectually superior individuals are more successful?**

In the context of professional recruitment processes, IQ tests are regarded as highly valuable, indeed virtually indispensable. Intelligence is a significant predictor of professional success, Bühner says. One reason for this lies in how intelligence is measured in such tests. After all, the ability to understand the implications of a given body of evidence is likely to be helpful in virtually any everyday situation. In personnel recruitment, however, IQ tests are usually complemented by other selection procedures. For example, personality traits also play a considerable role in the world of work, and they have little to do with intelligence. In Germany, IQ tests are used primarily in the selection of apprentices and junior staff. "The level of intelligence is a very good predictor of successes in occupations that pose complex challenges—so IQ tests should also be employed in the selection of executives," Bühner points out. But they seldom are.

## **To be successful, you need to have a high IQ?**

Not surprisingly, the high end of the scale is sparsely populated. Most people have an IQ of between 85 and 115. Only 2% of us have an IQ score of over 130. "One's own IQ is not a particularly relevant quantity for any given individual," says Bühner. Moreover, it is difficult for individuals to assess their own cognitive capacity—and the notion that one can estimate how clever one's relatives, friends or colleagues are is also a non-starter. "The quality that distinguishes the highly gifted from the rest of us is the ability to think fast and logically. Very intelligent people are capable of rapidly grasping complex logical relationships, are quick to adapt to new challenges and can respond swiftly to them. "But each of us has certain personality traits and habits, which have a significant impact on who we are. A highly intelligent person who has grown up in a relaxed environment may well express herself in an unhurried rather than a rapid-fire fashion," says Markus Bühner. "After all, intelligence isn't everything."

## People are progressively becoming more intelligent?

In the 1980s, James Flynn, a Professor of Political Science in New Zealand, noticed that IQ scores in many countries had been rising in recent decades. This observation, which was confirmed by other researchers, suggested that, over generations, the average level of [general intelligence](#) was rising ("the Flynn effect"). However, more recent data imply that this trend no longer holds, and may even have gone into reverse. These studies indicate that the rise in IQ scores has stalled. "The measured effects are not very large and are highly non-uniform. The variation in IQ scores within a given age cohort is far higher than the change in the average score over the whole series of cohorts. In the literature, researchers have variously attributed these trends to environmental influences, such as changes in upbringing and education, or in exposure to and consumption of media. But in my view, not enough research has been done to clarify the factors behind the apparent trend," says Bühner.

Provided by Ludwig Maximilian University of Munich

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