

# Q&A: Professor discusses the social side of intelligence

August 29 2023, by Melinh Lai

---



Credit: Unsplash/CC0 Public Domain

Intelligence can mean many things. For most people, it describes the

general ability to learn and use knowledge in different areas, such as technology, science, and even personal relationships. At the Beckman Institute for Advanced Science and Technology, [researchers study the origins of human intelligence](#), develop artificially intelligent systems, and even question what it means to be intelligent at all.

LaTasha Holden, a professor of psychology at the University of Illinois Urbana-Champaign and a Beckman researcher, studies intelligence from a [different perspective](#). She looks at how intelligence is perceived socially and explores the impacts of those perceptions on people's lives. She is particularly interested in how social notions of intelligence can have lasting consequences for students, both during their school years and in their lives outside the classroom.

Traditional perceptions of intelligence may have created unfair limitations for students, especially those from historically marginalized communities, but Holden believes that changing our fundamental understanding of what intelligence is can help develop antiracist practices and build a more equitable society. She elaborates in this Q&A.

## **How do you define intelligence? Does that differ from how the average person might define it?**

I think the [average person](#) would define intelligence somewhere along the lines of natural smarts or book smarts: innate or unchangeable intellectual ability, or [mental abilities](#) that are assessed.

I define intelligence as our ability to solve new problems, or the ability to adapt to our ever-changing environments. Scientifically, I define intelligence as something that emerges from general-purpose and domain-specific abilities, the latter of which are specialized and involve crystallized knowledge (for example: vocabulary knowledge).

In my opinion, the second definition I provided is more appropriate. The key thing to remember is that intelligence in terms of a scientific construct has been defined and studied largely from a certain cultural perspective, which impacts how it was viewed historically and how it is viewed today. In any case, the notion of intelligence has a challenging history filled with forms of bias and injustice.

## **Can you elaborate on this history?**

Studying intelligence usually involves testing people's mental abilities in different ways, such as with [memory tests](#) or tests of visuospatial processing. Often, a person will have similar performance on many different tests—when they're good at one test, they often perform well on many other tests.

Historically, intelligence researchers have used a metric called the g (or general) factor to represent a person's general ability to perform well on these cognitive tasks. The problem with many early theories of intelligence is that they believed that this factor was an innate, common cause for all intelligent behavior. Modern research shows that that is simply not the case.

In addition, early intelligence assessments were developed from mostly white Europeans from higher social classes in the late 19th century. It is difficult to imagine that theories based on observations of only one group of people would translate well in other contexts with different groups.

These early forms of intelligence assessments were also linked with eugenics, and this—in tandem with the mistaken views that intelligence is innate—often led to the outcomes of these assessments being used to further disenfranchise marginalized and racialized communities, including with legalized sterilization.

## **How has this history impacted intelligence research and the modern pursuit of the science of intelligence?**

In many ways, traditional methods of studying intelligence have been viewed as out of line with supporting marginalized communities. I think even now a lot of people still view IQ tests this way. This history has led to some cognitive scientists avoiding the study of intelligence altogether. Others focus on concepts that seem related to intelligence, like executive function. I have argued that focusing on intelligence-related concepts doesn't grant the same depth of prediction as specific aspects of intelligence, like working memory, which is the ability to control our attention.

The most important aspects of intelligence appear to be domain-general processes like working memory. Even though we know that intelligence involves a mix of general and specialized abilities, we can focus on the general processes when we develop new ways to improve intelligence.

In a new paper, my Ph.D. student Gabriel Tanenbaum and I wrote about diversity, equity, and inclusion-based considerations for the topic of intelligence and how we can study it for social good. The paper is published in the *Journal of Intelligence*.

The hope is that we can change how we study intelligence and apply it in future work to be more amenable to our current demographics of students, as we know the U.S. population has been becoming increasingly diverse in terms of cultural, racial ethnic and neurodiversity over the last several decades.

## **How can intelligence be changed, or even improved?**

From my perspective, intelligence test scores are improvable—but the

approach we take to improve them should be informed by, and largely depends on, differences in people's needs. For example, if someone has challenges from ADHD, dyslexia, or dyscalculia we might think about different forms of tailored intervention to fit their specific needs.

One possible route is to use common assessments of intelligence to get an initial sense of different students' broad and narrow abilities. Once we've identified the areas where students are quite strong or may benefit from additional help, we can tailor an education strategy to fit their specific needs.

## **What is the relationship between intelligence research and social equity?**

I think people view the relationship between intelligence research and social equity as a negative one. In other words, focusing more on the practical and scientific importance of intelligence is thought to not align with supporting social equity goals.

Acknowledging the fraught history of intelligence research is important, and that means accepting that intelligence tests haven't been used necessarily to focus on equity, but I argue that they can be used this way. In order for this to happen we have to both acknowledge that problematic history and work very intentionally to ensure that intelligence tests—and really, any tests of mental ability—are used in ways that align with equity goals.

## **How can intelligence research be used to rectify these areas of inequality?**

The suppression of intelligence research has contributed to inequality because it has made people uncertain about whether it's possible to align

the study of intelligence with the pursuit of equity. Focusing on the sub-measures of intelligence is the best way to start in future work. The sub-measures allow us to think about more specific forms of tailored intervention to support our most vulnerable students.

For example, working memory capacity is an important domain general sub-measure of intelligence. It is related to test performance and achievement and processing of information.

Many studies have shown that in racialized and marginalized students, working memory is an important factor in terms of the mental resources involved in performing their best. Having higher working memory resources shows that students are able to better maintain their performance in the face of identity-threatening situations, suggesting to me that this is a really important factor when we consider social equity and think about helping vulnerable students maintain their cognitive resources.

## **What do you think is the most important thing that someone can take from your research and apply to their own life in the pursuit of thinking more equitably and flexibly?**

First, I want people to understand the approach I am choosing to take in focusing on equity. Science has a history of prioritizing and serving some groups more than others. This has contributed to various forms of societal inequality and inequity. I am choosing to re-envision how we think about and conduct research on topics that have historically been used in problematic ways.

I think we should take what can be useful about cognitive ability research and use it for social good. We should acknowledge what has

been problematic and harmful in this history and continue to root out and revise practices that could perpetuate these problems today.

Second, I think the cognitive psychology and [intelligence](#) literature has consistently shown that cognitive processes involve "mental energy and mental resources," and certain experiences can weigh on mental energy and how well individuals are able to leverage and deploy different cognitive abilities and skills.

From my perspective, societal bias and inequity have contributed to and caused forms of mental exhaustion. Instead of viewing the most vulnerable and marginalized from a deficit perspective, where people are inherently thought of as lacking something, we should take the view that differences in experiences create differences in needs. We should be using the science conducted on these topics both to combat form of bias and to meet the needs of the most vulnerable—not to contribute to further forms of marginalization.

**More information:** LaTasha R. Holden et al, Modern Assessments of Intelligence Must Be Fair and Equitable, *Journal of Intelligence* (2023). [DOI: 10.3390/jintelligence11060126](https://doi.org/10.3390/jintelligence11060126)

Provided by Beckman Institute for Advanced Science and Technology

Citation: Q&A: Professor discusses the social side of intelligence (2023, August 29) retrieved 29 April 2024 from <https://phys.org/news/2023-08-qa-professor-discusses-social-side.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.