

## SEEING EYE TO EYE: HOW CULTURE AFFECTS OUR UNDERSTANDING OF OTHERS' MINDS

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DIVYA

AGE: 15



TRISTAN

AGE: 14

Have you ever thought about how and what other people think? It is interesting to wonder, right? Well, humans have a skill that helps us understand other people's perspectives and feelings. It is called *theory of mind*, and it is very important for being social, communicating with others, and for understanding their behavior. But did you know that the culture you grew up in can affect how good you are at understanding other people? If your culture taught you to work together with other people and think about others, you might be especially good at understanding others' thoughts and feelings. In fact, we can even see this difference in the way people look at things! In this article, we explore how our eyes can show us how good we are at understanding others.

## UNDERSTANDING OTHERS' PERSPECTIVES AND FEELINGS

### THEORY OF MIND

When a person has an ability to understand another person's perspective, feelings, emotions, or beliefs (and that these are separate from and perhaps different from their own).

### EMPATHY

The ability to understand and share the feelings of others.

### Figure 1

Many of us often wonder what other people are thinking and feeling, and why they do the things they do. This little girl observes her friend and has lots of questions about her friend's mind.

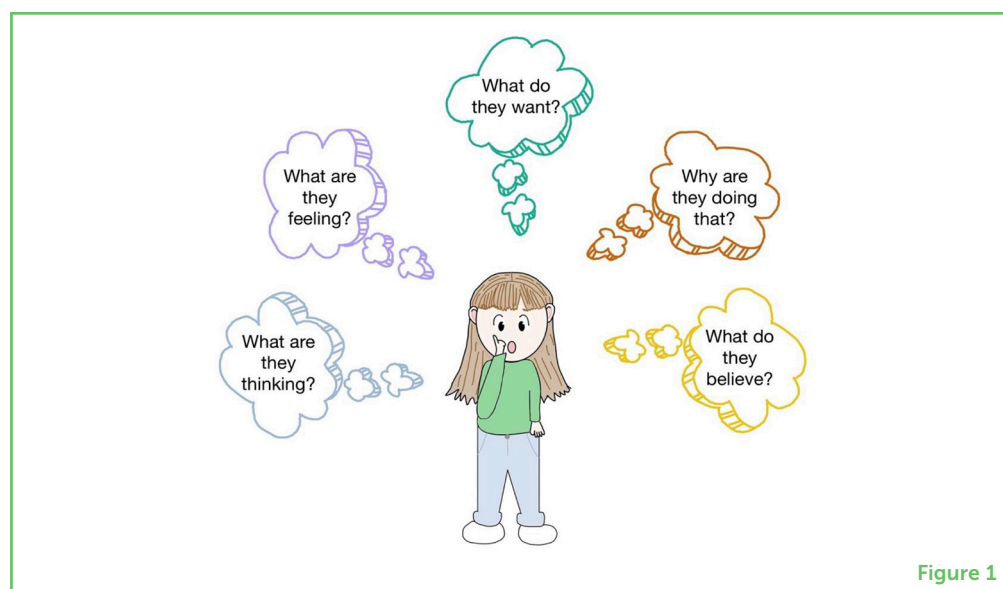


Figure 1

### INTERDEPENDENCE

When two (or more) people are mutually dependent upon one another.

### INDEPENDENCE

When a person has an ability to exist and thrive without having to rely on others.

Interestingly, the way you understand what others are thinking and feeling can differ depending on where you grew up and what values you were taught. For example, some cultures put a lot of emphasis on working together and thinking about the needs of the group (this is called **interdependence**), while other cultures encourage people to be independent and make their own choices (this is called **independence**). In some places, families live together and share everything they have because they particularly value taking care of each other, while in other places, people are encouraged to move out of their parents' homes and live on their own when they grow up. These unique cultural values can shape how people think about and understand others. Studies have found that people who grew up with values that emphasized working together and caring about others are exceptionally good at understanding what

## PERSPECTIVE-TAKING

The ability to understand and consider the thoughts, feelings, and viewpoints of others. A key component of theory of mind.

## COGNITIVE PROCESSES

The mental activities involved in acquiring, processing, storing, and using information.

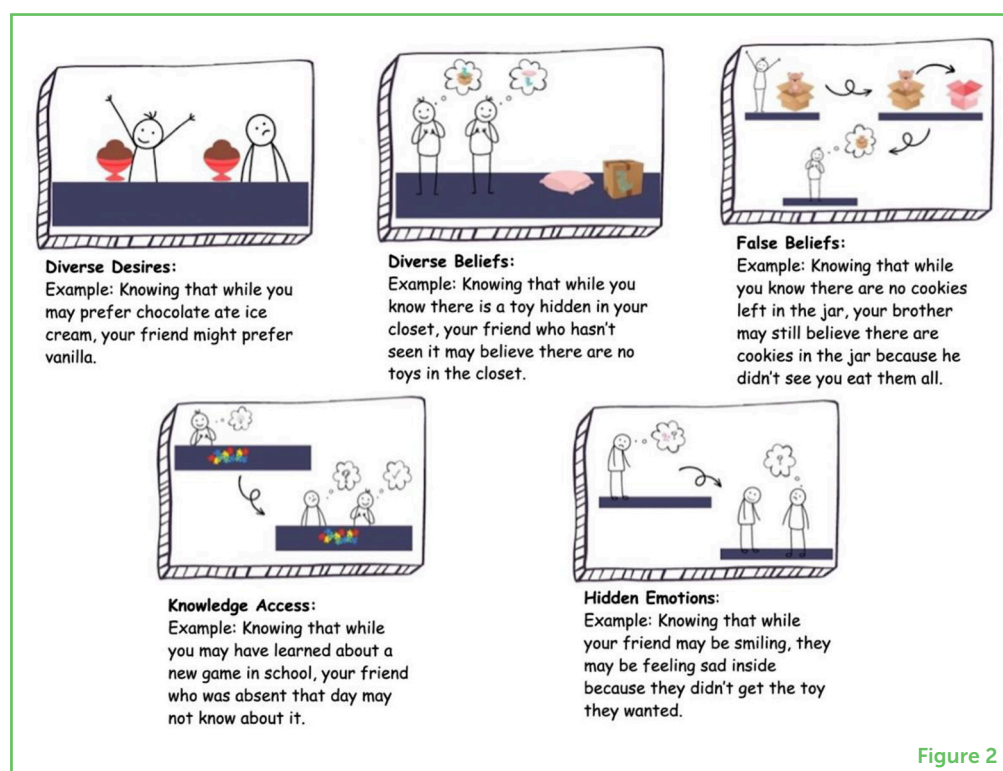
### Figure 2

Theory of mind develops differently across people and cultures and is the result of several cognitive processes.

other people are thinking and feeling. These individuals are particularly skilled at seeing things from other people's points of view, which is called **perspective-taking**.

## WHAT ARE THE PROCESSES INVOLVED IN TOM?

You might wonder why ToM varies based on culture. Well, this is because ToM develops differently for different people, and it relies on a series of **cognitive processes** that develop as children grow up (Figure 2). These differences in life experiences lead to differences in the ability to understand others' thoughts and emotions. These cognitive processes include:



- Diverse desires: understanding that different people can want different things.
- Diverse beliefs: understanding that different people can believe different things.
- False beliefs: understanding that someone can believe something that is not true.
- Knowledge access: understanding that someone can know something that you do not know.
- Hidden emotions: understanding that someone can feel one thing but show a different emotion on the outside.

Although children all around the world develop ToM in similar ways, the order in which they learn about things like diverse beliefs and

desires can be different depending on the culture they come from. For example, in some cultures, it is important to think about what other people want, even if it is not what you want. As a result, children in these cultures might learn about diverse desires before they learn about false beliefs. Also, in some cultures, children learn about knowledge access before they learn about false beliefs. This means that they learn about how people can know things (like by seeing or hearing something) before they learn that people can believe something that is not true.

These differences have been observed across Asian and Western countries, but also within different parts of Western continents. For example, Italy and Britain are geographically near one another but have different parental and social expectations that can affect how children develop their ToM skills. In Italy, children are more likely to be raised with interdependent values of cooperation and group harmony, such as being encouraged to express emotions openly within the family. By contrast, in Britain, children may be more likely to be raised with independent values of individualism and personal achievement, and therefore might be taught to keep their emotions to themselves, especially in public settings. These differences in values and expectations can influence how children learn to understand and interpret other people's thoughts and feelings, and thus their development of ToM [2].

Furthermore, socialization is a key process for acquiring ToM. Kids who grew up with siblings and had more socialization tend to be better at ToM. In addition to the culture we grow up in, how much we socialize with others (especially siblings) plays a big role in how good we are at understanding other people's thoughts and feelings. Studies have shown that kids who have siblings and interact with them a lot tend to be better at ToM than kids who do not have siblings or do not interact with them as much. This is because having siblings provides more opportunities to practice socializing and understanding other people's perspectives.

## HOW DO RESEARCHERS STUDY TOM?

Differences in ToM are not limited to childhood, as adults from diverse cultural and developmental backgrounds also show varying performance levels on ToM tasks. For instance, researchers used a game called the Director Task to understand how people understand perspectives [3]. In this game, two participants sit at a table with several objects in front of them. One person (called the director) tells the other person (called the participant or subject) where to move the objects. Importantly, in some situations the director cannot see all the objects (because of where they are placed) and the participant is aware of this.

The participant is asked to move a specific object, but there is often another object that might get in the way. For example, imagine you are the little girl in [Figure 3](#), looking at the shelf. The director asks you to move the small ball to the left. You might wonder if the golf ball is the correct item, because that is the small ball on the shelf that you can see. But then you remember that the director cannot see everything that you can see. In fact, because there is a backing on the shelf with the golf ball, the director cannot see that item, and so he must be referring to another small ball, like the tennis ball on the top right. To do this task correctly, you must understand things not just from your perspective, but from the director's.

### Figure 3

A game called the Director Task can be used to understand ToM. In this game, the participant is asked to move a certain object, but what the participant sees is different from what the director sees.

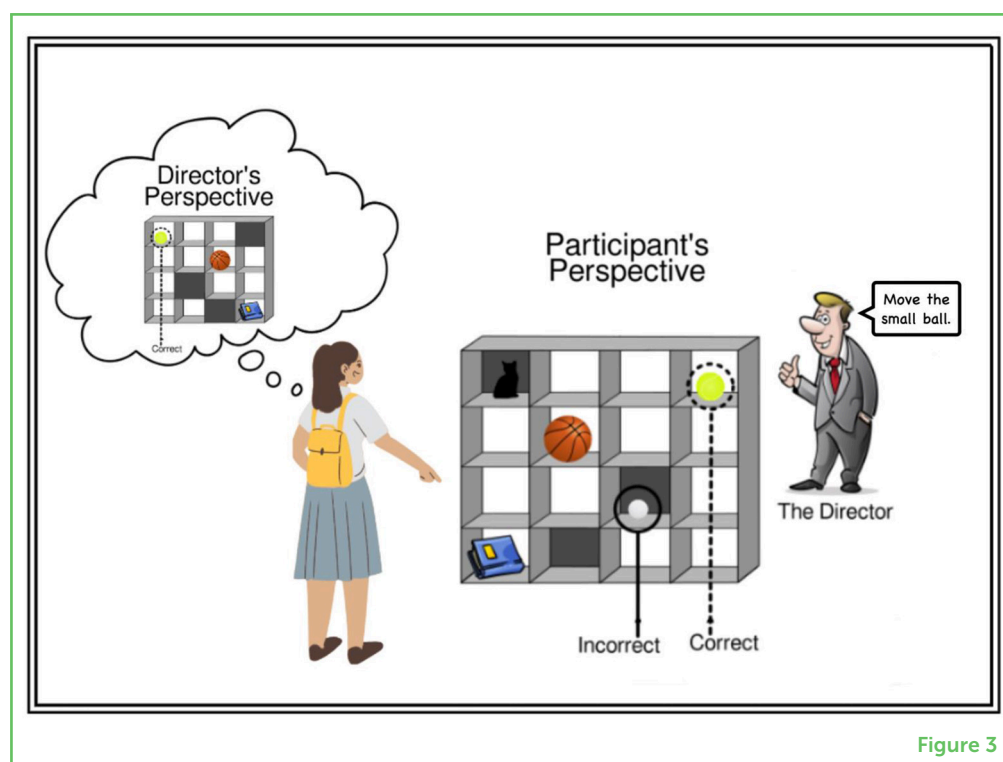


Figure 3

The researchers wanted to see if their participants could understand the director's instructions—keeping in mind that what can be seen from the director's perspective is different from the participant's perspective—and not get confused by an "incorrect" object. Interestingly, this difference in perspective-taking is also observed in people's eye movements when they are looking at things.

### EYE-TRACKING

Computer-based technology that can be used to take pictures of the eyes and (using software algorithms) determine when and where a person is looking.

### EYE MOVEMENTS HELP US UNDERSTAND TOM

**Eye tracking** is a research method used to determine what a person is paying attention to, and how that relates to the person's cognitive processes. Eye tracking involves measuring the movements of an individual's eyes as they look at images or text. This method provides researchers with a wealth of information about where individuals look, for how long, and in what sequence. By analyzing eye movements,

researchers can better understand how individuals make decisions and engage with the environment around them. For instance, researchers have used eye tracking to investigate how children understand others' emotions. Researchers showed children pictures of people with different facial expressions and tracked their eye movements [4]. They found that children who looked more at the eyes of the person in the picture were better at understanding that person's emotions than were participants who looked more at other facial features, like the nose or mouth.

Another research group used eye-tracking to study how people understand others [3]. They used two measures to assess eye behavior during the task: *how long* it took participants to look at the correct object (the tennis ball), and *how often* they looked at the incorrect object (the golf ball). The number of times the subject looked at the golf ball was used to determine whether the subject considered the incorrect object as a potential correct response. Similarly, the amount of time it took the participant to look at the tennis ball was used to evaluate the extent to which the presence of the incorrect object (golf ball) interfered with the participant's ability to identify the correct one.

By examining these eye-tracking measures, the researchers could reveal any temporary confusion experienced by the participant, as shown by a delay in finding the correct object. The researchers also examined cases in which the confusion was not resolved, by considering the tendency of participants to ask for clarification. For example, if a participant asked, "Which shelf?" it was probably because they thought the director could have had either shelf in mind. This indicated that the participant did not distinguish between the correct shelf (which was visible to the director) and the incorrect shelf (which was visible only to the participant).

Eye-tracking measures showed that Chinese participants (who tend to be more interdependent and community oriented) focused more on the director's perspective in comparison to American participants (who tend to value independence and self-expression). American participants focused more on the incorrect object and delayed their selection of the correct one. In contrast, Chinese participants did not have as much difficulty finding the correct object and did not spend as much time looking at the incorrect object. This indicated that Americans tend to focus more on their own perspective, while Chinese participants tend to pay more attention to others' perspectives. Overall, the results suggested that there are cultural differences in the ability to take another's perspective in the Director Task. Eye-tracking measures helped reveal this cultural difference and provided insights into the underlying cognitive processes involved in perspective-taking.

## WHY ARE TOM DIFFERENCES IMPORTANT?

Studying cultural differences in ToM is important for understanding the complex relationships between culture, cognitive processes, and social behavior. Culture influences the way we think, communicate, and interact with others; and ToM is a crucial aspect of social interactions that helps us understand and navigate social situations. By examining how individuals from different cultural backgrounds perform on ToM tasks, we can better understand how culture shapes the development and use of this important ability. This knowledge can be important for areas such as education, cross-cultural communication, and social policy. For instance, understanding cultural differences in ToM can help teachers design more effective learning strategies and lessons that account for cultural diversity, can aid communication and collaboration across cultures, and can help to develop policies that promote social inclusion and equity.

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## YOUNG REVIEWERS



### **DIVYA, AGE: 15**

I am a high school sophomore who finds the intersection of science and writing fascinating. My passions include classical vocal music and learning languages. In my free time, I enjoy reading, as well as creating and solving puzzles.



### **TRISTAN, AGE: 14**

I play rugby, I like the brain and I am amazed at how complex it is. I like to engage in deep conversations with my peers and parents. I code and I prefer Python and I want to combine my knowledge in python and neuroscience to better understand the brain.

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