

WHAT IS AN EMOTION?

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YOUNG REVIEWERS:



ANNA

AGE: 14



MILA

AGE: 8

Many moments make up a day. There may be times when we feel happy and other times when we feel sad. But what is really happening when we say we “feel” something? What is an emotion? This article explores this important question. Maybe this question seems simple, but it is actually very complicated. What do we know about emotions? Why do we have emotions at all? Are emotions good or bad? By asking these questions, we join thousands of other scientists and researchers in search of answers. Since all humans have emotions, this is certainly a topic that matters to us all.

Almost 140 years ago, back in 1884, William James asked, “what is an emotion” [1]? He was an influential philosopher, historian, and psychologist. Since then, there have been hundreds of thousands of research studies, books, and journal articles about emotions. We have learned a lot, but the scientific community is still searching for a complete and widely accepted answer. Perhaps, the most accurate answer is that we do not know [2]! However, there is a lot we *do* know about emotions.

EMOTIONS: A LONG HISTORY OF EXPLORATION AND DEBATE

Scientists have been studying emotions for many years, and they have produced many ideas about what emotions really are. Back in 1981, more than 40 years ago, researchers came up with 92 different ways to describe emotions! That means we still have a lot to learn about emotions, which is why scientists keep doing more research. Some scientists think that emotions are annoying and make us act without thinking. Other scientists, like Aristotle and Hume, think that emotions are an important part of the ability to think and make good decisions [3, 4]. There are also debates about how emotions affect our thoughts, decisions, and actions. Some people think that emotions have a big impact on us, even if we do not realize it. Others think that some emotions are good, while other emotions are bad. Despite all these differences, scientists *do* agree on many important things about emotions.

COGNITIVE APPRAISAL

The way we think about things that happen around us and decide if something is good, bad or not important.

AMYGDALA

The amygdala is a small part of our brain that helps us feel emotions. It is like an alarm system that gets activated when we experience something that might be important or scary. The amygdala helps us recognize different emotions in ourselves and others, like happiness, fear, or anger.

EXPERIENTIAL

Experiential means learning by doing things firsthand rather than just reading or listening to information. Imagine you want to learn about animals. Instead of just reading a book or watching a video about them, you can visit a zoo or a farm, where you can see the animals up close, touch them, and even interact with them.

WHAT WE KNOW ABOUT EMOTIONS

We *do* know that emotions are a really important part of being human. Emotions occur when something happens around us or when we remember something. For example, seeing a spider can make you feel scared, or remembering a fun family party can make you feel happy.

Scientists think that emotions are made up of several parts that work together. These parts have to do with both the brain and the body, and how they interact. It might not seem obvious at first, but the thinking part of the brain is involved in emotions. When we feel something, we also have thoughts about it. For example, if you are mad at someone, you might think they did something mean or wrong. This kind of thinking is called **cognitive appraisal**.

The brain and the body interact when emotions are felt. The brain controls the nerves and hormones. When we feel anxious, a part of the brain called the **amygdala** gets activated. The amygdala makes the heart beat faster and it makes the body produce stress hormones that get us ready to fight or run away. Sometimes, hormones can also make us freeze. By the way, the word "amygdala" comes from the Greek word for "almond," because it looks like one!

Emotions also have what is called an **experiential** part. This means that when we feel emotions, we also feel something in our bodies. For example, if you see something scary in the dark, you might think it is a snake and feel afraid. Your heart might beat faster, your hands might shake, and you might feel anxious. Interestingly, the experiential part of an emotion is the only part we really notice. The other parts happen so fast that we do not realize they are happening. We cannot tell which

EMOTIONAL SUPPRESSION

It means when we do not show how we feel. For instance, we are angry but you do not show that you are angry.

MASKING

It means we do not show how we really feel. For instance, you are sad but you smile and hide that you are sad.

Figure 1

When you get a gift, for example, the part of your brain that helps you feel emotions starts to work. Your brain also thinks about the gift, deciding if it is good or bad, which is called cognitive appraisal. If your brain thinks the gift is good, you might feel happy or joyful, smile, and say thank you. If your brain thinks the gift is bad, you might feel disappointed or angry; you might show those emotions, or you might pretend to be happy, to be polite, which is called masking.

part of the brain is activated or how many hormones are in the blood, but we can tell how we are feeling.

Finally, emotions also have a behavioral part. This means that emotions can interrupt and change our actions. For example, you might stop walking and start running if a dangerous animal approaches you. As one researcher put it, “emotions not only make us feel something, they make us feel like doing something” [5]. When we feel emotions, we normally show how we feel. We use our words, faces, and bodies to express our emotions. These are all behavioral components of emotions! Of course, sometimes we might try to hide what we feel. Psychologists call this **emotional suppression**. Also, we might sometimes try to show an emotion that we do not feel. An example of this is smiling when you are angry. Psychologists call this **masking**. **Figure 1** explains how emotions are created.

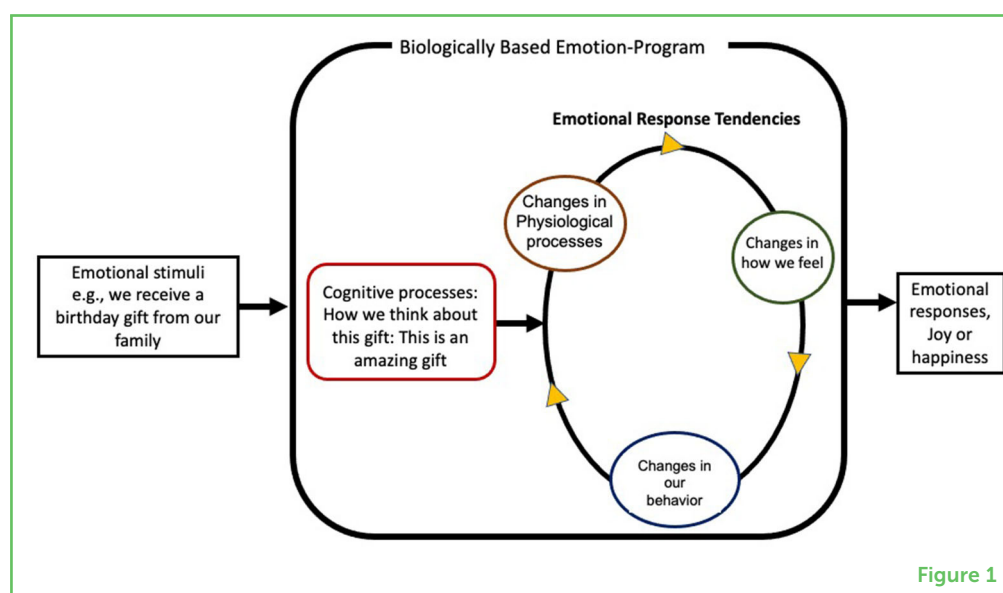


Figure 1

WHY DO WE HAVE EMOTIONS AT ALL?

Did you ever wonder why we have emotions in the first place? The simplest answer is that we benefit from our emotions—they have important functions. Let us look at two of those functions—survival and society.

Scientific studies show that emotions exist so that humans can respond to their environments in the best possible way. Picture this: A man lives in the woods where there are many animals that are stronger than him and can attack him, like wolves. What would happen if the man could not feel scared? Fear could make him run from the animals, saving his life. It is likely that many emotions exist due to the challenges humans have faced over time. In general terms, emotions have helped us survive as a species.

FEELING RULES

Feeling rules are the expectations that people around us have for how we should feel in certain situations. For example, imagine you are at a birthday party. The people there might expect you to feel happy and excited. They want to see you laughing, dancing, and playing. These feeling rules help us understand what emotions are considered appropriate or expected in different events or places.

DISPLAY RULES

Display rules are the expectations that people around us have for how we should show our emotions. For example, when someone gives us good news, people might expect us to smile and laugh.

Another reason humans have developed emotion is that we are social animals who live in groups. Living with other people requires rules to govern how we live together. Emotions might help us control our social behavior. For example, emotions such as guilt, shame, and pride could guide our interactions with other people. When we feel guilty, we know that we have probably done something wrong or that our actions might have hurt another person. Because feeling guilty is unpleasant, this emotion stops us from repeating our mistakes.

Our communities shape what we should feel at certain times; these are called **feeling rules**. Communities also shape how an emotion should be expressed; these are called **display rules** [6]. For instance, feeling rules tell us that we should be sad when someone we like is hurt. Display rules tell us the “right” ways to express sadness with our faces, words, and bodies, such as crying. Therefore, understanding how to display emotions and how to read the emotions of others helps us to understand other people better. This supports relationships and social networks.

ARE THERE GOOD AND BAD EMOTIONS?

You may wonder whether some emotions are “good” and others are “bad.” The simple answer is “no,” but the better answer is “it is complicated!”

Let us look at an example. Assume you get a low grade on one of your assignments. You are angry with your teacher. This anger means you think you deserved a better grade. You think your teacher has been unfair to you. If you remain angry for weeks, that anger will harm your wellbeing, learning, and health. So, it matters *how long* we feel something [7]. If you get so angry that your stomach hurts, then that anger is also harming you. So, the *intensity* of our emotions matters, too. Finally, if everything your teacher, your parents, and your friends do angers you, then your anger becomes an issue. So, it matters *how often* we feel a certain emotion.

You may use your anger to talk politely to your teacher. You may ask why you were not given a better grade. In this case, your anger helps you. If you yell at your teacher instead, your anger turns into a big mistake that might get you in trouble. In this case, your anger does not help you. So, it matters *how we use our emotions* and how we *regulate* them. If you use your anger to work harder and learn more, then that anger helped you to improve your performance. If your anger makes you dislike the subject and decide to stop learning it, then the anger harmed your learning.

In terms of whether an emotion is “good” or “bad,” it is also important to consider which emotions we show in which situations, meaning whether we are following the display rules of our social groups. Let us

look at another example. Assume you like to laugh and be happy. We all do! However, what happens if you are at a funeral and you laugh? Not a good idea! So, the situation and environment also matter.

Let us put it all together. If a pleasant emotion, such as joy, makes us laugh at the wrong moment, it could be bad for us. An unpleasant emotion, such as anger, that motivates us to stand up for ourselves or work harder could be good for us. In deciding whether an emotion is good for us or not, what matters is the strength of the emotion, how long it lasts, how often we feel it, how we express it, and when we express it.

SO, WHAT IS AN EMOTION?

After all this, what exactly *is* an emotion? It is still a puzzle for the ages, a mystery of the human mind, and a fundamental part of being human. Best of all, it is an important topic for continued scientific research, and a question that applies to every one of us [8].

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YOUNG REVIEWERS

ANNA, AGE: 14

Hi, my name is Anna. I am a 14 year old high school student. My favorite subjects are Science, English Literature, and art. My hobbies are reading, watching TV, writing letters to friends and family, and cooking. When I grow up I will like to be an engineer and later work in fashion and get a degree in neuroscience. I am a productive person but I need to be interested in the thing I do or else I do not put a lot of effort.

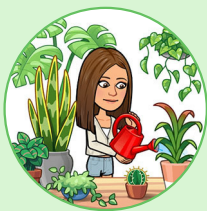
MILA, AGE: 8

I love Science, especially astronomy and archeology. I love reading and swimming and playing with my friends.

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Changiz is a full professor and director of behavioral medicine and psychopathology at Oakland University William Beaumont School of Medicine. He received his degrees from Germany. Dr. Mohiyeddini's teaching portfolio includes behavioral medicine, child and adult psychopathology, brain and behavior, clinical-health psychology,



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Stephanie completed her studies in psychology at Boston College, with a particular focus in biological psychology. She is interested in how people can improve their wellbeing by connecting to themselves and their communities. Stephanie served as chair of her local cultural council for years, the mission of which was to expand access, improve education, and encourage excellence in the arts, humanities, and interpretative sciences. This sparked her love of promoting science education for kids. Stephanie currently works in data analytics at the Boston Symphony Orchestra and in her free time enjoys music, bakeries, running, and gardening.