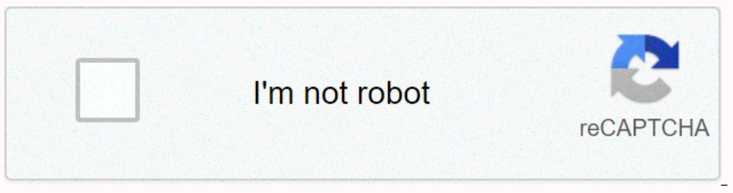

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Transduction psychology activities

Sensations and perceptions are two separate processes that are very closely related. Sensation is the input on the physical world obtained by our sensory receptors, and perception is the process by which the brain selects, organizes, and explains these sensations. In other words, the senses are the edi biological basis of perception. Perceptions of similar senses can vary from person to person because each person's brain conscies different stimuli based on the individual's learning, memory, emotions, and expectations. LEARNING GOALS Identify sensations and explain its connection to concepts of

absolute thresholds, distinct thresholds, and hyperenged messages Discussing the role of attention, motivation, and sensory adaptability in perception What does it mean to feel something? Sensory receptors are specialized neurons that respond to specific types of stimuli. When sensory information is detected by a sensory receptors, sensations have occurred. For example, light entering the eye causes chemical changes in the cells lining the back of the eye. These cells forward messages, in the form of potential actions (as you learned when studying biosynthesis), to the central nervous system. The transition from sensory stimulating energy to potential action is called transduction. You may be told from elementary school that we have five senses: vision, hearing (audition), smell (smell), gustation, and touch (somatosensation). It indicates that this concept of the five senses is oversimplified. We also have sensory systems that provide information about balance (royal significance), body position and movement (proprioception and kinesthesia), pain (nociception), and temperature (temperature). Chart 1. The absolute threshold for detecting light is greater than you imagine - the human eye can see a candle on a clear night up to 30 miles away! Sensitivity of a certain sensory system to the relevant stimuli can be expressed in the form of an absolute threshold. The absolute threshold refers to the minimum amount of stimulus energy that must be present for stimulation to be detected 50% of the time. Another way to think about this is by asking how blurry can be a light or how soft it can be a sound and still be detected half the time. The sensitivity of our sensory receptors can be quite amazing. It is estimated that on a clear night, the most sensitive sensory sensory cells in the back of the eye can detect a candle flame 30 miles away (Okawa & Sampath, 2007). In quiet conditions, hair cells (the receptors of the inner ear) can detect the tick of a watch 20 feet away (Galanter, 1962). It is also possible for us to get the message presented below the threshold for conscious awareness – this is called the hypersalolym message. A stimulus reaches threshold when it is strong enough to stimulate sensory receptors Send Nerve Impulses to the Brain: This is an absolute threshold. A message below that threshold is said to be supersede: we get it, but we're not conscious of it. So the message was felt, but for whatever reason, it was not selected for processing in working or short-term memory. Over the years there has been a lot of speculation about the use of high-rise messages in advertising, rock music, and self-help audio programs. Research evidence suggests that in laboratory settings, people can process and react to information outside of perception. But this does not mean that we follow these messages like zombies; in fact, hidden messages have little effect on behavior outside the lab (Kunst-Wilson & Zajonc, 1980; Rensink, 2004; Nelson, 2008; Radel, Sarrazin, Legrain, & Gobancé, 2009; Loersch, Durso, & Petty, 2013). Chart 2. Bait can be used to improve intellectual test performance. The subjects of the study primed with the stereotype of a professor - a kind of intellectual role model - better than those primed with an anti-intellectual stereotype. (Photo by Jeremy Wilburn] These days, most scientific research on unconscious processes is aimed at showing that people don't need consciousness for some psychological or behavioural process. One such example is the formation of attitudes. The most basic process of attitude formation is through mere contact (Zajonc, 1968). Merely be aware of a stimulus several times, such as a brand on a billboard going every day or a song being broadcast on the radio regularly, making it more positive. Interestingly, only exposure does not require conscious awareness of the object of an attitude. In fact, the exposure effect merely occurs even if novel stimuli are presented sublimly in extremely short time (e.g. Kunst-Wilson & Zajonc, 1980). Intriguingly, in such merely supersalt exposure experiments, participants pointed out a hobby, or a positive attitude towards, stimuli for which they had no sense of being exposed. Another example of modern research on unconscious processes is the study of bait. Bait is usually based on supraliminal stimuli, which means that the message can occur beyond perception, but it is still felt, unlike the hyperliminal message. Supraliminal messages are felt by the mind. For example, in one study, shoppers listened to French or German music (super premium messages) while buying wine and sales originated from either higher country when music from that same country was played over high. In a well-known experiment by a research team led by American psychologist John Bargh (Bargh, Chen, & Burrows, 1996), half of the participants were prejudiced stereotypes of the elderly by performing a language task (they must give sentences on the basis of a list of words). These lists contain common words with the elderly (e.g. old, bingo, walking sticks, Florida). The remaining participants received a language task in which critical words were replaced with words not related to the elderly. After the participants finished, they were told the experiment was over, but they were secretly monitored to see how long it took them to walk to the nearest elevator. The primed participants took significantly longer. That is, after exposure to words often associated with old age, they behave in accordance with the stereotype of the elderly: sluggishness. Such bait effects have been shown in other areas as well. For example, Dijksterhuis and van Knippenberg (1998) demonstrated that baiting can improve intellectual performance. They asked their participants to answer 42 general knowledge questions taken from trivial pursuit games. Under normal conditions, participants answered about 50% of the questions correctly. However, participants primed with stereotypes of professors who considered intelligent- managed to answer 60% of the questions correctly. In contrast, the performance of the participants primed with dumb stereotypes of hooligans dropped to 40%. Both of these studies have had difficult times copying, so it is worth noting that the conclusions reached may not be as strong as originally reported. Absolute thresholds are usually measured under extremely controlled conditions in optimal situations for sensitivity. Sometimes, we are more interested in how much difference in stimuli is needed to detect a difference between them. This is called a noticeable difference (jnd) or threshold difference. Unlike the absolute threshold, the difference threshold varies depending on the intensity of the stimulus. For example, imagine yourself in a very dark cinema. If an audience member received a text message on her mobile phone that caused her screen to light up, it is very likely that many will notice a change in lighting in the theater. However, if the same thing happens in a brightly lit arena during a basketball game, few will notice. The mobile brightness does not change, but its ability to be detected as a change in lighting varies significantly between the two contexts. Ernst Weber proposed the theory of changing this threshold of difference in the 1830s, and it became known as Weber's law: The threshold of difference was a constant part of the original stimulus, as the example illustrates. It is the idea that larger stimuli require greater differences to be noticed. For example, it will be much harder for your friends to reliably tell the difference between 10 and 11 lbs. (or 5 vs. 5.5 kg) than it is for 1 and 2 lbs. Think about a time when you didn't notice something around you by Your attention has been focused elsewhere. If someone it's out, were you surprised that you didn't notice it right away? While our sensory receptors continually collect information from the environment, ultimately that's how we explain information that affects how we interact with the world. Perception refers to how sensory information is organized, explained, and consciously experienced. Perceptions involve both bottom-up and top-down processing. Bottom-up processing refers to the fact that perception is built from sensory input. On the other side, the way we explain those feelings is influenced by our available knowledge, experiences, and thoughts. This is called top-down processing. Look at the shape in Figure 3 below. Seen alone, your brain is involved in bottom-up processing. There are two thick vertical lines and three thin horizontal lines. There is no context to give it a specific meaning, so there is no top-down processing involved. Chart 3. What is this image? Without any context, you must use bottom-up processing. Now, look at the same shape in two different contexts. Surrounded by letters in sequence, your brain expects the shape to be a letter and complete the string. In that context, you feel the lines to form the shape of the letter B.. Chart 4. With top-down processing, you use context to give meaning to this image. Surrounded by numbers, the same shape now looks like number 13. Chart 5. With top-down processing, you use context to give meaning to this image. When given a context, your awareness is driven by your cognitive expectations. Now you're dealing with shapes in a top-down way. One way to think about this concept is that feeling is a physical process, while perception is psychological. For example, when entering the kitchen and smelling the aroma of waffle rolls, the feeling is that the scent receptors detect the smell of cinnamon, but the perception may be Mmm, this smell is like the bread She used to bake when the family gathered for the holidays. Although our perceptions are built from feeling, not all sensations lead to awareness. In fact, we often do not feel the stimuli remain relatively stable for long periods of time. This is called sensory adaptance. Imagine entering a classroom with an old analog watch. When you first enter the room, you can hear the sound of the clock clogging; when you start participating in conversations with classmates or listening to your professor say hello, you are no longer aware of the marking. The clock is still ticking, and that information still affects the sensory receptors of the auditory system. The fact that you no longer feel the sound expresses sensory adaptation and shows that while the close connection, sensations and perceptions are different. consciousness There is another factor that affects sensations and perceptions: attention. plays an important role in determining what is felt versus what is felt. Imagine being at a party full of music, chat and laughter. You engage in an interesting conversation with a friend, and you tune out all the background noise. If someone interrupts you to ask which song just finished playing, you may not be able to answer that question. See for yourself how blindness doesn't work by watching this selective attention test from Simons and Chabris (1999): One of the most interesting demonstrations of how important attention is in determining how our perception of the environment occurs in a renowned study conducted by Daniel Simons and Christopher Chabris (1999). In the study, participants watched a video of people in basketballs passing black and white. Participants were asked to count the number of times the white jersey team passed the ball. In the video, a man dressed in a black gorilla costume walks between the two teams. You'd think someone would notice the gorilla, wouldn't you? Almost half of those watching the video did not notice the gorilla at all, despite the fact that he was clearly visible for nine seconds. Because the participants were so focused on the number of times the white team passed the ball, they completely adjusted the other visual information. Not not not not noting something that is completely visible because of the lack of attention is called inarac's blindness. In a similar experiment, the researchers tested inaracies by asking participants to observe moving images on computer screens. They are instructed to focus on white or black objects, ignoring other colors. When a red cross passes through the screen, about a third of the objects have not noticed it (Most, Simons, Scholl, & Chabris, 2000). Chart 6. Nearly a third of participants in a study did not notice that a red cross passed on screen because of their attention focused on black or white characters. (credit: Cory Zanker) Motivation, expectations, and cognitive motivation can also affect cosmism. Have you ever expected a really important phone call and, while bathing, you think you heard the phone bell, only to discover that it isn't? If so, then you've experienced how motivation to detect a meaningful stimulus can change our ability to discriminate between a real sensory stimulus and background noise. The ability to identify a stimulus when it is embedded in a focused background is called signal detection theory. This may also explain why a mother is awakened by a quiet whisper from her baby but not by other sounds that occur while she is asleep. Theory signal shows there are practical applications, such as increasing the accuracy of air traffic controllers. The controller needs to be able to detect aircraft among the many blips that appear on radar And follow the planes as they move through the sky. In fact, the researcher's initial work developing signal detection theory focused on improving air traffic controller sensitivity to plane light spots (Swets, 1964). Our perceptions can also be influenced by our beliefs, values, prejudices, expectations, and life experiences. As you will see later in this module, these deprived individuals experience of two-eyed vision during critical stages of development with deep cognitive difficulties (Fawcett, Wang, & Birch, 2005). Shared experiences of people in a certain cultural context can have a pronounced impact on perception. For example, Marshall Segall, Donald Campbell, and Melville Herskovits (1963) published the results of a multinational study in which they demonstrated that individuals from Western cultures are more susceptible to experiencing certain types of visual illusions than individuals from non-Western cultures and vice versa. One illusion that Westerners are more likely to experience is the Müller-Lyer illusion: the lines seem to have different lengths, but they actually have the same length. Chart 7. In the Müller-Lyer illusion, the lines seem to have different lengths although they are identical. (a) Arrows at the end of the road can cause the right line to appear longer, even though the lines are the same length. (b) When applied to a three-dimensional image, the right line may again appear longer even though both black lines are the same length. These cognitive differences are consistent with differences in the types of environmental characteristics that are experienced regularly by people in a certain cultural context. People in Western cultures, for example, have a cognitive context of buildings with straight lines, what Segall's research calls a carpenter's world (Segall et al., 1966). By contrast, people from some non-Western cultures with an unsused view, such as South Africa's Zulu, have villages made up of circular huts arranged in circles, less sensitive to this illusion (Segall et al., 1999). It's not just visions affected by cultural factors. Indeed, research has demonstrated that the ability to identify odors, and assess its pleasant and intense, multicultural changes (Ayabe-Kanamura, Saito, Distel, Martínez-Gómez, & Hudson, 1998). Children described as thrill-seeking people are more likely to express taste preferences for intense sour taste (Integrity, Westerbeek, Wolterink, Kok, & de Graaf, 2004), showing that the basic aspects of personality can affect cosy. Moreover, individuals who hold positive attitudes towards fat-reducing foods are more likely to rate foods labeled as reduced in fat as tasting better than those with ergy less positive about these products (Aaron, Mela, & Evans, 1994). Review the difference between feeling and perception Crashcourse Psychology Video: Think about a time when you didn't notice something around you because your attention was focused elsewhere. If someone points it out, are you surprised that you didn't notice it right away? Absolute threshold: the minimum amount of stimulating energy that must be present to stimulate is detected 50% of the processing time from the bottom up: the system in which the perception is built from blindness does not pay attention to the sensory input: noting something completely visible because the lack of attention is just a noticeable difference : differences in stimuli necessary to detect differences between merely stimulating contact effects : the result of developing a more positive attitude towards a stimulus after repeated cases of exposure to it. Perception: the way that sensory information is explained and consciously experienced bait: the process by which recent experiences increase the accessibility of a characteristic. Sensory: what happens when sensory information is detected by a sensory signal detection theory: changes in stimulus detection as a function of the current hypereous mental message: the message is presented below the conscious perception threshold processed from the top down : explain feelings affected by available knowledge, experience, and adapted sense of thought: decreased sensitivity after prolonged exposure to a stimulus conduction: switching from sensory stimulating energy to potential actions of Weber's law: Ernst Weber's discovered that threshold differences are a constant part of initial stimulation and greater stimulation requires greater differences to be noticed

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