Broadbent's filter model of attention pdf

Verywell/Emily Roberts Selective attention is the process of focusing on a particular object in the environment for a certain period of time. Attention is a limited resource, so selective attention allows us to exhibit unimportant details and focus on what is important. This is different from inattentive blindness, which is when you focus one thing and fail to notice unexpected things entering your field of view at any given moment, we are subjected to a constant barrage of sensory information. The blare of a car horn from the street outside, chatter by your friends, click on the keys as you write a piece of paper for school, buzz off the heater as it keeps your room warm on a brisk fall day. But in most cases, we don't pay attention to each of these sensory experiences. Instead, we center our attention to some important parts of our environment while other things blend into the background or pass us completely unnoticed. So how exactly do we decide what to pay attention to and what to ignore? Imagine you're at a party for a friend hostat a lively restaurant. Multiple calls, clinker of tiles and forks, and many other sounds compete for your attention. Of all these sounds, you find yourself able to exhibit irrelevant sounds and focus on the funny story that your dinner partner shares. How do you manage to ignore certain stimuli and concentrate on just one aspect of your environment? This is an example of selective attention. Since our ability to handle things around us is limited in terms of both capacity and durability, we need to be picky about the things we pay attention to. Attention works much like a spotlight, highlighting the details that we need to focus on and throwing irrelevant information to the sidelines of our view. To maintain our attention to an event in everyday life, we need to filter out other events, explains author Russell Revlin in his text Cognition: Theory and Practice. We need to be selective in our attention by focusing on certain events to the detriment of others. This is because attention is a resource that must be allocated to the events that are important. There are two large models that describe how visual attention works. Spotlight model: The spotlight model works much as it sounds—it suggests that visual attention works similar to that of a spotlight. Psychologist William James suggested that this spotlight contains a focal point where things are clearly seen. The area around this focal point, known as the fringe, is still visible, but not clearly seen. Finally, the area outside the outskirts area is in the spotlight known as the margin. Zoom lens model: The second method is known as the zoom lens model. Although it contains all the same elements of the spotlight model, it also suggests that we are able to increase or decrease the size of our focus much like the zoom lens on a camera. But a greater focus also results in slower processing because it includes more information so the limited attentional resources must be distributed across a larger area. Some of the most famous experiments on auditory attention are those conducted by psychologist Colin Cherry. Cherry investigated how people can track certain calls while tuning others out, a phenomenon he called the cocktail party effect. In these experiments, two auditory messages were presented simultaneously with one presented to each ear. Cherry then asked the participants to pay attention to a particular message, and then repeat back what they had heard. He discovered that participants could easily pay attention to a message and repeat it, but when asked about the content of the second message, they could not say anything about it. Cherry found that when the content of the unattended message was suddenly changed (for example, switching from English to German mid-message or suddenly playing backwards) very few of the participants even noticed. Interestingly, if the speaker for unattended message switched from male to female (or vice versa) or if the message was changed with a 400-Hz tone, participants always noticed the change. Cherry's results have been demonstrated in further experiments. Other researchers have received similar results with messages including lists of words and musical melodies. Theories of selective attention tend to focus on when stimulus information is taken about, either early in the process or late. One of the earliest theories of attention was Donald Broadbent's filter model. Broadbent built on the research carried out by Cherry and used an information processing metaphor to describe human attention. He suggested that our ability to process information is limited in terms of capacity, and our selection of information to process occurs early in the perceptual process. All stimuli are processed first based on physical characteristics that include color, loudness, direction, and pitch. Our selective filters then allow for some stimuli to pass for further processing while other stimuli are rejected. Treisman suggested that while Broadbent's basic approach was correct, it failed to account for the fact that people can still process the meaning of attended messages. Treisman suggested that instead of a filter, attention works by utilizing a damper that identifies a stimulus based on physical characteristics or of importance. Keep in mind the attuator as a volume control—you can turn down the volume of other sources of information to manage a single source of information. The volume or intensity of these other stimuli may be low, but they are still present. In experiments, Treisman showed that participants could still identify the content of an unattended message, indicating that they could the meaning of both the participated and the unattended messages. Other researchers also found that Broadbent's model was inadequate and that attention was not based solely on a stimulus physical characteristics. The cocktail party effect serves as a prime example. Imagine you're at a party and paying attention to the conversation among your group of friends. Suddenly you hear your name mentioned by a group of people nearby. Even if you don't handle that conversation, a previously unattended stimulus immediately grabbed your attention based on meaning rather than physical characteristics. According to the memory selection theory of attention, both attended and unattended messages pass through the original filter and are then sorted in a second stage based on the actual meaning of the message's content. Information that we take care of based on meaning is then sent into short-term memory. Newer theories tend to focus on the idea of attention being a limited resource and how these resources are divided among competing sources of information. Such theories suggest that we have a fixed amount of attention available and that we then have to choose how we allocate our available attention reserves between multiple tasks or events. Attentional-resources theory has been heavily criticized as too broad as well. In fact, it may not stand alone in explaining all aspects of attention, but it complements filter theories quite well, suggests Robert Sternberg in his text, Cognitive Psychology, in summarizing the various theories of selective attention. Filters and bottleneck theories of attention seem to be more appropriate metaphors for competing tasks that seem to be obtly incompatible, he said. Resource theory seems to be a better metaphor for explaining the phenomena shared attention to complex tasks. Several factors can influence selective attention in spoken messages. The location from which the sound comes can play a role. For example, you're probably more likely to pay attention to a conversation that takes place right next to you rather than a several feet away. In his text, The Psychology of Attention, psychology professor Harold Pashler notes that simply presenting messages to different ears will not lead to the choice of one message over the other. The two messages must have some kind of non-overlap in time for one to be selectively taken care of over the other. As mentioned earlier, changes in pitch can also play a role in selectivity. The number of auditory choices that need to be trimmed out to manage one can make the process more difficult. Imagine that you are in a crowded room and many different conversations take place around you. Selectively taking care of just one of these auditory signals can be very difficult, even if the conversation takes place nearby. Learn more about how attention works, some of the things you can do to improve your attention, why we sometimes miss what is right in front of us. Us.