

# The Art of Paying Attention

Samuel Johnson wrote:

“The true art of memory is the art of attention.”

How important is attention? What factors affect our attention? How can we improve our attention skills? Read on for information on these questions and more.

**Vision and attention:** Our vision is highly selective. Out of the approximate 10 billion bits per second of visual information, only 10,000 bits actually even make it to the visual cortex. Of these, only 10% of the areas synapses are devoted to incoming visual information. Of the 10 million pieces of data, we are only able to process about 40. The bottom line is that we see very little of what is around us. Our sight (and ultimately attention) is filtered in many ways (mood, state of mind, motivation, goals).

**Selective attention:** We say that we are paying attention. So what are we paying attention to? Imagine that you are in a crowded room, and there are voices everywhere. Suddenly, you hear someone mention your name. It is then that we pay attention. According to a recent study, when we pick up one voice and ignore the others, our brains are somehow able to discard the information for extra sources.

This selective attention is present at all times. We can listen to and see things that are somehow important, and ignore those things that are not. If we are thinking of getting a new smartphone, we suddenly start to notice other smartphones. If we are bothered by a dog barking, we may now hear barking from all areas. Nothing has changed, only our perception.

**Allocating our attention:** Because our attention is limited, we need to allocate it. We must pay attention to only those things which are truly necessary, or we may miss the things that we should have noticed. We can remember a sequence of numbers if we are allowed to pay attention, but if we are asked to listen to something while remembering these numbers, we may do less well.

**What limits our attention:** Our mood plays a big part in attention. When we are in a bad mood, we see less than when we are happy. This actually occurs in the visual cortex. When we are preoccupied, we take in far less detail than we are not. When one sense is occupied, the others will suffer. If we are offered some type of reward (grade, money), we will pay far more attention than if we are not.

**Mind wandering and zoning out:** One way that we lose attention is when our mind wanders. And it does wander. College students were asked to read War and Peace and tap the keyboard when they noticed that they weren't paying attention. It was found that students were distracted 5.4 times during a 45 minute session. Drunk students had less distractions, but this is not in a good way. In this case, the students were experiencing mind wandering without awareness. This is also known as “zoning out”.

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In that War and Peace experiment, it was suggested that we spend about 13% of our time zoning out. The drunken students doubled this figure. When we zone out, we make mistakes. We are less likely to encode memories, and make necessary connections. Are we aware when we are zoning out? In another study, scientists discovered that in nearly half of the cases of mind wandering, students were not aware of their inattentiveness until the scientists reminded them. In this study, researchers used a functional MRI test to see how the brain was responding during mind wandering. Scientists found that there were two areas of the brain became active, the executive control system (directing our brain's activities) and the "default network". In this case, with these two regions active, it was suggested that mind wandering does serve a purpose in helping us work through problems and thoughts. This allows us to focus on the long term objectives.

**Upside to zoning out:** It is during these zoning out periods that some of the best solutions have been discovered. So it is not necessarily a bad thing. However, the balance of zoning out and zoning in is important for harmonious thinking and functioning in everyday activities.

**Multitasking and attention:** Ultimately, we cannot be aware unless we pay attention. When we multitask, we fail to pay attention because we are using our limited resources when we should be concentrating. The problem lies in a lack of mindfulness. To truly pay attention, you need to focus.

## 2 Steps for better attention:

*Orient the stimulus:* The first step to gaining attention is to orient the stimulus. When we hear the siren of a fire engine, then see the flashing lights, we are able to focus in on the situation. If we add the smell of smoke, the deduction of what is happening is even greater. In this case, you have used your hearing, sight and smell. The 3 senses create a greater sense of attention than if it were one or two senses.

*Engage:* The next step is engagement with the information that we are gathering. In the case of the fire engines, we may begin to focus on the appearance of the firefighters. We may think of a recent TV show which featured firefighters. You may remember when they were collecting funds for fire victims. By thinking complexly about what you are experiencing, you are paying attention.

## Why you can't pay attention

**ADD and ADHD:** Attention deficit disorder (ADD) is characterized by a lack of attention. Researchers have estimated that people who have ADD (or ADHD which includes hyperactivity as a symptom) do one month's less work per year than those who don't. Technology has whittled down the attention of workers; it is estimated that 28% of US worker's days are affected from lack of attention due to cellphones and redundant

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email. When attention is lost, it takes valuable time to resume what you were doing.

*Unfocused Childhood:* Your childhood may be the blame if you lack focus. Studies have shown that chaos in the home, and continual interruption of children while engaged can harm the developing attention span or performance on cognitive tasks.

## **What can help build attention skills:**

**Meditation:** If you are looking to improve your attention, there are things that you can do. One possible solution is meditation. In a new study, volunteers went through 3 months of intensive training in meditation. Afterwards, when volunteers were distracted while on task, they did better than those who did not participate in meditation. Additional studies have supported this observation.

**Exercise:** There is also a possible relationship between exercise and attention. Adults involved in a brisk walking regimen were able to improve their ability to ignore distractions. Mental exercises were also found to be beneficial for shutting distractions (Brain HQ!).

**Decrease clutter:** Another solution is to get rid of clutter. A plain, unwired space is preferable to improved focus and attention. And if you can't see the incoming emails, you can't be distracted.

**Mental exercises:** The BrainHQ and PositScience brain training software spend quite a bit of time on developing attention. Research has confirmed that attention can be improved by mental exercises, such as those in this program. The science behind these programs suggests that they may be more effective in attention skills than simple mental exercises like crossword puzzles.

## ***Resources used in this reading:***

- <http://www.bbc.com/future/story/20130305-paying-attention-isnt-elementary>
- [http://www.forbes.com/2008/10/15/short-attention-span-forbeslife-cx\\_avd\\_1015health.html](http://www.forbes.com/2008/10/15/short-attention-span-forbeslife-cx_avd_1015health.html)
- <http://bigthink.com/think-tank/brain-think-pay-attention-be-vigilant-stay-on-task-pay-attention>