

Attention Restoration Theory

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Attention restoration theory (ART) asserts that people can concentrate better after spending time in nature, or even looking at scenes of nature. Natural environments abound with "soft fascinations" which a person can reflect upon in "effortless attention", such as clouds moving across the sky, leaves rustling in a breeze or water bubbling over rocks in a stream. The theory was developed by Rachel and Stephen Kaplan in the 1980s in their book *The experience of nature: A psychological perspective*, and has since been found by others to hold true in medical outcomes as well as intellectual task attention, as described below. Berman et al. discuss the foundation of the attention restoration theory (ART). "ART is based on past research showing the separation of attention into two components: involuntary attention, where attention is captured by inherently intriguing or important stimuli, and voluntary or directed attention, where attention is directed by cognitive-control processes."

Directed attention

Attention restoration theory describes a person as being in several states of attention:

Directed attention

Directed attention fatigue

Effortless attention

Restored attention

Tasks that require mental effort draw upon "directed attention". People must expend effort to achieve focus, to delay expression of inappropriate emotions or actions, and to inhibit distractions. That is, they must concentrate on the higher task, avoiding distractions. Performing the actual task also requires other knowledge and skills.

In *Peopleware*, a book on office work, Tom DeMarco and Tim Lister report that in an office environment, workers may take 15 minutes to achieve this state of flow in their concentration, and that it will be destroyed in a moment by an interruption such as a telephone call.

The task may be fascinating so that it allows "effortless attention", or may have sufficient scope to sustain interaction without boredom, or may simply be more compatible with a person's interests. However, after a period of directed attention, people begin to suffer "directed attention fatigue". They become distracted, irritable, impatient. They become less effective in performing their tasks.

Attention may be "restored" by changing to a different kind of task that uses different parts of the brain, as in the familiar idiom "a change is as good as a rest". Alternatively, exposure to natural environments and wilderness has psychological benefits including attention restoration.

Nature has an abundance of fascinating objects. "Soft fascinations" such as clouds in the sky or leaves rustling in a breeze, gain our attention relatively effortlessly and are compatible with our

wants and needs. This is by comparison to snakes and spiders, which gain our attention out of fear. The biophilia hypothesis argues that people are instinctively enthusiastic about nature and both Fuller et al. and Irvine et al. Suggest that the positive psychological effect increases as the perceived biodiversity of the landscape increases.

After spending some time of effortless attention to soft fascinations removed from their day to day tasks, people may have a chance to reflect. This brings a "restorative" benefit which allows further attention.

Stress Reduction

After medical surgery, patients resting in rooms overlooking trees recovered better than those in rooms with only a view of a brick wall. They experienced fewer complications from the surgery, recovered faster, and asked for weaker painkiller drugs. Similarly, natural scenes can reduce stress before an event.

Women with breast cancer who walked in a park, watched birds, or tended flowers, achieved better attention after surgery. Merely keeping sight of natural features improves self-discipline in inner-city girls. Children in New York State were less stressed by adversity when they lived in rural areas. Stress in college examinations was similarly reduced by viewing natural scenes. Viewing scenes of urban streets and artifacts excluding nature did not achieve any stress reduction, in a similar study upon workers viewing a film about industrial accidents.

Taking breaks outside in settings that contained some nature has been shown to reduce stress, leaving nurses feeling refreshed, relaxed, and energized upon return to work.