

Rapt notes pgs. 145-162

- More people are claiming to have distracted experiences with their attention which reflects a major cultural change in the past decade with technology
- If you want to learn and remember something, you really have to pay attention to it. If you don't, the information probably won't make it to your short term memory much less your long-term memory
- When you become great with memory, you become naturally super focused
- New research increasingly shows that glitches and lapses in attention are usually not signs of ADHD or Alzheimer's, but are normal and even sometimes considered beneficial mental phenomena
- Some people are better at attention than others, like any other human trait or ability. We don't know what causes these variations in the mind
- It is often assumed that really smart people find it easy to focus, but many attention researchers question that notion. A person's total "mental efficiency" derives from the combination of all his faculties, most importantly desire and passion
- If you can't remember where you put your cell phone down, you probably were focused on something else when you put it down, so that information didn't get properly encoded in your memory
- Absentmindedness has little or nothing to do with a person's general capacity for memory
- Research shows that you often attend to and learn things without even trying. This is known as implicit learning, which you seem to pick up by osmosis
- Studies show that even when you're supposedly reading, you are daydreaming about 15-20 percent of the time, often without realizing it
- There is growing evidence that mind-wandering is a basic mental function that can boost your efficiency, creativity, and well-being
- When you're daydreaming, your baseline network is activated, which supports the educated guess that its function is to accommodate such poorly understood mental processes
- Research shows that when you gaze dreamily at drifting clouds, twinkling stars, rippling water, or other natural stimuli, you drift into a state of fascination that allows your mind to relax and unwind, reduces incidence of human errors, and lowers stress
- Science has determined that multi-tasking is mostly a myth and that it leads to inefficiency and even danger
- The real trouble with multi-tasking sets in when you try to focus on two demanding activities at the same time. Your ability is impaired because both tasks draw on one or more of the same information-processing systems in the brain
- UCLA psychologists found that when you focus on a demanding task, the Hippocampus is in charge which is important for memory. But, when you try to focus on a task while instant messaging, the striatum, which is involved in rote activities, takes over
- American youths spend an average of 6.5 hours per day focused on the electronic world. Up to a third say they are involved with more than one medium at a time
- Communications companies increasingly cater to children's preference for quick and easy information, encouraging a superficial mentality. If you grow up thinking you can pay attention

to several things at once, you may not realize the way in which you process such information is superficial at best

- William James, a professor of philosophy and psychology says that the best way to improve attention is to enliven dull work with “frequent recapitulations, illustrations, examples, novelty of order, and ruptures of routine” Basically make the information more exciting.
- Caffeine activates brain regions responsible for attentiveness and also seems to increase short-term memory
- Ritalin and other stimulants can prove more problematic than coffee. As the quality and variety and use of psychopharmacological agents increase, it’s easy to imagine scenarios in which healthy people working in competitive schools or offices would take a drug in order to function at 110 percent, thereby putting unmedicated peer at a disadvantage
- New “attentional workouts” have shown that such exercises can increase the capacity for executive attention, thus improving memory, self-regulation, and the ability to plan and reason
- The Brain Fitness Program is a computerized mental workout that operates on the principle that, like your muscles and joints, your brain is subject to “use it or lose it” rule
- Some type of meditation, or practice derived from it, looks like the best way to enhance your ability to focus
- Cognitive neuroscientist Amishi Jha’s research shows that practices that require you to concentrate on a target, such as your breath, strengthen attention’s selective orienting system, which increases your ability to focus in real-life situations
- “Energy flows where attention goes”
- All minds wander sometimes, and they often stray in productive directions

Just think: the challenges of the disengaged mind

- In 11 studies, researchers found that participants typically did not enjoy spending 6 to 15 minutes in a room by themselves with nothing to do but think, that they enjoyed doing mundane external activities much more, and that many preferred to administer electric shocks to themselves instead of being left alone with their thoughts
- Neural activity during inward-directed thought, called default-mode processing, has been the focus of a great deal of attention in recent years, and researchers have speculated about its possible functions
- Almost all previous research on daydreaming and mind wandering has focused on task-unrelated thought, namely cases in which people are trying to attend to an external task (such as reading a book), but their minds wander involuntarily
- These researchers suggest, to the contrary, that it is surprisingly difficult to think in enjoyable ways even in the absence of competing external demands
- Conducted studies in which college-student participants spent time by themselves in an unadorned room
- Asked to spend the time entertaining themselves with their thoughts, with the only rules being that they should remain in their seats and stay awake
- Participants answered questions about how enjoyable the experience was, how hard it was to concentrate, etc

- They found that most people do not enjoy “just thinking” and clearly prefer having something else to do
- In another study, the participants received the same instructions to entertain themselves with their thoughts in the laboratory but also had the opportunity to experience negative stimulation (an electric shock) if they so desired
- Many participants elected to receive negative stimulation over no stimulation—especially men: 67% of men and 25% of women
- Researchers were shocked that being alone with one's thoughts was so aversive that people would rather electrically shock themselves
- One reason people might have done this is because when they were left alone with their thoughts, they focused on their own shortcomings and got caught in ruminative thought cycles
- Another reason could be that they had to choose what they wanted to think about during that time and found it
- In conclusion, people prefer doing to thinking, even if what they are doing is so unpleasant that they would normally pay to avoid it. The untutored mind does not like to be alone with itself.

Is Google Making Us Stupid?

- Recently, deep reading has become challenging as the Internet has become a universal medium
- The author and his colleagues note diminished focus with increased use of the Internet
- Has the way we read changed or has the way we think changed?
 - Thinking has taken on a “staccato” quality, similar to our quick online browsing
- Increase in skimming (“power browse”), according to University College London
- We read more today than we did 40 years ago, but it's a different kind of reading
 - Decoding text but not interpreting, analyzing
- Reading is not an innate skill, as speech is
- “Intellectual technologies”
 - Tools that extend mental capacities, as opposed to physical
 - Invention of clock: clock now determined when to sleep, wake up, eat, etc., rather than our senses
 - People began to compare brain to working “like clockwork”
 - With the advent of the computer, people now compare brains to working “like computers”
- Internet has taken place of clocks, maps, typewriters, calculators, radio, television, telephone
- Notifications and advertisements affect attention and concentration
- Google
 - Mission: organize information, make it accessible
 - The perfect search engine knows “exactly what you mean and gives you back exactly what you want”
 - The faster we can access more pieces of information, the better thinkers we become, according to Google
 - Founders wish to turn search engine into artificial intelligence
- Idea that our minds should work as data processing machines at incredibly high speeds
- Google and other companies gain information about us when we surf the web and tailor ads specifically for us
 - These companies want us to continue consuming the Internet at the fast-paced, distracted rate we are, clicking from link to link
 - The author says, “the last thing these companies want is to encourage leisurely reading or slow, concentrated thought. It’s in their economic interest to drive us to distraction”
- Socrates: feared that with the development of writing, people would substitute the knowledge in their minds with written word, and decrease the “exercise” of the mind
- Gutenberg’s printing press: Squarciafico said that books would make people lazy and less studious
- Undistracted deep reading allows for “quiet spaces” to create our own connections
 - These quiet spaces are replaced with constant information overload via the Internet

Your Brain on Computers series

- Growing Up Digital, Wired for Distraction
 - The constant stream of stimuli offered by new technology poses a profound new challenge to focusing and learning
 - Developing brains can become more easily habituated than adult brains to constantly switching tasks — and less able to sustain attention
- Digital Devices Deprive Brain of Needed Downtime
 - Time without digital input can allow people to learn better or come up with new ideas
 - Downtime allows the brain to go over past experiences
 - When the brain is constantly stimulated, you prevent this from happening
 - Many people report checking their phones during downtime
- Outdoors and Out of Reach, Studying the Brain
 - Five scientists spent a week in the wilderness to understand how heavy use of technology changes how we think and behave
 - Believers vs. skeptics
 - Performance suffers when people multitask
 - Third day syndrome = relaxation
 - On the third day with no technology, the skeptics finally felt relaxed
- The Risks of Parenting While Plugged In
 - Parents' use of smartphones and laptops — and its effect on their children — is becoming a source of concern to researchers
 - Higher SES home → kids hear more words per hour, as compared to working class or welfare homes
- Attached to Technology and Paying a Price
 - Scientists say our ability to focus is being undermined by bursts of information from e-mail and other interruptions
 - People claim multitasking makes them more productive but research states otherwise
 - Imaging studies show the brains of Internet users become more efficient at finding information. And players of some video games develop better visual acuity
- An Ugly Toll of Technology: Impatience and Forgetfulness
 - “We’re paying a price in terms of our cognitive life because of this virtual lifestyle,” one expert says
 - The problem is similar to an eating disorder, says Dr. Kimberly Young, a professor at St. Bonaventure University in New York who has led research on the addictive nature of online technology
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- More Americans Sense a Downside to an Always Plugged-In Existence
 - Polls show that a number of Americans, particularly younger ones, are feeling negative effects from heavy computer and smartphone use
 - 30% of those under 45 say using devices makes it harder to focus
 - Almost 40% of people check work e-mail after hours or on vacation
 - 1 in 7 married respondents reported using devices caused them to see less of their spouses and 1 in 10 said they spent less time with their children under 18

Unregulated use of laptops over time in large lecture classes

- Note taking was the most common use for computers, but two-thirds of activities on computers were off-task
- Social media was the second most common use
- Study comprised of survey and observation
 - Survey data (self-reported)
 - On-task: 39%
 - Off-task: 61%
 - Observation data
 - On-task: 37%
 - Off-task: 63%
- The proportion of students who were on-task/off-task during class remained constant
- What the students were using their laptops for at any given moment varied significantly
- Although students are using their laptops for off-task activities, some of them were supplementing class material
 - Mean time spent clarifying information: 5.98%
- Parallel drawn between doodling in a notebook and web browsing during class
 - But studies suggest that off-task laptop use is more harmful to learning