History of the Study of Consciousness

- Psychology began as a science of consciousness.
- Behaviorists argued about alienating consciousness from psychology.
- However, after 1960, mental concepts (consciousness) started reentering psychology.

Describe in your own words what Selective Attention is.

Our conscious awareness processes only a small part of all that we experience. We intuitively make use of the information we are not consciously aware of.

The Two-Track Mind

- Dual Processing
- Selective Attention

Inattentional Blindness

Inattentional blindness refers to the inability to see an object or a person in our midst. Simons & Chabris (1999) showed that half of the observers failed to see the gorilla-suited assistant in a ball passing game.

Change Blindness

Change blindness is a form of inattentional blindness in which two-thirds of individuals giving directions failed to notice a change in the individual asking for directions.

Sleep & Dreams
Biological Rhythms and Sleep

Circadian Rhythms occur on a 24-hour cycle and include sleep and wakefulness. Termed our “biological clock,” it can be altered by artificial light.
Light triggers the suprachiasmatic nucleus to decrease (morning) melatonin from the pineal gland and increase (evening) it at night fall.

Study of Biological Clock
• Placed subject under ground with no contact to the outer world or any clocks
• What did they find out about the biological clock?
• Why is the 24-hour clock not as accurate in modern times?
• Thanks to Edison

What else can affect our Biological Clocks?
• Jet Lag, How?

• Shift work

Sleep Stages
Measuring sleep: About every 90 minutes, we pass through a cycle of five distinct sleep stages.

Awake but Relaxed
When an individual closes his eyes but remains awake, his brain activity slows down to a large amplitude and slow, regular alpha waves. A meditating person exhibits an alpha brain activity.

Sleep Stages 1-2
During early, light sleep (stages 1-2) the brain enters a high-amplitude, slow, regular wave form called theta waves. A person who is daydreaming shows theta activity.

Sleep Stages 3-4
During deepest sleep (stages 3-4), brain activity slows down. There are large-amplitude, slow delta waves.

Stage 5: REM Sleep
After reaching the deepest sleep stage (4), the sleep cycle starts moving backward towards stage 1. Although still asleep, the brain engages in low-amplitude, fast and regular beta waves much like awake-aroused state.

A person during this sleep exhibits Rapid Eye Movements (REM) and reports vivid dreams.

90-Minute Cycles During Sleep
With each 90-minute cycle, stage 4 sleep decreases and the duration of REM sleep increases.

Sleep Deprivation
1. Fatigue and subsequent death.
2. Impaired concentration.
3. Emotional irritability.
4. Depressed immune system.
5. Greater vulnerability to harm and accidents.

Sleep Theories
1. Sleep Protects: Sleeping in the darkness when predators loomed about kept our ancestors out of harm’s way.
2. Sleep Recuperates: Sleep helps restore and repair brain tissue.
3. Sleep Helps Remembering: Sleep restores and rebuilds our fading memories.
4. Sleep and Growth: During sleep, the pituitary gland releases growth hormone. Older people release less of this hormone and sleep less.

Sleep Disorders
- Insomnia: A persistent inability to fall asleep.
- Narcolepsy: Overpowering urge to fall asleep that may occur while talking or standing up.
- Sleep apnea: Failure to breathe when asleep.
Sleep Disorders
Children are most prone to:

- Night terrors: The sudden arousal from sleep with intense fear accompanied by physiological reactions (e.g., rapid heart rate, perspiration) which occur during Stage 4 sleep.
- Sleepwalking: A Stage 4 disorder which is usually harmless and unrecalled the next day.
- Sleeptalking: A condition that runs in families, like sleepwalking (often in Stage 2 but can occur in any stage of sleep).

Dreams
The link between REM sleep and dreaming has opened up a new era of dream research.

Why do we dream?

What We Dream
- Negative Emotional Content: 8 out of 10 dreams have negative emotional content.
- Failure Dreams: People commonly dream about failure, being attacked, pursued, rejected, or struck with misfortune.
- Sexual Dreams: Contrary to our thinking, sexual dreams are sparse. Sexual dreams in men are 1 in 10; and in women 1 in 30.

Theories about why we dream
- Wish Fulfillment: Sigmund Freud suggested that dreams provide a psychic safety valve to discharge unacceptable feelings. The dream’s manifest (apparent) content may also have symbolic meanings (latent content) that signify our unacceptable feelings.
- Information Processing: Dreams may help sift, sort, and fix a day’s experiences in our memories.

Theories about why we dream (continued)
- Physiological Function: Dreams provide the sleeping brain with periodic stimulation to develop and preserve neural pathways. Neural networks of newborns are quickly developing; therefore, they need more sleep.
• Theories about why we dream (continued)
• Activation-Synthesis Theory: Suggests that the brain engages in a lot of random neural activity. Dreams make sense of this activity.
• Cognitive Development: Some researchers argue that we dream as a part of brain maturation and cognitive development.

Why We Dream
Do we need to dream? (Do we need REM sleep?)

REM Rebound.

Dream Theories
Table 6.2 page 199

Facts and Falsehoods
Those who practice hypnosis agree that its power resides in the subject’s openness to suggestion.

Can anyone experience hypnosis?
Can hypnosis enhance recall of forgotten events?
Can hypnosis force people to act against their will?
Can hypnosis be therapeutic?
Can hypnosis alleviate pain?

Facts and Falsehood
Explaining the Hypnotized State
Two Theories:
  1. Divided Consciousness
  2. Social Influence

Drugs and Consciousness
Psychoactive Drug: A chemical substance that alters perceptions and mood (affects consciousness).

Dependence & Addiction
What is the underlying effect of “tolerance”?
Continued use of a psychoactive drug produces tolerance. With repeated exposure to a drug, the drug’s effect lessens. Thus it takes greater quantities to get the desired effect.
Withdrawal & Dependence
- Withdrawal: Upon stopping use of a drug (after addiction), users may experience the undesirable effects of withdrawal.
- Dependence: Absence of a drug may lead to a feeling of physical pain, intense cravings (physical dependence), and negative emotions (psychological dependence).

Psychoactive Drugs
Psychoactive drugs are divided into three groups.
1. Depressants
2. Stimulants
3. Hallucinogens

Depressants
Depressants are drugs that reduce neural activity and slow body functions. They include:
1. Alcohol
2. Barbiturates
3. Opiates

Depressants
- Alcohol affects motor skills, judgment, and memory… and increases aggressiveness while reducing self awareness.

Depressants
2. Barbiturates: Drugs that depress the activity of the central nervous system, reducing anxiety but impairing memory and judgment. Nembutal, Seconal, and Amytal are some examples.

Depressants
3. Opiates: Opium and its derivatives (morphine and heroin) depress neural activity, temporarily lessening pain and anxiety. They are highly addictive.

Stimulants
Stimulants are drugs that excite neural activity and speed up body functions. Examples of stimulants are:
1. Caffeine
2. Nicotine
3. Cocaine
4. Ecstasy
5. Amphetamines
6. Methamphetamines
Caffeine & Nicotine
Caffeine and nicotine increase heart and breathing rates and other autonomic functions to provide energy.

Why Do People Smoke?
1. People smoke because it is socially rewarding.
2. Smoking is also a result of genetic factors.

Why Do People Smoke?
3. Nicotine takes away unpleasant cravings (negative reinforcement) by triggering epinephrine, norepinephrine, dopamine, and endorphins.
4. Nicotine itself is rewarding (positive reinforcement).

Cocaine
Cocaine induces immediate euphoria followed by a crash. Crack, a form of cocaine, can be smoked. Other forms of cocaine can be sniffed or injected.

Ecstasy
Ecstasy or Methylenedioxymethamphetamine (MDMA) is a stimulant and mild hallucinogen. It produces a euphoric high and can damage serotonin-producing neurons, which results in a permanent deflation of mood and impairment of memory.

Hallucinogens
Hallucinogens are psychedelic (mind-manifesting) drugs that distort perceptions and evoke sensory images in the absence of sensory input.

Hallucinogens
1. LSD: (lysergic acid diethylamide) powerful hallucinogenic drug that is also known as acid.
2. THC (delta-9-tetrahydrocannabinol): is the major active ingredient in marijuana (hemp plant) that triggers a variety of effects, including mild hallucinations.

Drugs
Summary page 213 table 6.3