

Foundations of Psychology – Week 1 – Lecture and Tutorial Notes

Lecture Notes – Consciousness Part 1

Consciousness

- “Anything that we are aware of at a given moment forms part of our consciousness, making conscious experience at once the most familiar and most mysterious aspect of our lives.”
- Latin ‘Conscientia’ – shared knowledge.
- John Locke was the first to use the modern meaning of conscious – but it was very much tied up with morality.
 - “I may be held morally responsible only for the act of which I am conscious of having achieved; and my personal identity – my self – goes as far as my consciousness extends itself.”
- What is it?
 - Awareness of self, feelings, thoughts and environment.
 - Given point in time.
 - At any moment, the mental events you are aware of exist at a conscious level.
 - Focus concentration, reflect, plan.
 - Understand sensory input as a single, accessible representation.
 - Requires us to process physical environment & requires cognitive elements.
- Essential to learn new behaviours.
 - Focus attention/concentration.
 - Master behaviour -> automatic.
 - Frees up consciousness.
- Driving is a classic example of a consciously learned skill that becomes automatic.

Processing Outside of Awareness

- Reflexive ability is essential so much information is still processed outside of consciousness.
- Well learned tasks are referred to as automatic.
- Priming/subliminal perception – too fast for consciousness.
- Shift attention – not aware of shifts.
- Reconstruct memory – don’t typically do this consciously.
- First impression (gender, age, appearance) – reactive.
- Process information in parallel – we could not possibly consciously process every bit of information when identifying.
- General anaesthetic: word pairs.

Outside of Awareness

- Subliminal stimuli are sensory stimuli below the threshold for conscious perception.
- According to recent definitions, stimuli are rendered subliminal if they are attended to by the brain, but not consciously perceived.
- Visual stimuli are flashed before an individual can process them, or flashed and then masked, which interrupts processing.
- Audio stimuli may be played below audible volumes/masked.
- fMRI studies show that subliminal stimuli activate specific cortical regions despite participants being unaware.
- Using stimuli that are not consciously perceived, we can test the arousal responses in psychiatric populations, such as those suffering from anxiety, depression and schizophrenia.
- This method can be used to evoke non-volitional (non-voluntary) brain mechanisms that may underlie such disorders.
- Palmatier and Bornstein (1980) found that subliminal messaging improved the progress of subjects attempting to quit smoking compared to those participants not exposed to subliminal messages.
- Brain can process information at a sub-conscious level and that this information can guide human behaviour later.
- Unclear how this happens & why (in terms of evolution).
- Kansas television station received permission from police to place a subliminal message in a report on the BTK Killer (Bind, Torture, Kill) to get him to turn himself in: “Now call the chief” and a pair of glasses. The glasses were included because when BTK murdered Nancy Fox, there was a pair of glasses lying upside down on her dresser (attempt was unsuccessful).

- British TV show QI based on hypnosis – Stephen Fry suggested he could use subliminal messages to get himself elected as Pope. The words “Stephen Fry for Pope” then briefly flashed up on the screen. This was repeated later on in the episode. Stephen Fry is not yet the Pope.

Levels of Consciousness

- 1. Conscious – what we are aware of.
- 2. Pre-conscious – that which we are not aware of but can be brought to mind (memory).
- 3. Non-conscious – outside awareness (blood pressure).
- 4. Unconscious/subconscious – not aware of but influences conscious thought.
- Freudian slip (calling your partner mum or dad).
- Subliminal messaging.

Consciousness is King

- Monitors all tasks.
- Routine tasks are like non-conscious processing – automatic.
- Sensory systems: register stimuli rapidly and simultaneously.
- New challenges
 - Conscious
 - Limited amount
 - Slow, focused processing
 - Voluntary acts, problem solving, communicate.

States of Consciousness

- Awake
- Hypnosis
- Daydreaming
- Sensory deprivation
- Orgasm
- Food/oxygen starvation
- Dreaming
- Hallucinating
- Asleep
- Meditation

Hallucinations

- Create realistic perceptual experiences in the absence of external stimuli.
- Do not confuse with delusions – which are beliefs not based in reality (Christ delusion).
- Most will be auditory (voices) – schizophrenia.
- Visual – not necessarily an image, can be a notion or flash.
- Brain areas involved in normal perception become active during hallucinations.
- Common in anxiety disorders, where a person may see something in periphery (something running past them).
- But they are not often reported as people think you have to have Schizophrenia to have a hallucination.
- Create realistic perceptual experiences in the absence of external stimuli.
- Olfactory (smell – petrol).
- Gustatory (taste).
- Tactile (bugs on/under skin) – ice addicts.
- Can occur through misperception or imagination – not just psychological illness.

Deja-Vu

- Sense that you have experienced something previously and/or predict what is going to happen.
- Approximately 60%+ of people have experienced & are likely to be high income, uni educated, liberals.
- Neuropsychology – small seizures in right temporal lobe associated with feelings of familiarity.

Capgras Syndrome

- Disorder in which a person believes that a friend/family member replaced by imposter.
- Most commonly occurs in schizophrenia, but has also been seen in brain injury and dementia.

- Reported in some neurodegenerative diseases.
- Origin is a disconnection between the temporal lobe, where faces are usually recognised and the limbic system, involved in emotion.

Stimulants: Cocaine

- Strong CNS stimulant that increases levels of the neurotransmitter dopamine – reward.
- Associated with euphoria, mental and physical excitation, decrease in hunger, increase in pain threshold, sense of wellbeing – usually last ½ hour.
- Cocaine is a powerful reinforcer – monkeys who self-inject cocaine frequently fatally overdose themselves.

Action of Cocaine

- Dopamine is released by neurons in response to potential rewards (e.g., smell of good food) and recycled back into the cell that released it.
- Cocaine prevents the dopamine from being recycled, causing excessive amounts to build up in the synapse.
- This amplifies the dopamine signal and disrupts normal brain communication – causing the ‘high’.
- Part of the reason why cocaine is addictive is because cocaine blocks the reuptake of dopamine so that it floods the synapse.
- Results in too much uptake by dopamine receptors by postsynaptic membrane.
- The problem is that neurons are self-regulating.
- If the neuron can receive an equal amount of dopamine that it needs but with less receptors, those receptors will disappear.
- After the drug has been metabolised, there is less dopamine in the synapse and fewer receptors for it to bind to so the feelings of reward and motivation are gone
- The feeling that a person does not just want, but needs the drug stems from this mechanical problem.

Changes in the Brain

- Long-term changes to cortical reward system.
- Tolerance often develops – users fail to achieve as much pleasure as they did from their first exposure
- Increase their dose to intensify and prolong their high – increasing the risk of adverse psychological or physiological effects (paranoia, anxiety, depression).

Depressants: Alcohol

- Most commonly used and abused drug today.
- Is a CNS depressant, not stimulant (inhibition).
- Effects are wide-ranging and include feelings of:
 - Relaxation
 - Elevated mood
 - Increased talkativeness & activity
 - Impaired judgment.

Blood Alcohol Content

- At BAC of around .05 - .10, the depressant actions of alcohol on CNS are revealed.
- Cortical activity is lowered, thinking impaired, movement & coordination difficult, affect changes.
- Intoxication depends on BAC – which is determined by body fat (fat is not alcohol soluble) & stomach contents.
- Women have higher BAC for same drinks than men of same weight (as more body fat than men).

Withdrawal

- Serious withdrawal symptoms – some fatal.
- Delirium tremens (DTs) - disorientation, confusion, visual hallucinations, memory deficits, tachycardia, hypertension, hyperthermia, diaphoresis, heart attack, cardiac arrhythmia, stroke, paranoia.
- Treated using high doses of benzodiazepines.

Summary

- Awareness of self and environment
- Focus concentration, reflect & plan.
- Many different levels of consciousness.

- Altered states of consciousness can occur naturally in some disorders.
- Drugs & alcohol impact upon human consciousness.

Tutorial Notes – Consciousness Part 1

What is Psychology?

- The study of mind, behaviour, and the relationship between them.

Goals of Psychology

- Describe: what, where, when it happens; e.g. explaining cognitive processes.
- Explain: why it happens; e.g. why people act the way they do.
- Predict: what will happen next; how will people perform in the future.
- Change: intervention.

Consciousness

- Our subjective experience of the world, our body, and our mental perspective.

How Important is Sleep?

- For society? Accident, aggression, emotions.
- For individuals?

Sleep Debt

- When sleep needs are not met.
- Average 2 hours less per day than 80 years ago.
- Why?
 - Technology
 - Light bulbs
 - Alarm clocks
 - Entertainment (TV, internet).
 - Modern lifestyle
 - Shift work.

Sleep Debt: Effects

- Fall asleep under low stimulation.
- Impaired creativity, concentration, communication.
- Decreased productivity.
- Make mistakes.
- Irritable.
- Suppressed immune system.
- Attention problems.

Sleep Debt

- Sleep debt accumulates.
 - One long sleep not enough to wipe out.
 - So sometimes still groggy after long sleep.
- Chronic sleep debt: mimics ageing.
 - Conducive to: obesity, hypertension, memory impairment.
 - People with 7-8 hours sleep outlive sleep deprived.
- Daylight savings
 - Spring (lose 1 hour sleep) = less sleep, more accidents.
 - Autumn (gain 1 hour sleep) = more sleep, fewer accidents.
- Australia: deaths on road.
 - 30% due to falling asleep on monotonous roads.
- Unhindered sleep
 - Average at least 9 hours.
 - Wake up refreshed.
 - Report being more energised & happier.

- More accurate & efficient.
- Sustain better mood.

Sleep Timing

- Majority of people not clear Lark or Owl.
- But a Gallup poll found:
 - 56% people report being morning people.
 - Morning people report that compared to others they:
 - Eat better.
 - Have more energy.
 - Have a more active lifestyle; exercise more.
 - Are more optimistic.
 - 25% people report wanting to be morning people.