

HYPNOSIS

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Scientific Theories of Hypnosis

Hypnosis produces an increase receptiveness to suggestions.

Hypnotized people experience actions involuntary.

State theories

Hypnotic inductions produce an altered state of consciousness

Hypnotic 'trance' is associated with an altered state of brain function

Responses to hypnotic suggestions are a result of special processes such as dissociation or other altered states of consciousness

Hypnotisability is remarkably stable over long periods

Non-state theories

Participants respond to suggestion almost as well without hypnosis

Participants in hypnosis experiments are actively engaged

Responses to suggestions are a product of normal psychological processes such as attitudes, expectancies, and motivation

Suggestibility can be modified with drugs or psychological procedures

Three main explanations how hypnosis work :

Dissociation theories

Altered state of consciousness – comes from the idea of pathology process and dissociation – comes from this old idea of dissociation.

Neo-dissociation theory :

Cognition involves several systems of control - not all conscious at the same time.

System controlled by executive ego.

Explanation based on dissociation :

Hypnosis dissociates executive ego by amnesic barrier.

Hypnosis gains control of executive ego = division of awareness resulting in 2 streams of consciousness = one responding to suggestion and one stream being a hidden observer

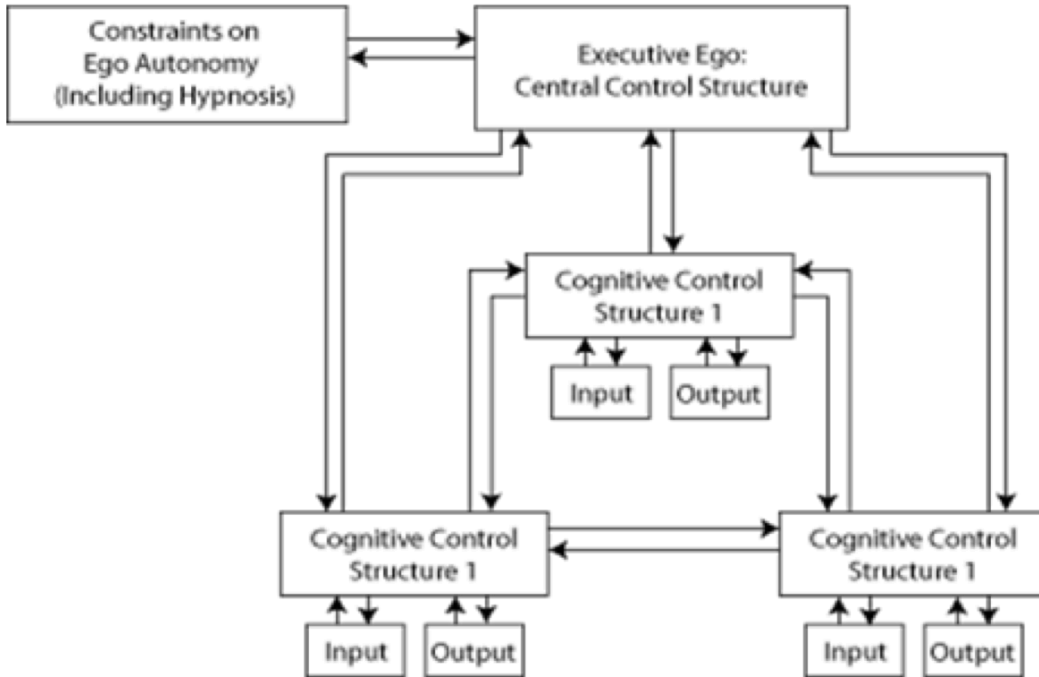
hidden observer.

Hypnotic suggestions work only on the dissociated stream.

Ice-cold water arm + report of pain level experienced = higher pain described by hidden observer compare to hypnotized subject.

Involuntary reaction due to dissociation between the two streams = carrying action + part being aware.

Only 50% demonstrated HO.



Dissociated Control Theory :

Hypnotic induction impacts on the entire executive control ego.

Social Cognitive theories

Reject altered state = hypnosis is normal and based on suggestion and it's both social and cognitive.

Hypnotic experience results from beliefs + expectations of being hypnotized. = demand characteristics.

Perceptual set : readiness to respond to suggestions and perceive the hypnotic experience as real and involuntary.

Do not claim not effective = expectations can influence behaviour without conscious awareness.

Social Cognitive Theory:

Social-Cognitive Theory.

Social context influence a set of expectations + beliefs + expectancies.

Attribution to hypnotist and context.

Hypnosis = social influence situation misattribute influence of action to hypnosis.

Responses to suggestions are based on role enactment (adapting to context and situations).

Social-Cognitive Theory (Kirsch):

Hypnotic induction increases responsiveness because of expectations.

Subjects cognitive control structure trigger by suggestion = some actions will be trigger without executive ego.

Involuntary is attributed to interpretations + attributions + expectancies.

Synergistic model

Combination of social cognitive and dissociative.

Neuro-contextual model - emphasis on hypnotizability.

Behaviors + experience shaped by context + abilities.

Involuntariness = automaticity processing + beliefs and expectations.

Behavior will change based on abilities that you have.

Context change behavior = role taking behavior.

Client adapt to context.

Synergistic model of hypnotic behavior:

| Cognitive- Affective Variables | Social- psychological Variables | Situational / Contextual Variables |
|--------------------------------------|---------------------------------------|--|
| Absorption | Intrinsic : Attitudes | Definition of |

| | | Context : |
|--|---------------------------|--------------|
| Imagery skills | Beliefs | Experimental |
| Imagic style of thinking | Expectancies | Clinical |
| Fantasy-prone | Motivation | Stage |
| Paranormal experiences | Compliance | Forensic |
| Automaticity (and frontal lobes responses) | | |
| Hedonia | Extrinsic: | |
| Mimetism | Social status of operator | |
| Dream control | | |

Methodology : the real-stimulator design.

Simulators = demand characteristics. - overlay - stick to suggestions

Real behavior = demand characteristics + genuine hypnotic effects. - no overlay.

Different results = genuine hypnotic effect - if no different = no effect.

Act the same way = no effect.

Demand characteristics influence behavior to align to demands = present yourself according to context + shift your response according to context.

Altered State of Consciousness

In order to qualify altered state = physiological component - can be looked at EEG patterns.

If cannot find any physiological component or alternations = use descriptive texts.

Therefore, sleep does not relate to hypnosis - becomes a descriptive state = does not mean there's an alternation in hypnosis.

No explanatory value.

Not fall into circular argument = do not explain anything = specific characteristic for every altered state as physiological and neuro/mechanism components.

Have explanation for artificial state but not for natural states as relaxation and hypnosis. Do

not have an exact cause.

Types of altered states :

Spontaneously occurring :

States of drowsiness (variations in vigilance)

considered an ASC only in cases of extreme sleep deprivation:

Microsleep episodes or amnesia behaviors – did not sleep for a few days.

Daydreaming (awareness vigilance)

considered normal variation of the sleep-vigilance continuum +
blank mind (being there – but awareness is away).

Hypnagogic (as you fall asleep) and **hypnopompic** (as you are waking up) = it wakes you up.

short transient states with intrusion of sensory experiences
mostly visual, less than 10% auditory

Sleep and dreaming

Exception: lucid dreaming (self-awareness while dreaming)

Near-death experiences: (cerebral anoxia – lack of oxygen in the brain)

Feeling of peacefulness + well-being

Separation from the body

Any dark tunnel + bright light association + figures + panorama of life

Physically and physiologically induced :

Related to extreme environmental condition as altitude pressure and temperature +

Starvation and diet +

Sexual activity and orgasm (la petite mort : partial loss of consciousness in right hemispheric activation). +

Respiratory maneuvers (lack or too much of carbon monoxide) +

Psychologically induced :

Sensory deprivation - decrease of stress hormones = increase in blood endorphins =
perceptual and cognitive changes.

Rhythm induce trance - narrowing attention involving drumming and dancing.

Relaxation and meditation - changes in EEG as increase of theta activity.

Disease induced :

Coma - loss of consciousness vs. Vegetative state - brain stem still function but cortical are lost.

Epilepsy - motor/sensory/cognitive/emotional/automatic alternations or symptoms. = some seizures in temporal lobe (hippocampus + limbic functions as amygdala) creates dreamy states & distortions of time.

Four-dimensional descriptive system/ four characteristics of consciousness:

Activation: (how you feel)

Readiness of an organism to interact with its physical or social environment

Awareness: (capacity of the brain to be aware)

Variability of the contents available to attention and conscious processing

Self-awareness: (capacity of the brain to make you self-aware)

Variability of self-awareness is also subjectively accessed and reported mostly in post hoc, reflective evaluation

Sensory dynamics: (changes in these 4 components = altered state)

Variety of changes in the sensory and perceptual subjective experience

What's altered consciousness - Antti Revonsuo, Sakari Kallio and Pilleriin Sikka (2009)

Main themes : context + actively retaining information from outside world + representing correctly inside my head = conscious state & if not ASC.

Normal state of consciousness = represent world accurately based on experience of the world.

Explanation of ASC : misinterpretation of self/world or misinformed ?

Qualify as ASC : temporary + global + PFC in an integrative position to receive information and manipulate high cognitive processes and processes it = changes in brain as processing information.

Altered state : sleeping + dreaming + high hypnotizable patients .

Qualifies as AS : mystical state = temporary misrepresentation of reality + psychotic state = must be temporary .

ASC tend to produce misrepresentational content of consciousness (hallucination/distortion/delusions) + its effect is general/global + temporary and reversible.

Pain and Hypnosis

Pain = sensory + emotional experience of discomfort associated with actual physical damage.

Most of the intervention are done with psychologist and multiple other institutions interaled.

Types of Pain

Organic (identified / localized) vs. **psychogenic** (pain created by the pain – look at the body and cannot see level of pain). Brain pathways of trauma same pathways as pain.

Psychogenic pain can be added to organic pain = experiencing symptoms of pain may be influenced by psychogenic pain but when seeking medical treatment = decreases.

Acute (identified with tissue damaged- last more than 3 months? – temporary) vs. **chronic pain** (more than 3 months – recurrent over years)

Malignant (cancerous tumor) or **benign** (non-cancerous tumor)

Continuous (always have the pain) or **episodic** (come and go like migraines).

Physiology of pain perception :

Tissue damaged = creates allogenic (generates pain) chemicals = activate specialize nerves and receptors = sent impulses to the brain.

Pain signals go to two types of nerve fibers.

Two types of nerves fibers that differentiate between qualities and attributes of pain.

A-delta fibers: sharp, well-localized pain – cut yourself –localized pain

C fibers: diffuse, dull, aching or burning pain – less localized pain

Around these fibers there's another time of fiber A-beta fibers that react to both fibers and signals to the brain what will happen around the pain = perceives pain = what's happening

Transdermal stimulation = help to relieve pain.

Gate-Control Theory:

Explain how psychological factors can affect the experience of pain.

Looking at pain with social and psychological component.

Stress and its link to pain.

Tolerance of pain is contextual.

Melzack decided to describe physiological mechanism by which psychological factors can affect the experience of pain.

Pain - signals - pain fiber (a-delta + C) at the spinal cord = open gate = send signals.

When gate is closed = weaker/smaller pain. - Brain take decision to open/close the gate.

Stress/anxiety influence gate opening.

Nerve impulses travels to the spinal cord that travels to nerve cells that influences the opening a gate = what's going on in there = physical mechanisms.

Conditions that open the gate :

Physical conditions

- extent of injury
- inappropriate activity level

Emotional conditions : increases opening gate.

- anxiety or worry
- tension
- depression

Mental conditions :

- focusing on pain
- Boredom
- Chronic pain = need to do more exercise to fight it.

Endogenous opioids will lower pain in response to stress or trauma (coming from the brain)

Pain is a BIOPSYCHOSOCIAL phenomenon : sensory stimulation + psychological factor (cognitive/affective/behavioral)+ socioenvironmental factors (beliefs)

Pain behavior : facial;/audible expressions of distress + negative affect + altered posture + avoidance of certain tasks.

Assesing and measuring pain :

Psychophysiological measures

- muscle tension (EMG -electromyograph)
- indices of autonomic activity (ECG, skin conductance)
- evoked potentials (EEG)

Measurement of pain behaviours

- behaviour checklist

Self-report measures

- interview
- rating scales
- pain Questionnaires (McGill Pain Questionnaire).

- Measures 3 dimensions

Sensory : location + temporal pattern + quality

Affective : emotional response

Evaluative : perceived intensity.

Pain management

Physical treatment : chemical analgesia + surgical approaches + acupuncture + electrical nerve stimulation.

Psychological treatment : hypnosis + biofeedback (EMG + teach control body) + relaxation techniques + cognitive/behavioral therapies.

Evaluate pain in the lab :

History will guide you in a way to treat patient - to understand influence of pain.

Cold water - circulation of cold water or Hot water - circulation of hot water.

Hypnotic analgesia : immerse hand in cold water - suggestion of arm like rubber = no sensation = linear relationship between hypno. + decrease of pain.

Rating distress of pain - Hidden observer reports of pain = closer to baseline than hypnotic analgesia - can analyze physical pain = become more relax = less distress = lower the pain.

Hypnotizability plays a role in analgesia = lower pain and shorter time.

Rainville experiment :

Goal of hypnosis = make you comfortable = message to the brain = relax + comfortable = decreases pain.

Target sensation or emotion. Brain reacts + response to words you use THEREFORE , suggestion affective = brain response to affective content.

Hypnotic analgesia = control pain with verbal suggestions.

Rainville : give pain to participants that will influence sensory processes (hurt) and affective processes of pain (unpleasant). Give suggestions to participants only based on suggestions. Sensory processes – like rubber and affective processes – you will not care = two different results and see what happens in the brain.

If targeting only affect suggestion = still feeling the pain = no distress.

Affective suggestions : modulate affect of pain will activate or deactivate ACC in the brain to control pain and perceive it.

Sensory suggestions : target physical aspect = target distress = its much better to deal with the physical aspect of the pain because it will decrease affect.

People have stubborn pain = help to move the pain by decreasing/increasing in order to shift perception about the pain. Demonstrate that if the pain moves = you can do anything with the

pain.

Most of the activation during hypnosis is mostly occipital parts. Use of imagery = activation greater. When using hypnotic suggestions –analgesia- transfers to front part of the brain – hypnotisability is linked to left side. Because you use words, language.

Comparing pain reports :

3 groups = stress inoculation (distraction – give people something to do mentally to lower the pain). + hypnotic analgesia (classic group) + hypnotic context (people went through stress inoculation and said at the end said it what hypnosis = therefore measure context and see what happens to see if context influences pain).

Hypnotic analgesia = lowest – experience pain.

Most people can reduce pain to a point = the fact the simply believed = they've lowered their pain.

Experiment about pain :

Cognitive task = hypnotic analgesia = its not distraction make them better at cognitive test = seems to be involuntary and leave cognitive function intact.

Placebo = context is important in orienting response. Placebo response for analgesia and that of hypnotically produced analgesia are two completely separate things.

Generation of pain : HH can generate pain - can experience pain in absence of direct stimulation + evidence for clinical functional pain disorders.

BRAIN is able to create pain = activation of similar place sin brain when experiencing pain (thalamus, insula interior cingulate and PFC).

Meta-analysis study on pain management : moderate to large hypnoanalgesic effect, supporting the efficacy of hypnotic techniques for pain management + hypnotic suggestion was equally effective in reducing both clinical and experimental pain.

Meta-analysis for surgical treatment : patients in the hypnosis treatment groups had better outcomes than 89% of the patients in the control groups + found that adjunctive hypnosis helped the majority of patients reduce adverse consequences of surgical interventions.

Suggestions of Analgesia :

General strategy = relaxation + distraction decrease pain.

Direct suggestions = sensory or/and affect modulation / guided imagery / dissociative suggestions (HH) - leaving body/split/not feeling anything.

Indirect suggestions = metaphors/ story-telling

Building therapy = take into account anchor points of time = more painful = greater outcome logic.

Hypnosis and Memory

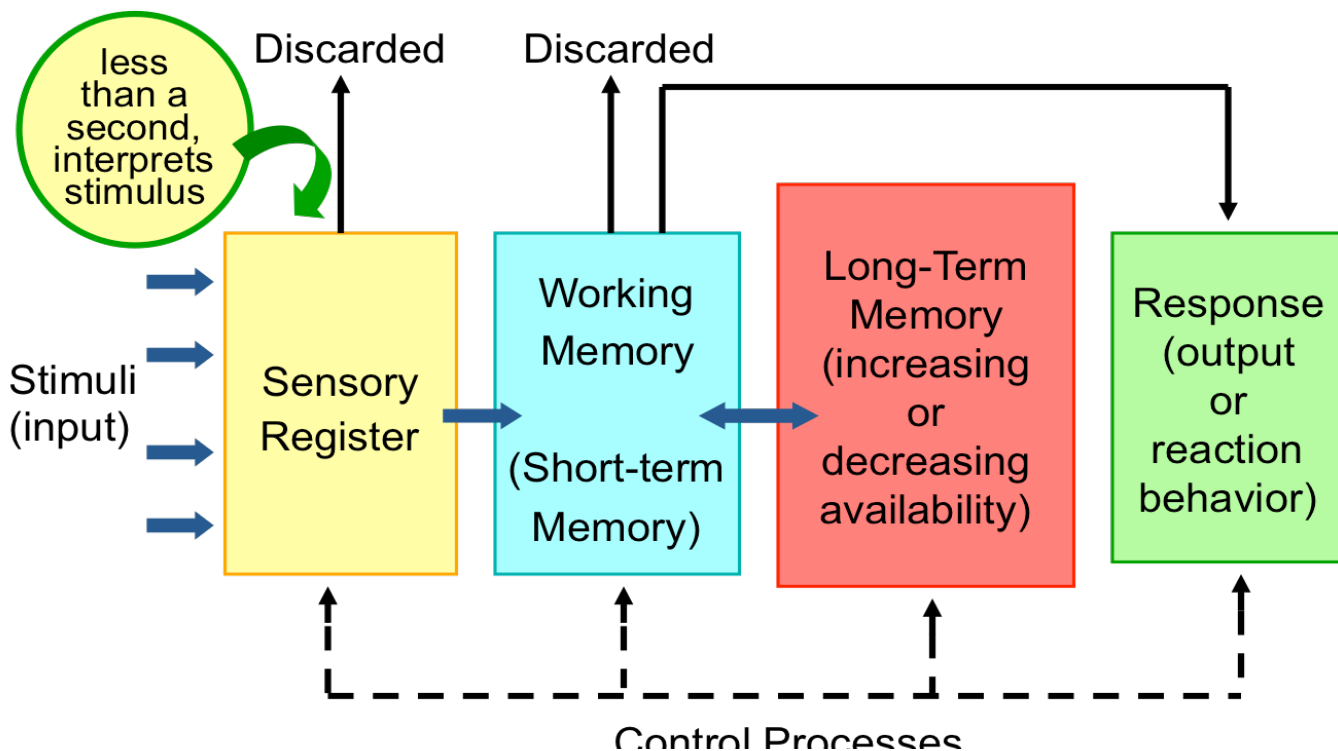
Hypnotize people = can easily modify memory

Important to avoid negative manipulation + self-fulfilling prophecies + own influence.

Information -processing model : info enters sensory receptors - attention selects info - info encoded for next memory stage some memory is saved other not.

Our executive system = processes, keeps and/or rejects info.

We have different systems of memory separated in different parts.



CONTROL PROCESSES
(selective attention, emotional regulation, strategic thinking
beliefs, expectations)

Memories are not kept in an intact form. They are encoded in bits and pieces. Gist of the event is coded and coded in different areas of the brain. When remembers, complete coherent material from different part of the brain. All of these processes can be selective, changed and modified. It's activated based on a mindset.

Selective attention, emotional regulation, strategic thinking, beliefs, expectations will focus on event.

As it starts, everything has been processed, and selected info had been kept. Affects what coming in and what's coming out.

When responding to memory, processing throughout memory – investigating in order to reconstruct your memory – control processes will come into action. When in therapy does not work = looking memory that fit symptom that you have.

Stages of Memory :

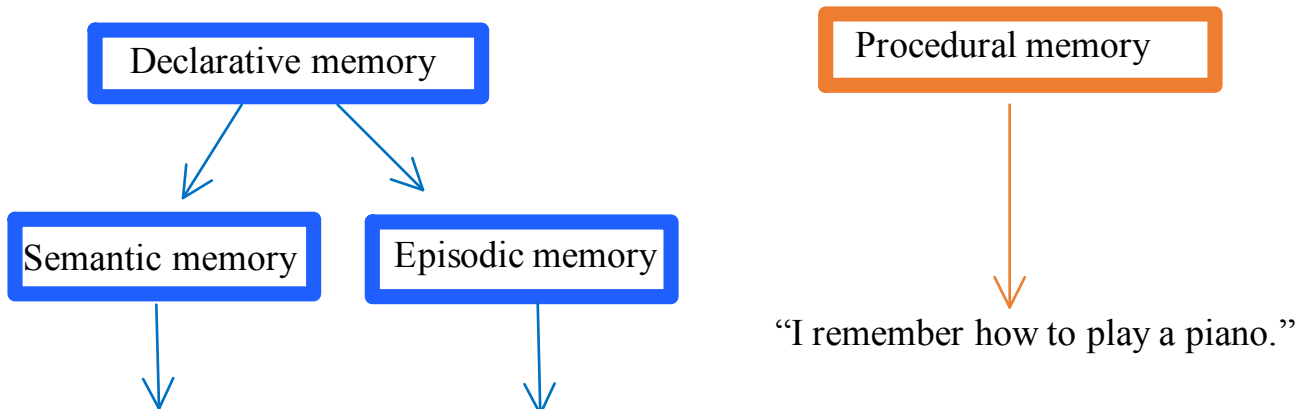
Sensory register (holds image/experience until process max of 4sec) [attention transfers to] Short-term memory (holds up to a minute unless rehearsal/chunking- temporary storage) [working memory : space used to retrieve memories from long-term memory] Long-term memory (unlimited storehouse over long periods of time)

Types of Long-Term Memory :

Procedural : automatic memory skills -easy to store.

Episodic : personal memories - declarative memory.

Semantic : meaning- selective and change with time.- easy to store - declarative memory.



“I know what a piano is.” “I remember buying my first piano.”

Retrieval of Long-Term Memory:

Recall method: with cues to Q + hints

Recognition method: MCQ + selection of alternatives

Relearning method: relearn previous info.

Forgetting is the inability to recall or recognize previously encoded information. Due to poor initial encoding or/and lack of right cues.

Why do we forget ? :

Memory disappears - decay theory : info kept when useful = if not = does not keep it.

Memory is present but cannot retrieve it : interference theory , decay theory and inhibitory mechanisms.

Interference : compete during retrieval = create interference between new and old memories - still in memory.

Retroactive (new learning interferes with old material) vs proactive interference (previously learned info interferes with new one).

Decay : unused memories fade gradually.

Reconstructing process : need of coherence = fill-in the gaps based on previous experiences, beliefs, expectations, (semantic and knowledge memory makes nice and fluid memory)

Retrieval = unless it's the first time you remember it. You never go back to original image but brain pretends that you do. You remember the memory you recalled yesterday. What did the person say the first time the person explain a story and compare it with later recall/recognition.

Misinformation effect : memory for an event can be influenced by information given after the event.

Three hypotheses :

Overwriting : misleading information

Source confusion : misremember source of memory + confusion between visual memory and memory itself.

Misinformation acceptance : believe post-information is true.

Memory is constructed and can be reconstructed. The brain remembers gist of memories. You can misinform memories ; that will change the pattern of the memories. Its important because when hypnosis is used in legal context = can be implant.

Incorporation of false memory confirms the idea that memory is reconstructed in a coherent way.

Imagination inflation : simple use of imagination increase changes in memories. How do we

differentiate between what we did and what we imagined that we did. Imagined are reported higher. Memories changes overtime.

Confidence can be high as eye witness but accuracy can be low.

Types of Amnesia :

Physiologically triggered : brain lesions = altered brain functions = recuperation can take 3 to 6 months.

Retrograde amnesia: before the event

No memory of what happened immediately before an accident or highly stressful event

- Little or no disruption in STM
- New long-term memories can be formed
- Usually memory loss does not last lifetime (3 months)
- Stress of event disrupts consolidation and retroactive interference blocks retrieval
- Physical stress blocks memory system.

Anterograde amnesia: after the event

Inability to store and retrieve new information

- **Hippocampus** involved in episodic memory
 - Damage prevents formation of new long-term declarative memories

Psychogenic, dissociative, psychological amnesia? Amnesia triggered by trauma *not* affecting the brain, psychological in nature= presence of retrograde aspect only.../ brain protects itself from trauma / they only show retrograde amnesia. Normal memory after the event. This type of amnesia has been contested = argue that does not exist = construct.

The Classic Recovery Memory Case :

Recovery cases = mental disorder/issue hides abuse..

Creates changes in law (statute of limitations) : two years after and two years after remembering.

Psychologist involved because : appropriate treatment + prison and false sentences + miscarriages of justice + testify in court + assessment of credibility

OF JUSTICE + TESTIFY IN COURT + ASSESSMENT OF CREDIBILITY.

Repression has no scientific credibility.

Clinicians

- Traumatic memories are permanently stored
- Repressed and/or dissociated
- Long forgotten memories can be recovered
- Recovered memories are usually accurate

Cognitive psychologists

- Most recovered memories are the result of suggestive or self-suggestive techniques
- Memory is frequently inaccurate
- Repression has never been demonstrated and dissociation is a vague construct

Nature of Memory :

Memory : reproductive = largely accurate but reconstructive = representation of the past not accurate to certain extent.

Autobiographical recall: reconstructive vs. reproductive (historical vs. narrative truth). Sometimes they don't match.

Historical = factual.

Narrative = your experience.

Developmental aspects of recall = cognitive + physiological immaturity creates bad evidence for pre-verbal to post-verbal transfer = we forget things that happen before the age of 2 year old- cannot put words on things that happen when you couldn't talk.

Reconstructive process of memory is complex = perception/attention - encoding - storage - retrieval and narration + degradation = decay with time , physiological, underdeveloped factors and interference.

Therefore, you only go back to the last time you remembered the event - remember newest memory suggestion.

Forgotten childhood sexual abuse:

Repression(Freud) = memory of trauma event is pushed down into unconsciousness.

Dissociation(Janet) = individuals experience separated into fragments.

Brief History of the Debate :

First wave : hypno-investigator - can implant false memories.

Based on hypnotic hypermnesia : This belief that ppl that are hypnotized can remember more info than when they were not hypnotized.

First wave = police forces – for witnesses and victims = controversial because can misinform memory and create false memory.

Second wave : the clinical detective

Influence of movie Sybil = interest in multiple personality disorders - diagnosis of multiple personality disorders as animal, objects , humans etc.

Using life regression therapy = discovering abuse.

Vicious cycle , therapist and patient feed each other with info , and from the little things that patient is saying the therapist diagnoses that he's been abused and all (even when its not true).

Second wave = multiple personalities instead of demons - abuse of suggestions on children, adults, people spending years in jail.

Third wave : the clinical archeologist

Journalist publicized a number of cases of repressed memories. They all recognized that they have been abused from when they were 6 months old (impossible memory).

Many states modified their legislations.

Prospective Studies of Repression

Majority did report : developmental effects likely to be quite important/mention the role of language and discussion in the formation of memories.

No study showed that people actually repressed memories. No validity.

Mostly confusion between historical and narrative truth = create a suggestion effect.

At a young age, we don't have the concept of "I" therefore very difficult to have an autobiographical memory.

Special types of memories = flashback however, they are a distortion/reconstruction of an experience. +flashbulb memories = alternations of normal memories that modify with time and deteriorate.

No evidence for early abuse (suggestion can influence their memory however) or body retrieval.

Transmission of false beliefs from therapist to patient - inventions

Repression concept rejected by court however, not by psychology organization.

Use of dissociation as an explanation.

Partial forgetting = trauma causing partial loss of memory = may not imply dissociation however)

No evidence for global forgetting or amnesia.

Age Regression and Hypermnesia

Types of Memory Assessment

Age regression : report experience from childhood.

- Sense of being a child

Soft measures = change in handwriting +vivid childhood memory

Hard measures = change in physiological, cognitive, affective processes.

Hypnotic hypermnesia : improved memory as a result from hypnosis.

- Remembering correct information? : confidence is not a good cue for accuracy + false events + retrieval cues.

Back to their past = think remember more under hypnosis.

Related to age regression :

Related to age regression.

Ablation hypothesis = no evidence of reflexes of childhood + adult behaving what they think children should behave at a certain age (do not behave this way) sandbox experiment*

Demand characteristics is what the therapist demands from you as a patient.

HH + high absorption leads to more detailed memories.

Related to hypnotic hypermnesia:

HH individuals report more new memories + more correct memories from a study based on retrieval because they spoke more.

Hypnotic Coercion

Types of Coercion

Voluntary : attempt of hypnotist at controlling the patient for own benefit.

Non-Voluntary : honest attempt to explore person's memories or emotions based on misinformation

Considered to be coercive ? No defense against it. The more hypnotizable = the more automatic the memory manipulation. It's like being coerced because no defense and can't stop it.

Importance of demand characteristics when trying to coerce a person.

Cannot take this phenomenon and bring it to the lab = **rely on social context.**

Lab = certain expectations = won't get harm/ feeling of protection + more influence by instructions not hypnosis.

Beliefs, abilities and relationship may create

- A self-fulfilling prophecy
- A vulnerability to resist suggestions

The role of hypnosis seems *contextual*

- similar to the therapeutic one.