Behaviorism

- Founder-Watson, followers

-Pavlov, Skinner, Bandura etc.

- Focused on overt behavior

- Scientific-Reliable & objective studies

- Environmentalist: Give me a dozen healthy infants, well-formed, and my own special world to bring them up in and I'll guarantee to take any one at random and train him to be any type of specialist I might select – a doctor, a lawyer, artist…" – Watson, 1924

- The position is taken here that the behavior of human beings and the behavior of animals must be considered in the same plane.

- S-R connections (Experiments on Animals) Where are the people?

- With Operant Conditioning the Response comes before the Stimulus (the opposite of Classical Conditioning S-R) R - S

Behavioristic Model of Personality

- Remember Watson and Skinner= behavior is shaped by rewards and punishment.

- Personality is simply a collection of learned behaviors.

- No recognition of "traits".

- Behavior is influenced by circumstances- not thinking

Behaviorist Theory

- The way most people think of personality is meaningless.
- Personality is Learned!
- Personality changes according to the environment (reinforcers and punishments).
- **Contingencies of Reinforcement**
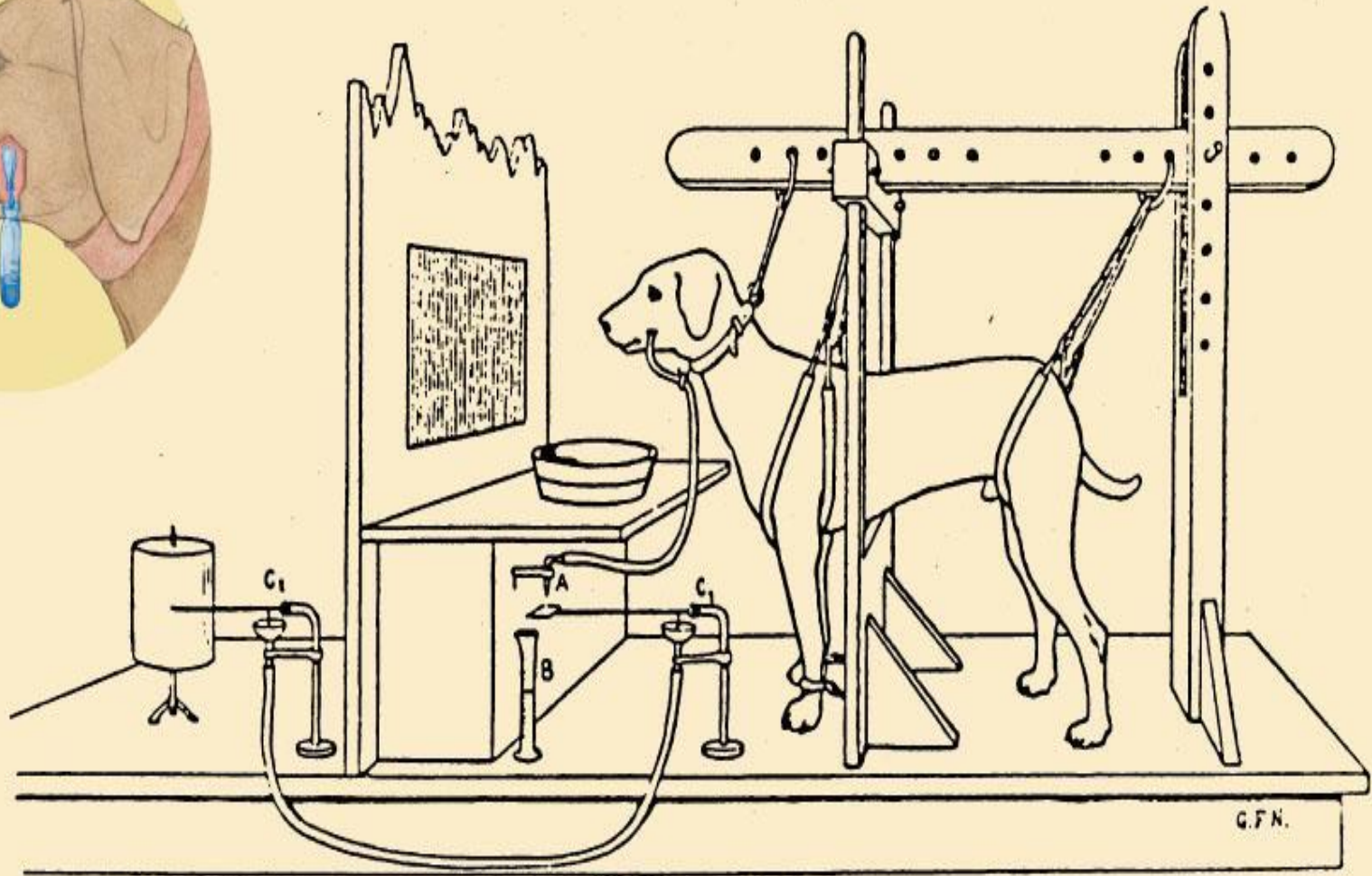- If you change environment then you change the personality.

Classical Conditioning

- Aspect of Behaviorism
- Associationism – humans will feel a positive response to things they associate with good experiences, and a negative response to things they associate with bad experiences
- Pavlov's Dog:

How Dog Training Works

1. Before Conditioning

Food
Response
Salivation

Unconditioned Stimulus
Unconditioned Response

2. Before Conditioning

Bell
Response
No Salivation

Neutral Stimulus
No Conditioned Response

3. During Conditioning

Bell + Food
Response
Salivation

Unconditioned Response

4. After Conditioning

Bell
Response
Salivation

Conditioned Stimulus
Conditioned Response

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Figure 1.1 Classical conditioning apparatus

Conditioning

Classical Conditioning : Pavlov's experiments with dogs.

Before Conditioning

CS(bell) ---------------- (no R)

UCS(food)----------------(UCR(Saliva)

During Conditioning

CS+UCS------------------UCR

After Conditioning

CS------------------------CR

Type-S conditioning (CS+UCS= S-S connection)
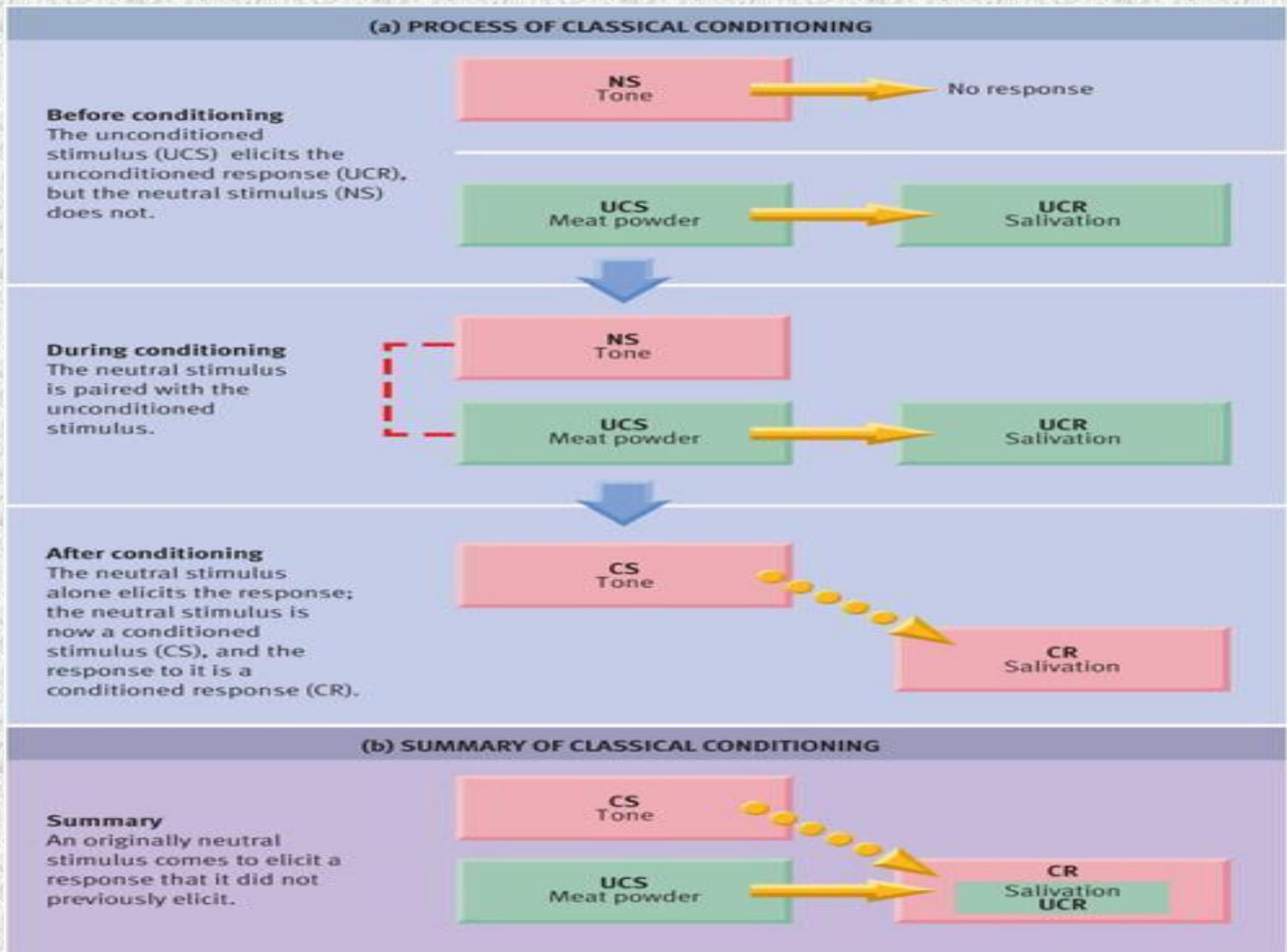
More applicable for involuntary reactions

Figure 1.2 The sequence of events in classical conditioning
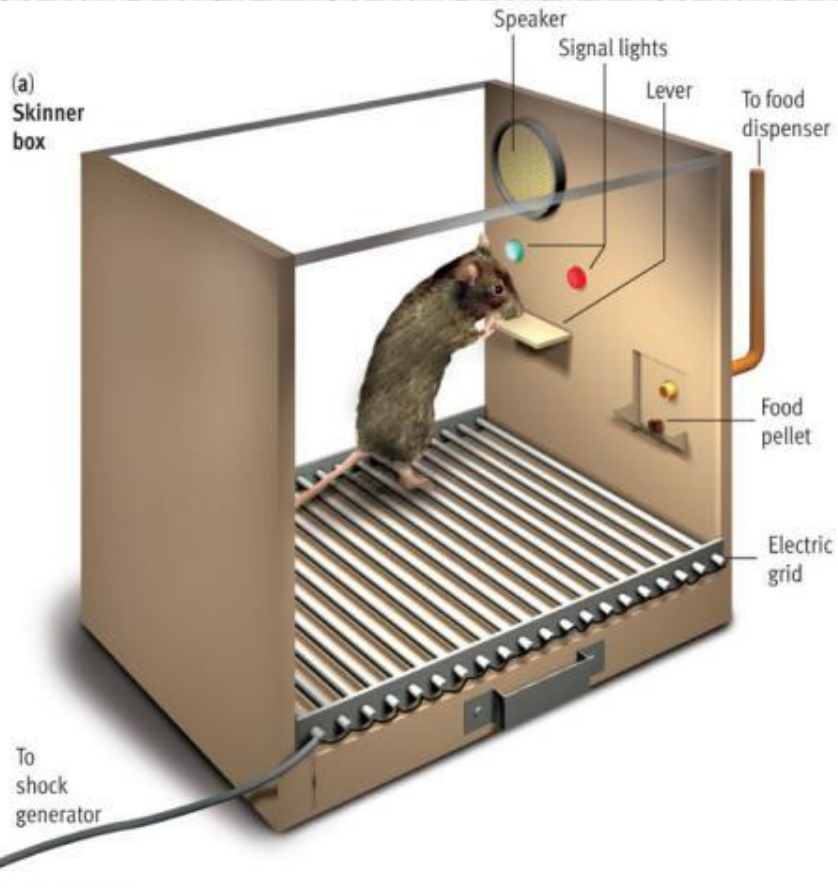
Classical Conditioning: Experimental Designs

3 types of Classical Conditioning

- **Simultaneous conditioning**: CS and UCS begin and end together.
- **Short-delayed conditioning**: CS begins just before the UCS, end together.
- **Trace conditioning**: CS begins and ends before UCS is presented.
- Short-delayed conditioning appears to most promote acquisition of a classically conditioned response...ideally the delay should be **very brief, about ½ a second**.
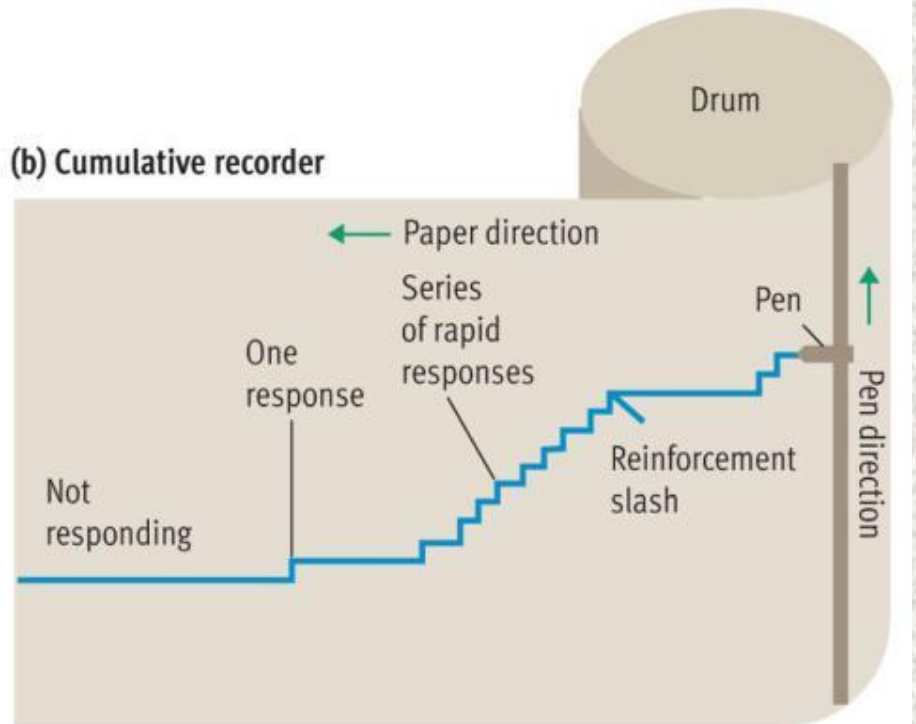
Operant Conditioning

- The term "Operant" refers to how an organism operates on the environment, and hence, operant conditioning comes from how we respond to what is presented to us in our environment.

- It can be thought of as learning due to the natural consequences of our actions.

- Skinner`s Box *

- Reinforcement:

  --Positive Reinforcement (R+)

  --Negative Reinforcement (P-)

- Premack principle: *Premack's principle* (Premack, 1959, 1963) states that more probable behaviors will reinforce less probable behaviors.

- Punishment

(a) Skinner box

Speaker
Signal lights
Lever
To food dispenser
Food pellet
Electric grid
To shock generator

© 2007 Thomson Higher Education

(b) Cumulative recorder

Drum
Paper direction
Series of rapid responses
Pen
One response
Reinforcement slash
Not responding
Pen direction

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Figure 1.3 Skinner box and cumulative recorder
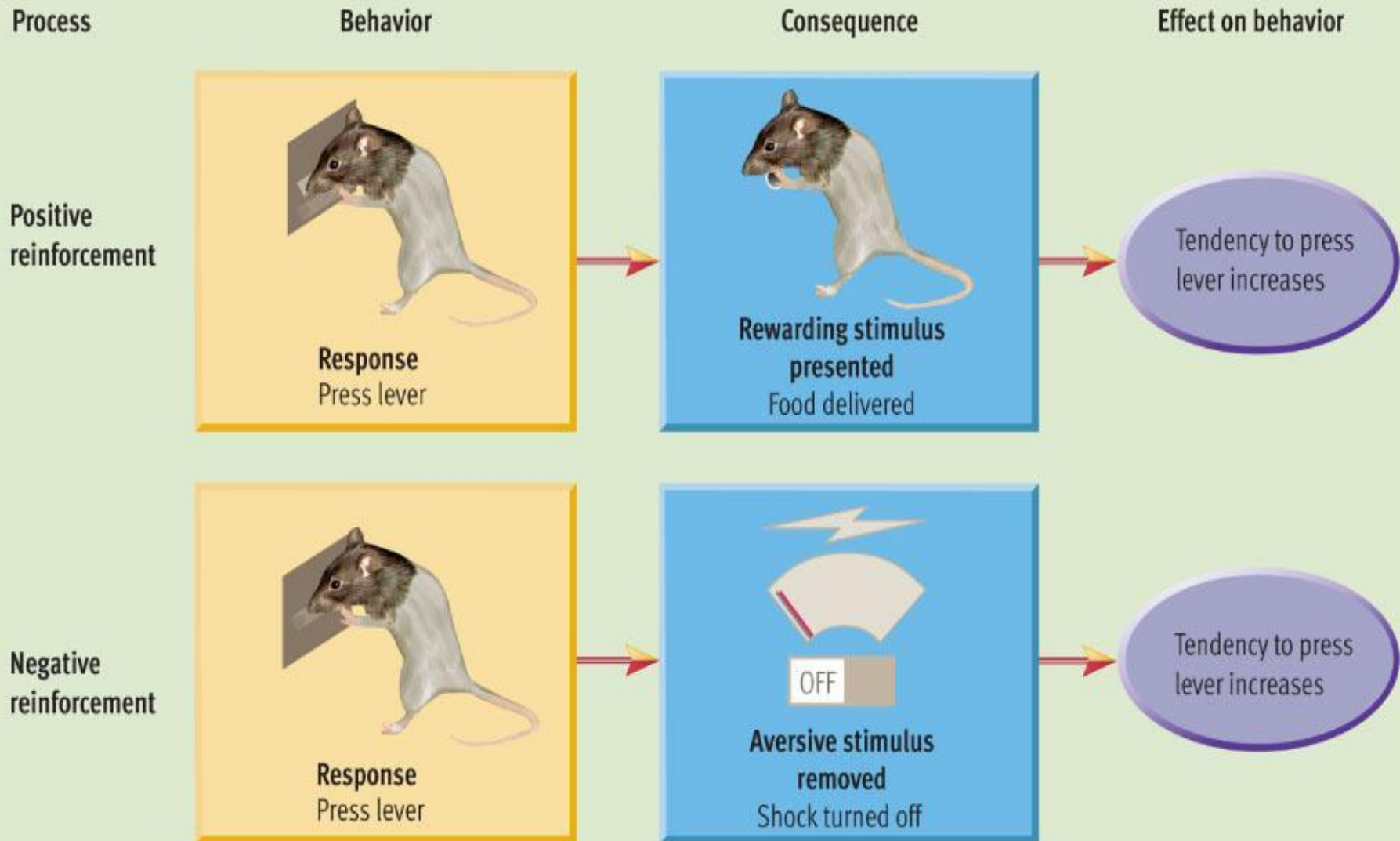
Consequences: Reinforcement and Punishment

Increasing a response:

- **Positive reinforcement** = response followed by rewarding stimulus.

- **Negative reinforcement** = response followed by removal of an aversive stimulus.
  - **Escape learning** (*an organism learns to perform a behavior that decreases or ends aversive stimulation (turning on the air conditioner).*
  - **Avoidance learning:** *an organism learns to prevent or avoid some aversive stimulation (turn on the a/c before it gets too hot).*

Decreasing a response:

- **Punishment**

- Problems with punishment: *it can **trigger strong emotional responses (anxiety, anger, resentment, hostility); physical punishment can lead to an increase in aggressive behavior**.*

Process	Behavior	Consequence	Effect on behavior

Positive reinforcement

Response
Press lever

Rewarding stimulus presented
Food delivered

Tendency to press lever increases

Negative reinforcement

Response
Press lever

OFF

Aversive stimulus removed
Shock turned off

Tendency to press lever increases

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Figure 1.4 Positive reinforcement versus negative reinforcement

Skinner's Operant Conditioning

Positive Reinforcement

Presence of Pleasant Stimulus → Behavior Increases ↑

Negative Reinforcement

Absence of Unpleasant Stimulus → Behavior Increases

Punishment

Presence of Unpleasant Stimulus → Behavior Decreases ↓
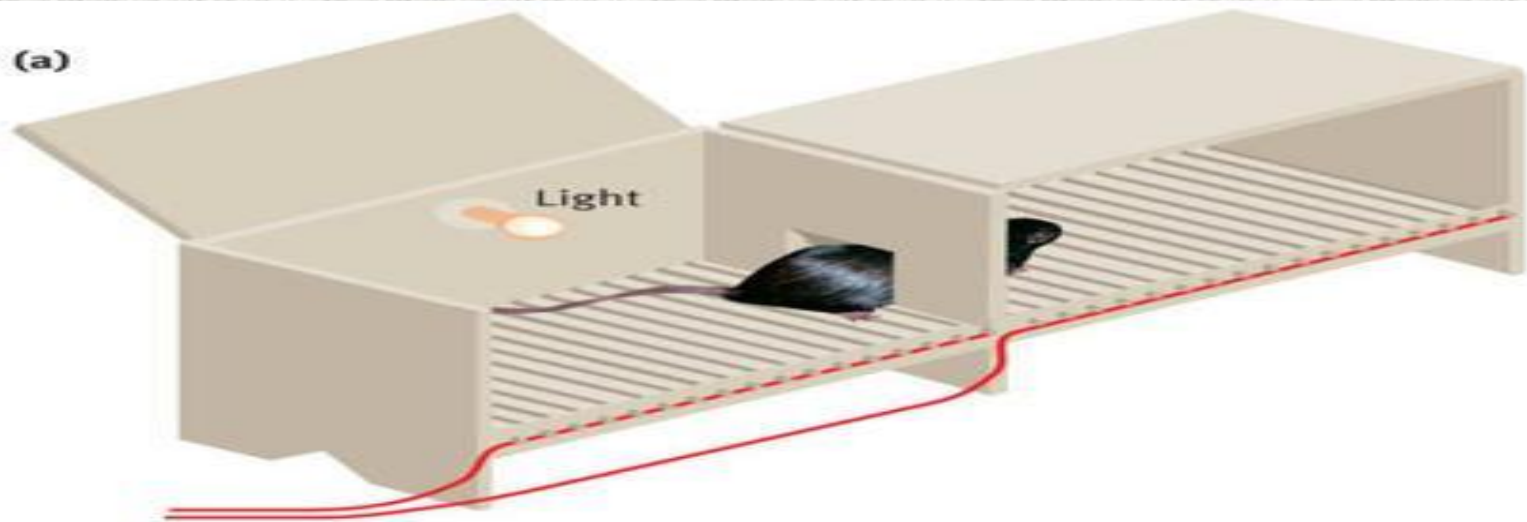
Figure 1.6: Difference between Classical & Operant Conditioning

Schedules of Reinforcement

- Continuous reinforcement
- Partial or intermittent reinforcement:

Time oriented

--Fixed interval schedule

--Variable interval schedule

Response Oriented :

--Fixed ratio schedule

--Variable ratio schedule

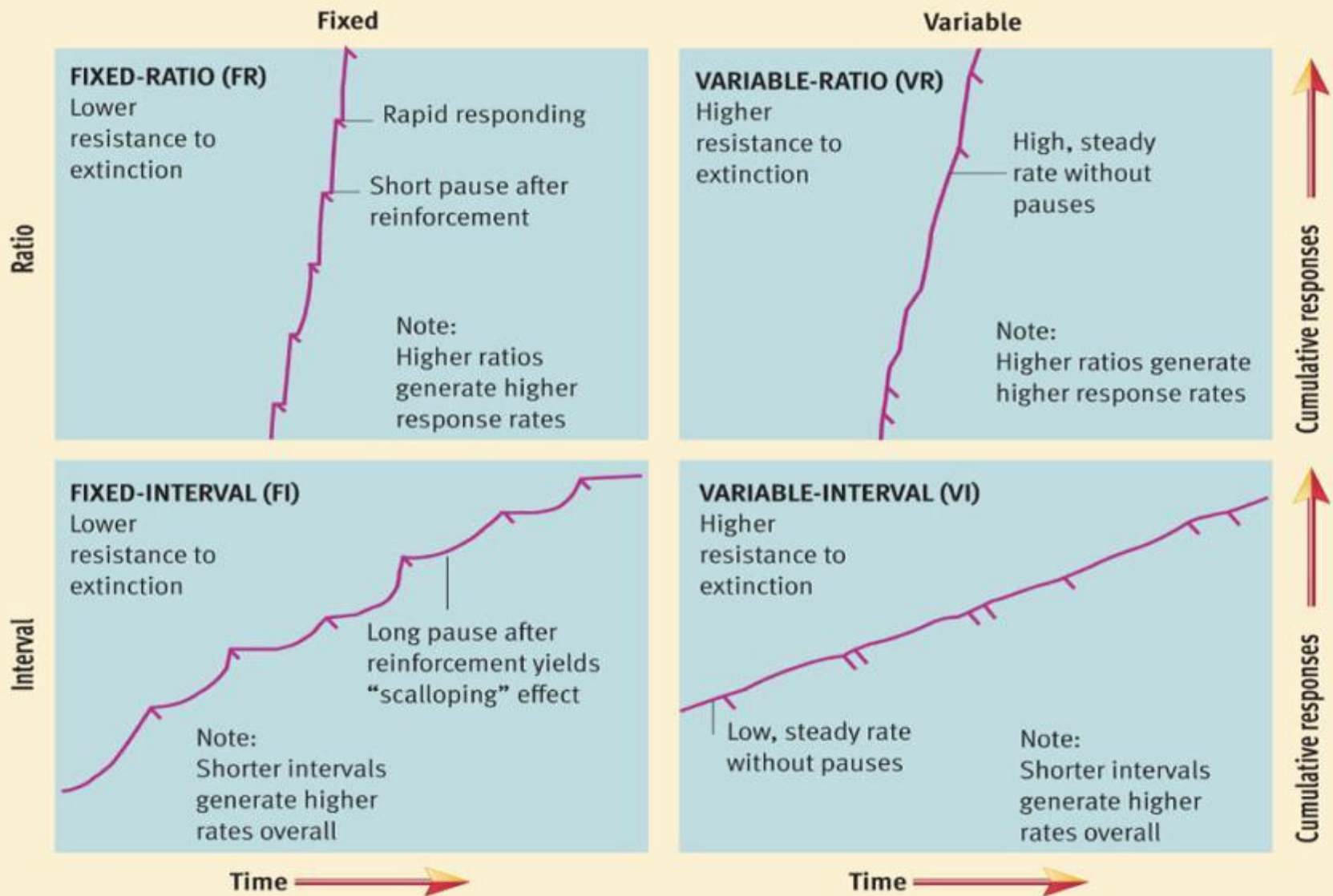*Concurrent schedules of reinforcement

Figure 1.7: Schedules of reinforcement and patterns of response

Some Basic Principles

- Acquisition

- Extinction

- Spontaneous Recovery

- Generalization & Discrimination

- Shaping: reinforce closure behaviour in starting to get actual one.

- Chaining : A behavior chain is a series of related behaviors that produce reinforcement

Table 6.1 Comparison of Basic Processes in Classical and Operant Conditioning

Process and Definition	Description in Classical Conditioning	Description in Operant Conditioning
Acquisition: The initial stage of learning	CS and UCS are paired, gradually resulting in CR.	Responding gradually increases because of reinforcement, possibly through shaping.
Extinction: The gradual weakening and disappearance of a conditioned response tendency	CS is presented alone until it no longer elicits CR.	Responding gradually slows and stops after reinforcement is terminated.
Stimulus generalization: An organism's responding to stimuli other than the original stimulus used in conditioning	CR is elicited by new stimulus that resembles original CS.	Responding increases in the presence of new stimulus that resembles original discriminative stimulus.
Stimulus discrimination: An organism's lack of response to stimuli that are similar to the original stimulus used in conditioning	CR is not elicited by new stimulus that resembles original CS.	Responding does not increase in the presence of new stimulus that resembles original discriminative stimulus.

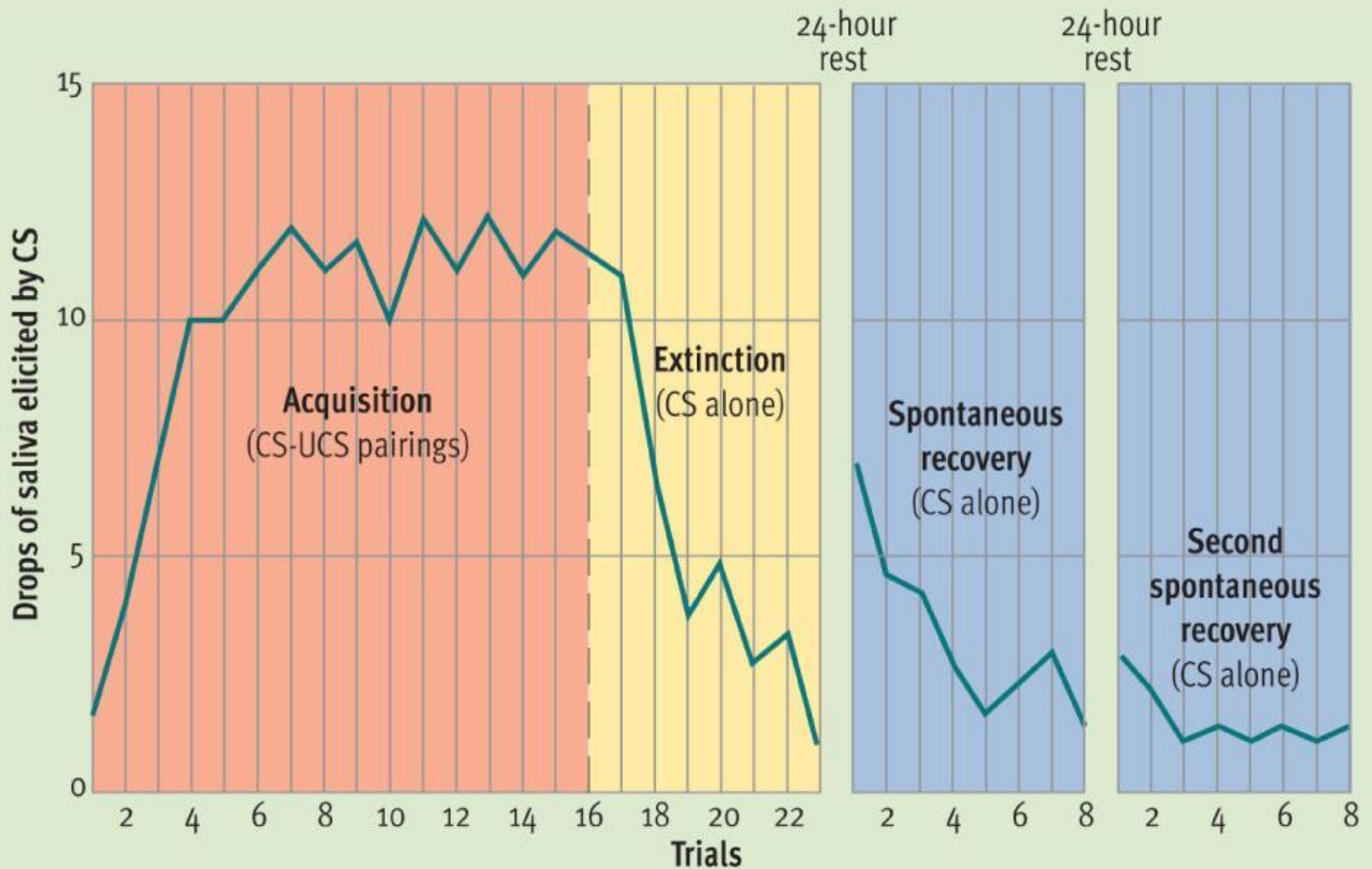Table 1.1 Comparison of Basic Processes in Classical and Operant Conditioning

Figure 1.8 Acquisition, extinction, and spontaneous recovery

Figure 1.9 Reinforcement in operant conditioning

- Verbal Behavior: Nativism vs. empiricism controversy
- (inborn or learned from experience)
- Learn from the Environment
- Against Chomsky-genetically determined

You: S

$\longrightarrow$ R $\longrightarrow$ S_R $\longrightarrow$ R $\longrightarrow$ S_R $\longrightarrow$ R $\longrightarrow$ etc.

How are you?

Seeing friend   Hello

S $\longrightarrow$ R $\longrightarrow$ S_R $\longrightarrow$ R

Hi   Fine
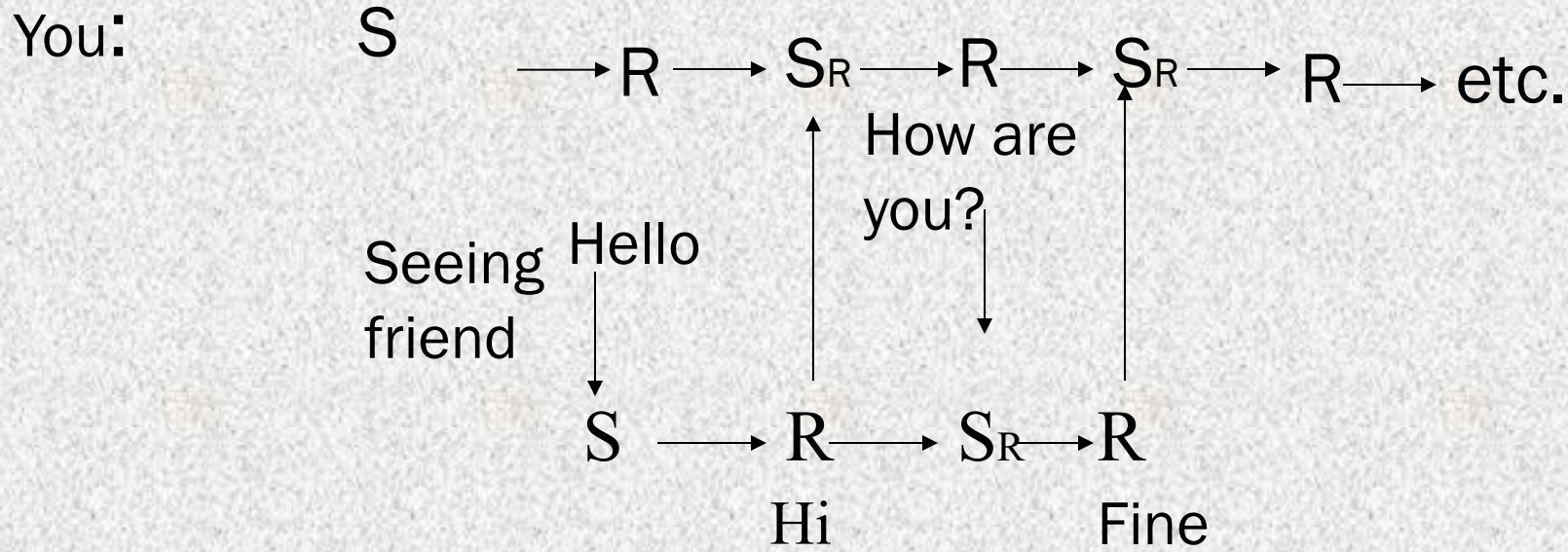
Law of Effect

Behavior $\longrightarrow$ Better state of affairs $\longrightarrow$ Increased probability of behavior occurring again

Behavior $\longrightarrow$ Worse state of affairs $\longrightarrow$ Decreased probability of behavior occurring again

Behavior A
Behavior B
Behavior C $\longrightarrow$ Better state of affairs $\longrightarrow$ Behavior C emerges as the most probable
Behavior D
Behavior E

Behavior Disorders & Behavior Therapy

"Give me a dozen healthy infants, well-formed, and my own special world to bring them up in and I'll guarantee to take any one at random and train him to be any type of specialist I might select – a doctor, a lawyer, artist…" - Watson 1924

➤ Behaviour therapies : (based on classical conditioning & operant conditioning)

➤ Behavior therapy focuses on changing overt behavior

➤ It is also called *behavior modification*

➤ It uses learning principles to help people replace maladaptive behaviors with more effective one

➤ Behavior therapists assume changes in the environment affect people's responses.

➤ Behavior therapists try to help people unlearn faulty behaviors and learn more effective ones.

Behavior Modification & Psychotherapies

- An umbrella term encompassing a variety of interventions /Psychotherapies.

- It is an approach to assessment, evaluation, and alteration of behaviour.

- Based on core theories of Behaviorism: classical conditioning, operant conditioning, modelling and observational learning.

- Wide scope of applications in different settings: Education, Sports, Business & industry, etc.

1. Relaxation Training

- Behavior therapy emphasizes a self-control
- approach in which clients learn self-management strategies. Therapists frequently train clients to initiate, conduct, and evaluate their own therapy.
- Feedback & Biofeedback – Psychosomatic problems.
- Clients are given a set of instructions that ask them to relax in a quite environment and taking deep and regular breathing patterns.
- Clients are encouraged to actually feel and experience the tension building up, to notice their muscles getting tighter and study the tension, to hold and fully experience the tension and learn to relax.
- A normal relaxation practice lasts for 20 to 25 minutes.
- It helps relieve stress and anxiety.
- There is experimental and clinical evidence that the addition of biofeedback to relaxation practice may increase the effectiveness of relaxation.

- In Counterconditioning, a person is taught a new, more adaptive response to a stimulus

- It is a process of reconditioning

- Joseph Wolpe (1915 – 1997) was one of the original proponents of counterconditioning

2. Exposure therapy: It can be more varied in technique, including in vivo exposure, imagined exposure, and virtual reality exposure.

I-Systematic desensitization is a three-stage counterconditioning

Procedure: 1. The client is first taught to relax. 2. The client then describes the specific situations that arouse anxiety.3. While deeply relaxed, the client imagines increasingly vivid scenes of the situations causing anxiety.

- Exposure Therapy. most frequently used to treat OCD, PTSD, and phobias.

- Identify anxiety triggers— learn relaxation techniques to manage anxiety- - induced distress/ anxiety –– use relaxing technique

- Before therapy = S- R (situation – Anxiety /phobia)

- After therapy = S- R (situation – Relaxed)

Systematic Desensitisation

A hierarchy of fearful situations is created – each step being more fear-provoking than the last

Client is taught deep relaxation techniques

The client learns to associate the relaxation with the least fearful scenario

Once that's achieved the client is encouraged to systematically make step by step progress through the hierarchy

- While deeply relaxed, the client imagines increasingly vivid scenes of the situations causing anxiety.

- This gradually exposes the client to the source of the anxiety.

- With each successive experience, the client learns relaxation rather than fear as a response.

- Systematic desensitization is most successful for people with two types of problems:

- Problems with impulse control

- Particular forms of anxiety such as phobias.

II- Exposure therapies are designed to treat fears and other negative emotional responses by introducing client to the situation that contributed to such problems.

- In Vivo desensitization involves the client exposure to the actual feared situation in the hierarchy in real life rather than simply imagining situations

III. Flooding which refers to either in vivo or imaginal exposure to anxiety-evoking stimuli for a prolonged period of time .

- Allows the anxiety to decrease on it's own.

- Flooding can be used for many fearful anxieties such as flying, riding in subways, riding in elevators and phobia of certain animals.

- Because of the discomfort in this treatment with intense exposure some clients may not elect these exposures.
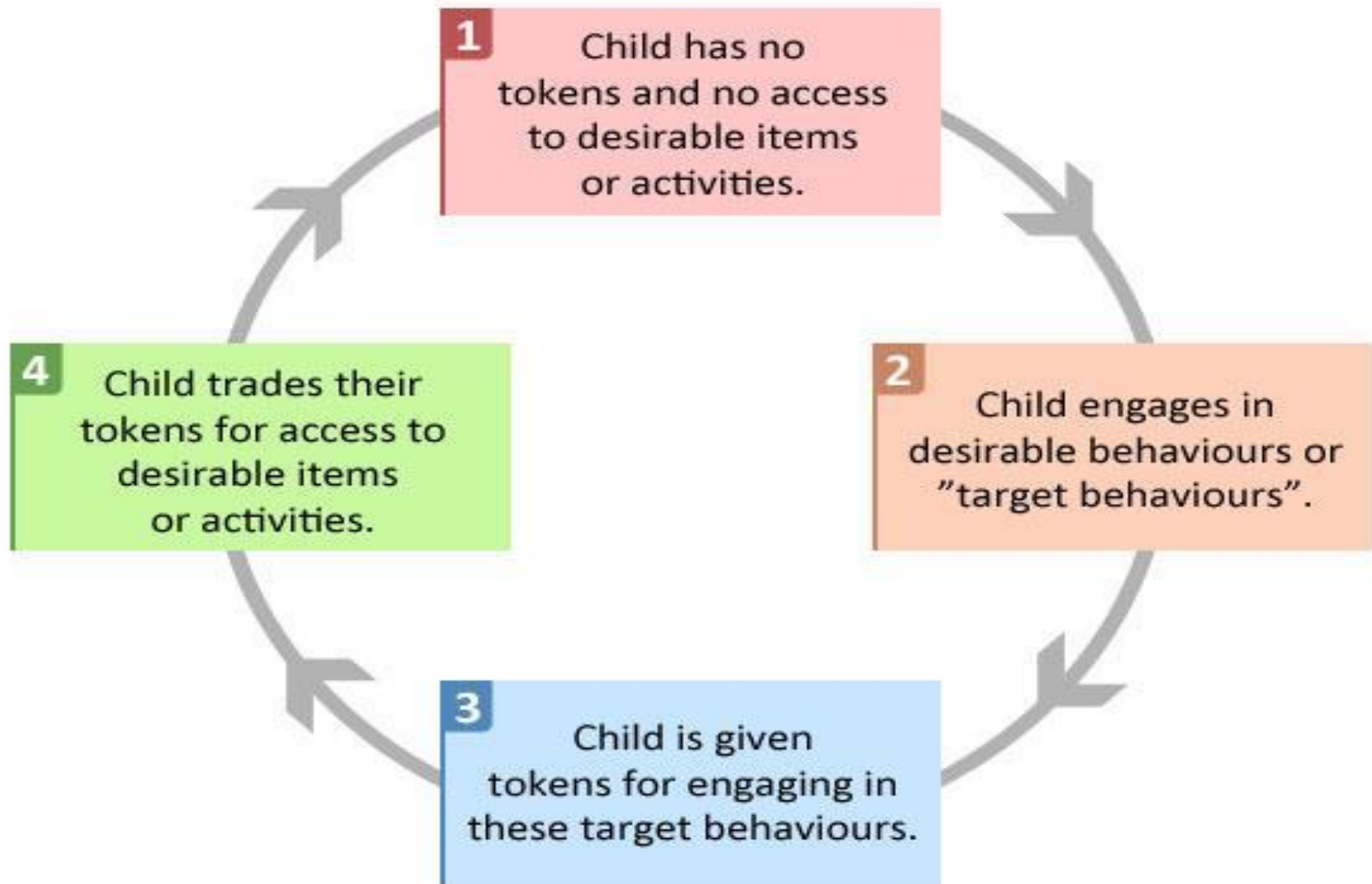
IV. Aversive Conditioning

- Another method using counterconditioning is

- aversive conditioning.

- Aversion therapy is based on the theory of classical conditioning.

- A noxious stimulus is paired with a stimulus that elicits an undesirable behavior.

- It focuses on creating a negative response to an undesirable stimulus, such as drinking alcohol or using drugs. e.g. nausea-inducing drugs in the treatment of alcoholism. The goal is to reduce a person's craving for alcohol with chemically-induced nausea.

- This will cause the undesirable behavior to stop

- The goal is to teach a new response to the aversive stimulus.

- For example : you can place a coat of nail polish on your nails, which will taste bad when you go to bite them.

- Aversion therapy can be used for Bad habits, Addictions, Alcoholism, Smoking, Gambling Violence or anger issues etc.

3. Token economy: Operant conditioning to establish a new behavior often depends on a *reinforce*

- One method of rewarding adaptive behavior is through a <u>token economy</u>

- In a **token economy** people who display appropriate behaviors receive tokens

- These can be exchanged for **desirable items and activities**

The Basic Token Economy "Cycle"

1 Child has no tokens and no access to desirable items or activities.

2 Child engages in desirable behaviours or "target behaviours".

3 Child is given tokens for engaging in these target behaviours.

4 Child trades their tokens for access to desirable items or activities.

Source : https://www.abatherapistjobs.com/applied-behaviour-analysis/token-economy
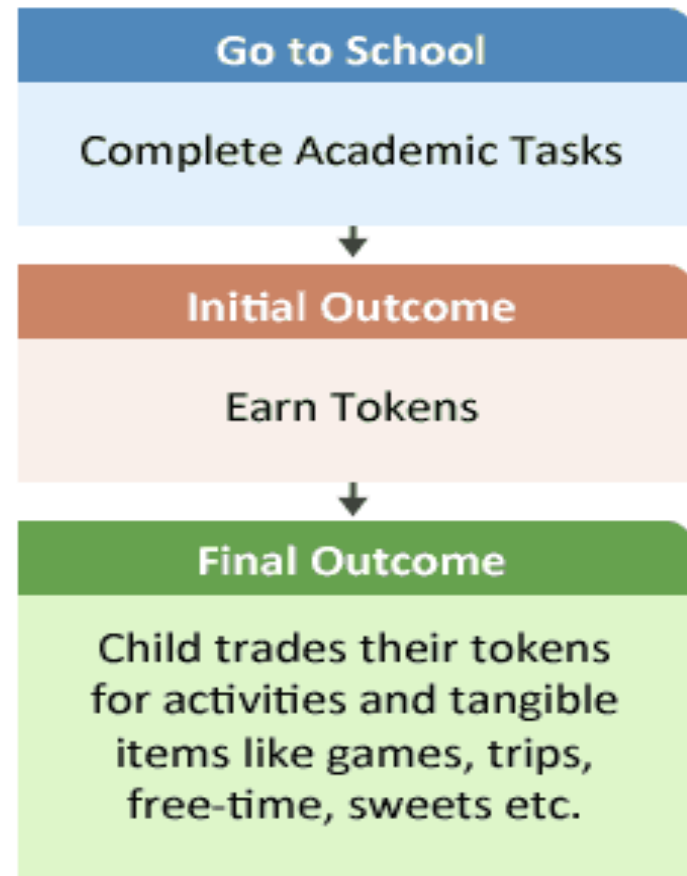
Seven Elements of a Token Economy
(Miltenberger, 2008)

1	Target Behaviours	Select the desirable target behaviours to be strengthened
2	Type of Tokens	The tokens to be used as conditioned reinforcers (e.g. poker chips, star stickers etc.).
3	Backup Reinforcers	The backup reinforcers to be exchanged for tokens (e.g. sweets, free-time etc.).
4	Reinforcement Schedule	A reinforcement schedule for token delivery (e.g. reinforcement for every correct response).
5	Exchange Criterion	How many tokens are needed to be exchanged for the backup reinforcers.
6	Time/Place for Exchange	A time and place for exchanging tokens for backup reinforcers.
7	Response Cost*	A penalty or fine where tokens are taken away for engaging in inappropriate behaviours.

*A response cost is not always used. See Cooper, Heron, and Heward (2007, p. 370)

Self Management & Self Direct Behavior:

- It Involve psychologists being willing to share their knowledge so that consumers/ clients can increasingly lead self-directed lives and not be dependent on experts.

- Therapist teach clients skills that they will need to manage their own lives effectively

- Clients have a direct role of their own treatment; techniques aimed at self-change tend to increase involvement and commitment to their own treatment.

- Self management strategies include but limited to, self monitoring, self reward, self contracting (Premack P.), self as a model etc.

- combination of self management characteristics: engage regularly over a period of time, client make self evaluation, use self reinforcement and a degree of environmental support.

Skinner says that there are 5 main obstacles in learning:

- People have a fear of failure.
- There is a lack of directions.
- There is also a lack of clarity in the direction.
- Positive reinforcement is not used enough.
- The task is not broken down into small enough steps.
- Skinner suggests that with all of the obstacles out of the way any age-appropriate skill can be taught using his 5 principles:
- 1) Have small steps 2) Work from most simple to most complex tasks 3) Repeat the directions as many times as possible 4) Give immediate feedback 5) Give positive reinforcement.

Strategy	Definition	Behavioral Mechanism	Example
Self-Monitoring	Systematically observing and recording one's own behavior	Increases stimulus control and response awareness; makes contingencies clear	Tracking food intake or smoking frequency in a diary
Goal Setting	Setting clear, specific, measurable objectives: specific, measurable, achievable, relevant, and time-bound (SMART)	Rule-governed behavior; goals act as discriminative stimuli	"I will study 45 minutes before checking my phone"
Self-Reinforcement	Rewarding oneself after performing a desired behavior	Positive reinforcement (operant conditioning)	Watching a movie only after finishing a project
Stimulus Control	Structuring environment to cue or block behaviors	Discriminative stimuli signal when reinforcement is available	Removing junk food; setting phone on "do not disturb" while studying
Behavioral Contracts	Written agreements specifying behavior targets and consequences	Combines rule-governed behavior with arranged reinforcement contingencies	A contract to exercise 3x a week with rewards/ punishments
Shaping / Successive Approximations	Reinforcing small steps toward the target behavior	Differential reinforcement of closer approximations	Increasing running distance gradually (1 km → 2 km → 5 km)

Recent Research

- Applied Behavioral Analysis (Kerr & Nelson, 2010)

- ABA provides a framework for the systematic and replicable application of behavioral principles **to change socially significant behavior to a meaningful degree in applied or natural settings.**

- only model considered to have a strong evidence-base (Alberto & Troutman, 2013)

APPLIED BEHAVIOUR ANALYSIS

The ultimate goal of applied behavior analysis (ABA) is to establish and enhance socially important behaviours.

The range of behaviours addressed by ABA is broad and deep

FOR EXAMPLE

- Having a conversation with a friend
- Learning to cross a street safely
- Interviewing for a job
- Making a lunch

APPLIED

Interventions based on ABA address behaviours that are important to the person. ABA focusses on changing behaviours that are socially significant.

BEHAVIOUR

The word 'behaviour' is used in many different ways. Within ABA, behaviour is anything a person <u>says, does, thinks</u> or <u>feels</u>. The focus is on behaviour is measurable and observable.

ANALYSIS

A well designed plan that has <u>specific goals and objectives</u>, strategies to meet the goals and objectives, and ongoing data collection to show the intervention was actually responsible for the behaviour change. Plans must include generalisation and maintenance of treatment gains.

ABA is a scientific approach to understanding behaviour. ABA refers to a set of principles that focus on how learning takes place. That is, <u>the interaction of between the behaviour and environment is key to effective behaviour change.</u>

Positive Behavior Support(PBS) based on ABA.

- PBS uses educational methods to expand an individual's behavior repertoire. Methods to redesign an individual's living environment to enhance quality of life, and minimize problem behavior.
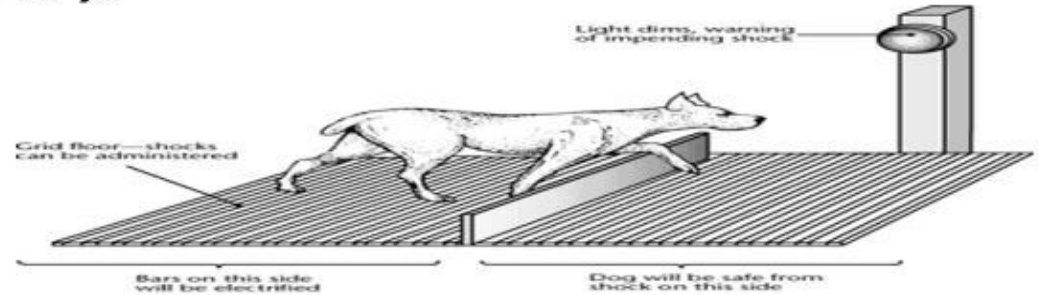
- **Learned helplessness** is a term specifying an organism learning to accept and endure unpleasant stimuli, and unwilling to avoid them, even when it is avoidable. (Seligman, 1972)
- **Optimism like helplessness is also learned via social learning**, and thus can be cultivated.
- Seligman: **ABCDE model** –How to develop Optimism
- **Adversity**– This is the event that causes stress.
- **Belief**– This is how a person interprets the event
- **Consequence**– The resulting action from the belief caused by the adversity.
- **Disputation**– Using evidence to challenge negative thoughts from A-C.
- **Energizing**– Once a person is able to condition themselves into positive thoughts and behaviors in response to A, B-D will eventually lead to a person feeling more energized.
- Computer assisted instructions
- Biofeedback
- The role of reward delay in impulsiveness (immediate effect vs. delayed effect- e.g. smokers) and in Procrastination.

Learned Helplessness — Martin Seligman

- Dogs in electrified cage at first not able to escape the impending shock.
- Later, all they had to do was cross to the other side but they didn't even try.

•The dogs had learned they were "helpless" to avoid the shock and just sat there and took it without trying to escape.

Light dims, warning of impending shock

Grid floor—shocks can be administered

Bars on this side will be electrified

Dog will be safe from shock on this side

LEARNED HELPLESSNESS

uncontrollable bad events

perceived lack of control

generalized helpless behavior

Learned helplessness: the passive resignation produced by repeated exposure to negative events that are perceived to be unavoidable: "we can't change the course of negative events, failure is inevitable and insurmountable."

Learned helplessness is about responses to failure (not to success)
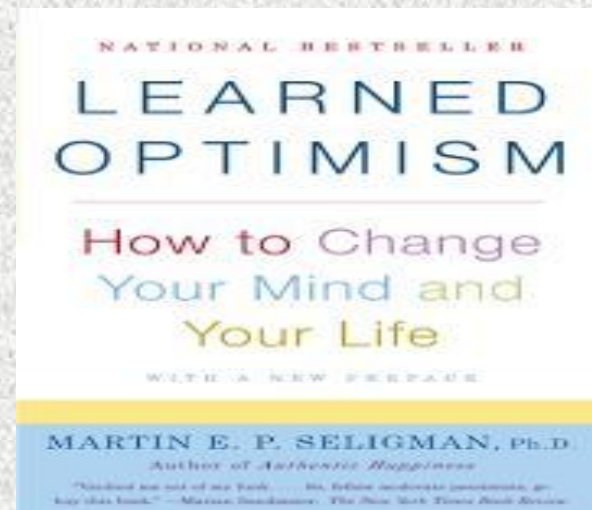*Learned helplessness: a control problem, not a competence problem*

Adversity: Start by describing a recent experience of adversity. Be as specific and factual as possible in your description.

Belief: Then, write down all the thoughts running through your mind while thinking about this adverse experience. Record the exact sentences.

Consequence: Now, consider the impact of these beliefs on your feelings and on your behavior.

Disputation: It's time to put your beliefs into perspective. You can either find a piece of evidence that disproves the negative belief or an alternative view of the belief.

Energization: Use the newfound energy from the disputation step to cultivate a more positive outlook on the challenge you are facing. Consider the progress you have made, and how this exercise has helped you better manage your negative beliefs.

ABCDE OF LEARNED OPTIMISM

ADVERSITY   BELIEF   CONSEQUENCE

DISPUTATION   ENERGIZATION

NATIONAL BESTSELLER

LEARNED OPTIMISM

How to Change Your Mind and Your Life

WITH A NEW PREFACE

MARTIN E. P. SELIGMAN, Ph.D
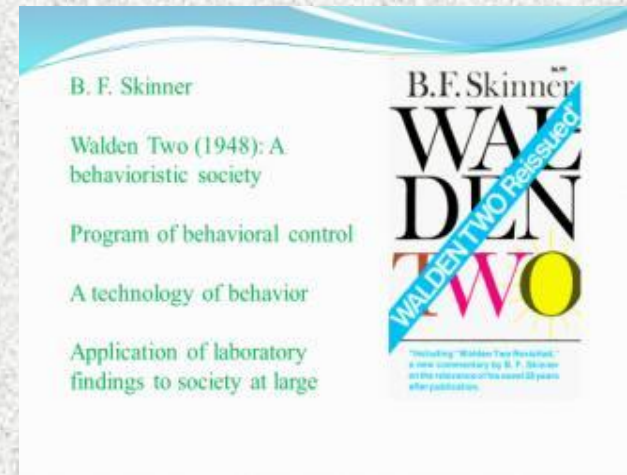Author of *Authentic Happiness*

Walden II (1948)– Described Operant Principles (Book)

- Contingency management
- Child rearing practices
- Cultural engineering
- Technology of behavior
- A fictional utopian community called Walden Two, where behavioral engineering and scientific principles are used to create a society that aims to maximize human happiness and well-being.

B. F. Skinner

Walden Two (1948): A behavioristic society

Program of behavioral control

A technology of behavior

Application of laboratory findings to society at large

B.F. Skinner
WALDEN TWO

- Behaviorism: In Walden Two, behaviorism is used to shape individuals' actions and attitudes to achieve a harmonious society.

- Utopian Experiment: A social experiment in which a group of people choose to live in a community designed to optimize human behavior and happiness. The community emphasizes communal living, minimalism, and shared responsibilities.

- Planned Environment: Environment that encourages positive behaviors and discourages negative ones. The physical layout, work assignments, and daily routines are all planned to promote efficiency and well-being.

- **Positive Reinforcement:** This approach is used to shape behavior and create a culture of cooperation and productivity.

- **Elimination of Unwanted Behaviors:** Careful engineering of the environment and the application of behavioral principles. This leads to a society where conflict, crime, and other negative behaviors are minimized.

- **Education and Child Rearing:** Children are educated through experiential learning and are encouraged to explore their interests while being guided by behavioral principles.

- **Work and Leisure:** People engage in productive activities that align with their skills and interests, and they also have ample time for relaxation and recreational pursuits.

- **Ethical Questions:** The book raises ethical concerns about the extent to which individual **freedom and autonomy are sacrificed** in the pursuit of a utopian society.

- **Critique of Traditional Society:** Skinner critiques various aspects of conventional societies, including **consumerism, social hierarchies**, and the lack of emphasis on scientific approaches to improving human life.

- **Experimentation and Adaptation**: This reflects Skinner's belief in the power of science and experimentation to shape human behavior and society. It is a thought-provoking exploration of the relationship between **individual freedom, societal harmony, and the role of science in shaping human behavior and well-being.**

Beyond Freedom and dignity (2nd Book)
**-free will & moral autonomy (1971)**
1. Critique of Traditional Concepts
2. Environmental Determinism: He asserts that human behavior is primarily shaped by external factors, such as environmental influences, reinforcement, and conditioning, rather than by innate characteristics or free will.
3. Operant Conditioning: He suggests that behavior can be shaped and controlled through appropriate reinforcement techniques, leading to a more functional and desirable society.
4. Technological Solutions: Skinner proposes that society should focus on using behavioral science and technology to solve social problems and improve human well-being.
5. Control of Behavior: He suggests that if society understands and applies scientific principles of behavior, it can create conditions that promote positive behaviors and reduce undesirable ones.
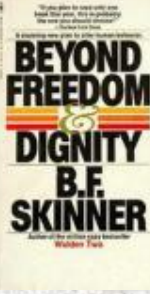
- **Ethical Considerations:** He suggests that the benefits of improving societal functioning and well-being outweigh the drawbacks of relinquishing traditional notions of freedom and dignity.

- **The Role of Language:** Skinner discusses the role of language in shaping human behavior and cognition. He proposes that language itself is a product of conditioning and reinforcement, and its use contributes to the complexity of human behavior.

- **Science:** He advocates for using empirical evidence and systematic experimentation to develop effective interventions.

- **Social Engineering: applying behavioral science to societal engineering**. Skinner acknowledges the potential dangers of misuse but believes that the potential benefits justify responsible application.

Evaluation

- Empirical Research
- Criticisms
- Excessive Generalization from
- Nonhuman (Animals) to Humans
- Radical Environmentalism
- Who Controls the Controllers
- Contributions
- Applied Value
- Scientifically Rigorous Explanation of Human Behavior
- http://www.sntp.net/behaviorism/skinner.htm
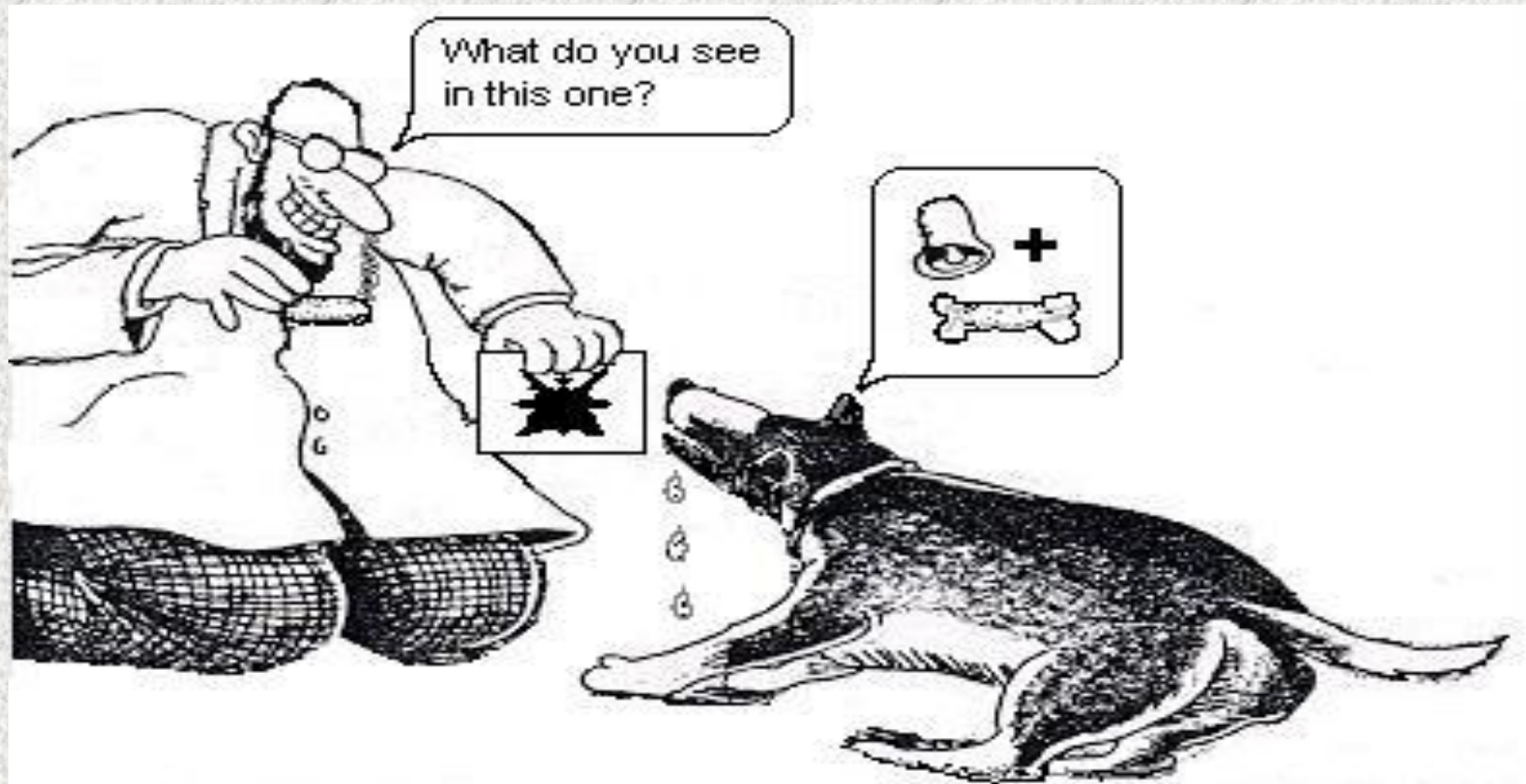- www.ship.edu/~cgboeree/skinner.html
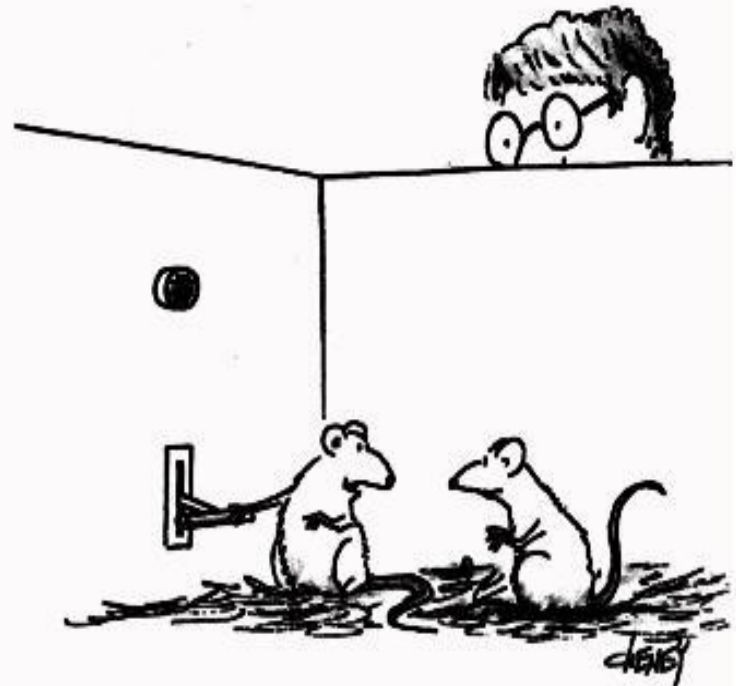
It's a rather interesting phenomenon. Every time I press this lever, that post-graduate student breathes a sigh of relief.

When Freud Met Pavlov's Dog

Thanks