Learning Process: Theories, Principles and Characteristics

(CLASS-1)

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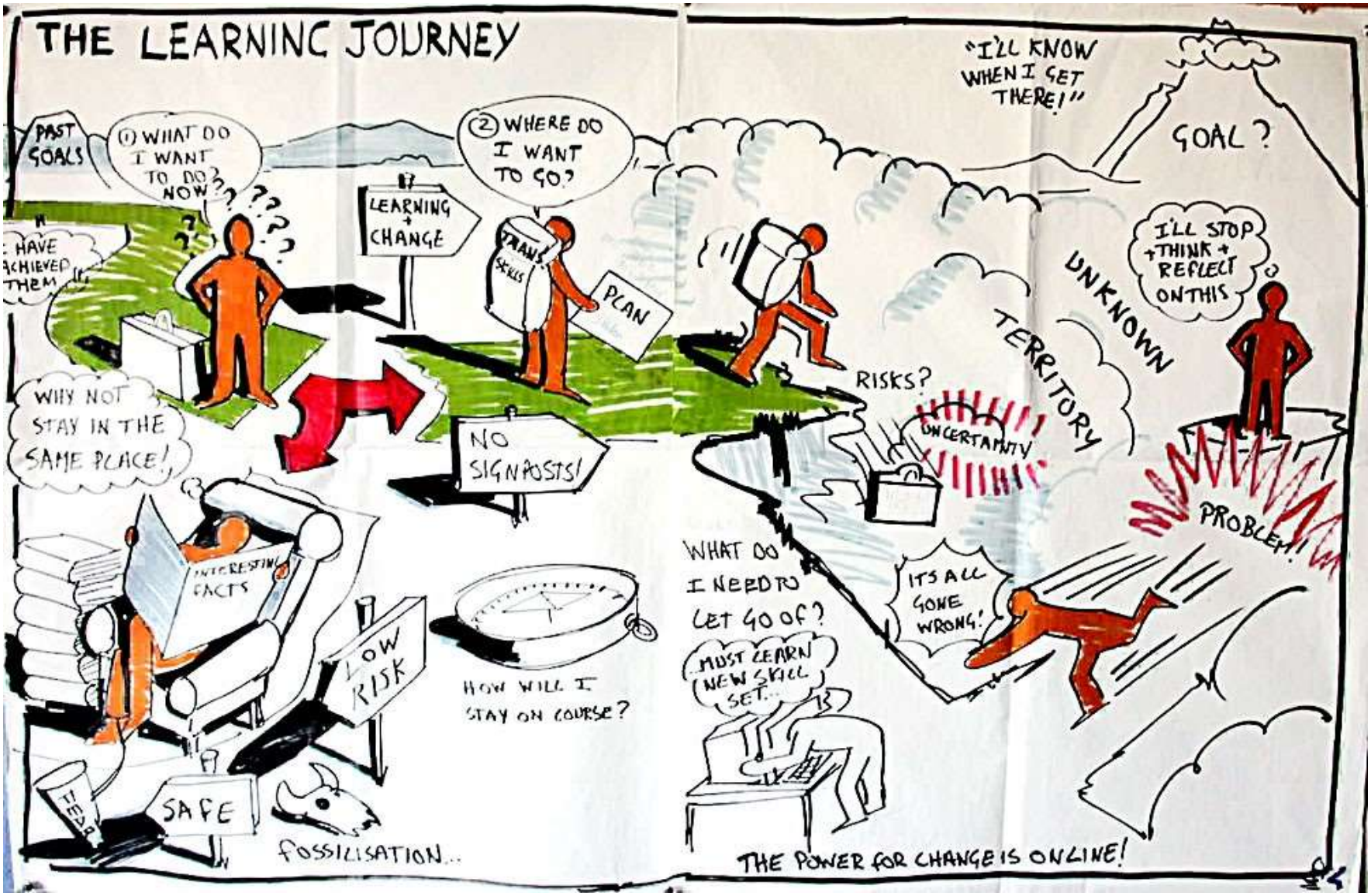

THE LEARNING JOURNEY
PAST GOALS
① WHAT DO I WANT TO DO NOW?
② WHERE DO I WANT TO GO?
LEARNING + CHANGE
TRANSFERABLE SKILLS
PLAN
"I'LL KNOW WHEN I GET THERE!"
GOAL?
I'LL STOP + THINK + REFLECT ON THIS
UNKNOWN TERRITORY
RISKS?
UNCERTAINTY
PROBLEM!!
WHY NOT STAY IN THE SAME PLACE!
NO SIGNPOSTS!
INTERESTING FACTS
LOW RISK
SAFE
FEEDBACK
FOSSILISATION...
HOW WILL I STAY ON COURSE?
WHAT DO I NEED TO LET GO OF?
MUST LEARN NEW SKILL SET...
ITS ALL GONE WRONG!
THE POWER FOR CHANGE IS ONLINE!

Definition

- **Learning is both an emotional and an intellectual process**.
- **A process** resulting in some **modification**, relatively permanent, of the way of **thinking, feeling, doing**, of the **learner.**

Importance of Learning

- By learning we change ourselves emotionally, psychologically , behaviorally to adopt healthy life-style and practices.
- Develop knowledge base, improve oneself and grow as a person.
- Learning new gets us access to new and different opportunities.
- Learning a new and appropriate skill or by developing one that links to the work and rejuvenate working life.
- New skill will influence the way we do things day to day and make doing things quicker and easier, saving time, energy and stress.
- Learning across our lives is essential for staying up to date in an ever-changing world.
- Learning new things is very important for our self-esteem.
- Trying anything different ensures we meet new people, make new friends and really enhance our social or work life.

Ten Principles of Learning (Horne & Pine,1990)

-Learning is an experience, which occurs inside the learner and is activated by the learner.

-Learning is a discovery of the personal meaning and relevance of ideas.

-Learning (Behavioral change) is a consequence of experience.

-Learning is a cooperative and collaborative process. Cooperation fosters learning.

-Learning is an evolutionary process.

-Learning is sometimes a painful process.

-One of the richest resources of learning is the learner himself.

-The process of learning is both emotional and intellectual.

-The process of problem solving and learning are highly unique and individual.

-Learning is a process of actively constructing knowledge.

Principles of Learning (Horne and Pine, 1990 in Corpuz and Salandanan, 2007)

1. Learning is an experience which occurs inside the learner and is activated by the learner. This means that learning will not take place unless the learner her/himself allows it to happen in his/her mind. It is not primarily controlled by the teacher, rather on the learners' wants, interests and motivation to learn. In real classroom setting, the teacher must engage learners in activities that are connected to their lives.

2. Learning is the discovery of the personal meaning and relevance of ideas. This is somewhat the same with principle number one. Learners can easily understand concepts if these are relevant to their needs and problems. Hence, as teachers, we must relate the lesson to the learners' needs, interests and problems.

3. Learning is a consequence of experience. In short, use experiential learning as much as possible period. Hehehe...

4. Learning is a cooperative and collaborative process. Learners will learn more if they are given chances to work together and share ideas. Make use of group activities.

5. Learning is an evolutionary process. Learning especially if this means a change in behavior, does not happen in a click. This requires time and diligence. So as teachers, be patient. Be patient. Be patient. Be patient.

6. Learning is sometimes a painful process. This means that learning requires sacrifice, hardwork, study time. Let the learners realize this okay?

7. One of the richest resources for learning is the learner him/herself. Let's not be too "centered" upon ourselves. Let's draw the discussion not only on our own experiences as teachers but on the learners' experiences as well. Listen and let the learners share their prior knowledge, stories, information, etc that can enrich the learning process. Encourage free sharing inside the classroom.

8. The process of learning is emotional as well as intellectual. Learners can't learn that much if they have something that is bothering their minds. These can be problems and worries they have either in or out of the classroom. Thus, as teachers, let us be sensitive to our students' problems. We can't teach learners with empty stomachs remember?

9. The process of problem solving and learning are highly unique and individual. Make use of different teaching strategies that can cater multiple intelligences and learning styles.

Laws of Learning

Edward Thorndike developed the first three "Laws of learning:" *readiness*, *exercise*, and *effect*. Since Thorndike set down his basic three laws in the early part of the twentieth century, five additional principles have been added: *primacy*, *recency*, *intensity*, *freedom* and *requirement*.

Readiness

Readiness implies a degree of concentration and eagerness. Individuals learn best when they are physically, mentally, and emotionally ready to learn, and do not learn well if they see no reason for learning.

Exercise

The principle of **exercise** states that those things most often repeated are best remembered. It is the basis of drill and practice. It has been proven that students learn best and retain information longer when they have meaningful practice and repetition.

Effect

The principle of **effect** is based on the emotional reaction of the student. It has a direct relationship to motivation. The principle of effect is that learning is strengthened when accompanied by a pleasant or satisfying feeling, and that learning is weakened when associated with an unpleasant feeling.

Primacy

Primacy, the state of being first, usually creates a strong and durable impression. Things learned first are usually learned easily and remain, without effort, in the mind of the student.

Recency

The principle of **recency** states that things most recently learned are best remembered. Conversely, the further a student is removed time-wise from a new fact or understanding, the more difficult it is to remember.

Intensity

The more intense the material taught, the more likely it will be retained. A sharp, clear, vivid, dramatic, or exciting learning experience teaches more than a routine or boring experience.

Freedom

The principle of **freedom** states that things freely learned are best learned. Conversely, the further a student is coerced, the more difficult is for him to learn, assimilate and implement what is learned.

Requirement

The law of requirement states that **"we must have something to obtain or do something."** It can be an ability, skill, instrument or anything that may help us to learn or gain something.

The characteristics of learning

Learning is-

- Producing a **behavioral change** in the learner
- Leading to a **relatively permanent change** that is also gradual,
- **Adaptable and selective**
- Resulting from **practice, repetitions and experience**
- **Not directly observable**

Conditions that facilitate learning

An Atmosphere that:

-Encourages people to be active.

-Facilitates the individual's discovery of the personal meaning of ideas.

-Emphasizes the uniquely personal and subjective nature of learning. In which difference is good and desirable.

-Consistently recognizes the right to make mistakes.

-Tolerates ambiguity.

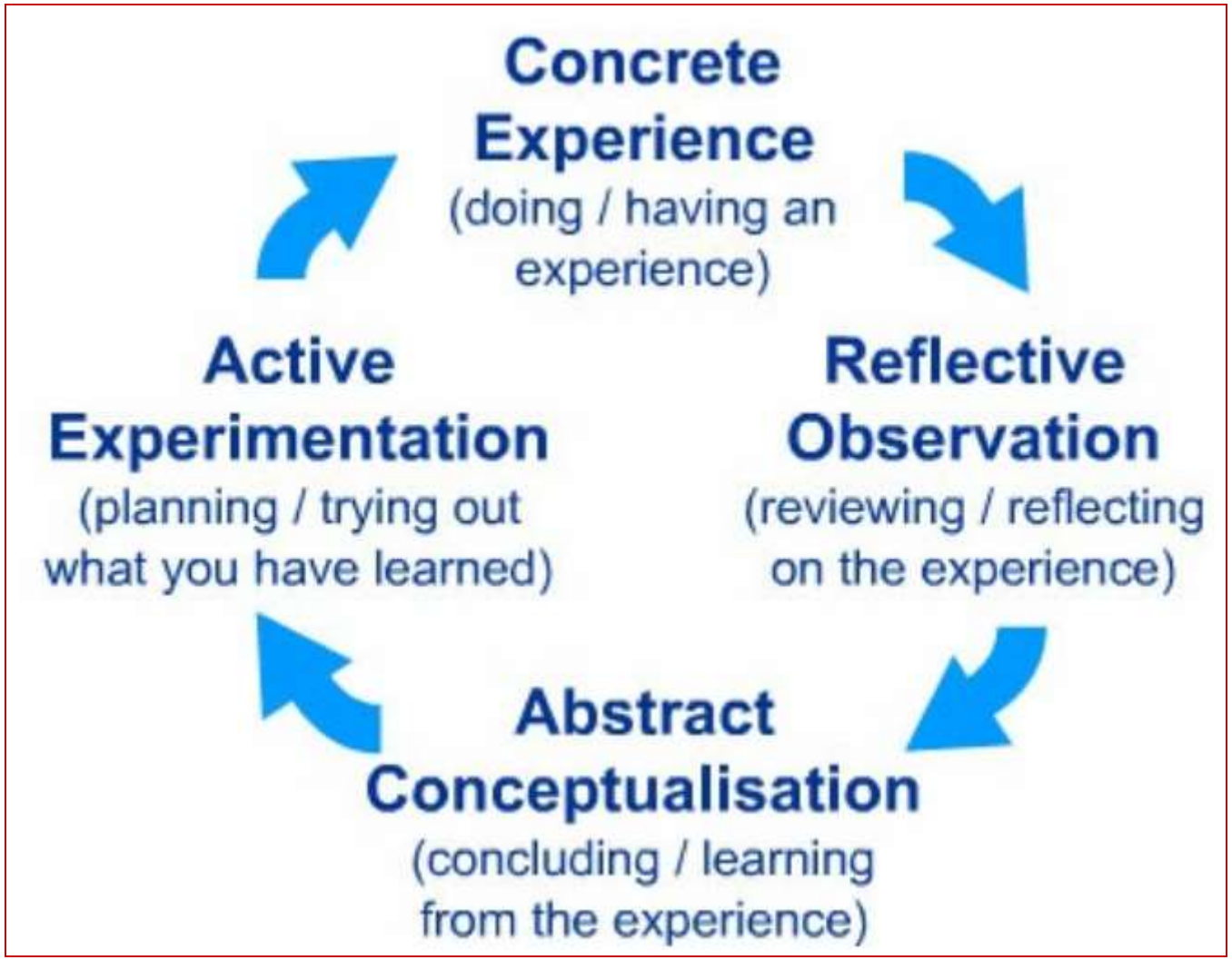
-In which evaluation is a cooperative process with emphasis on self-evaluation.

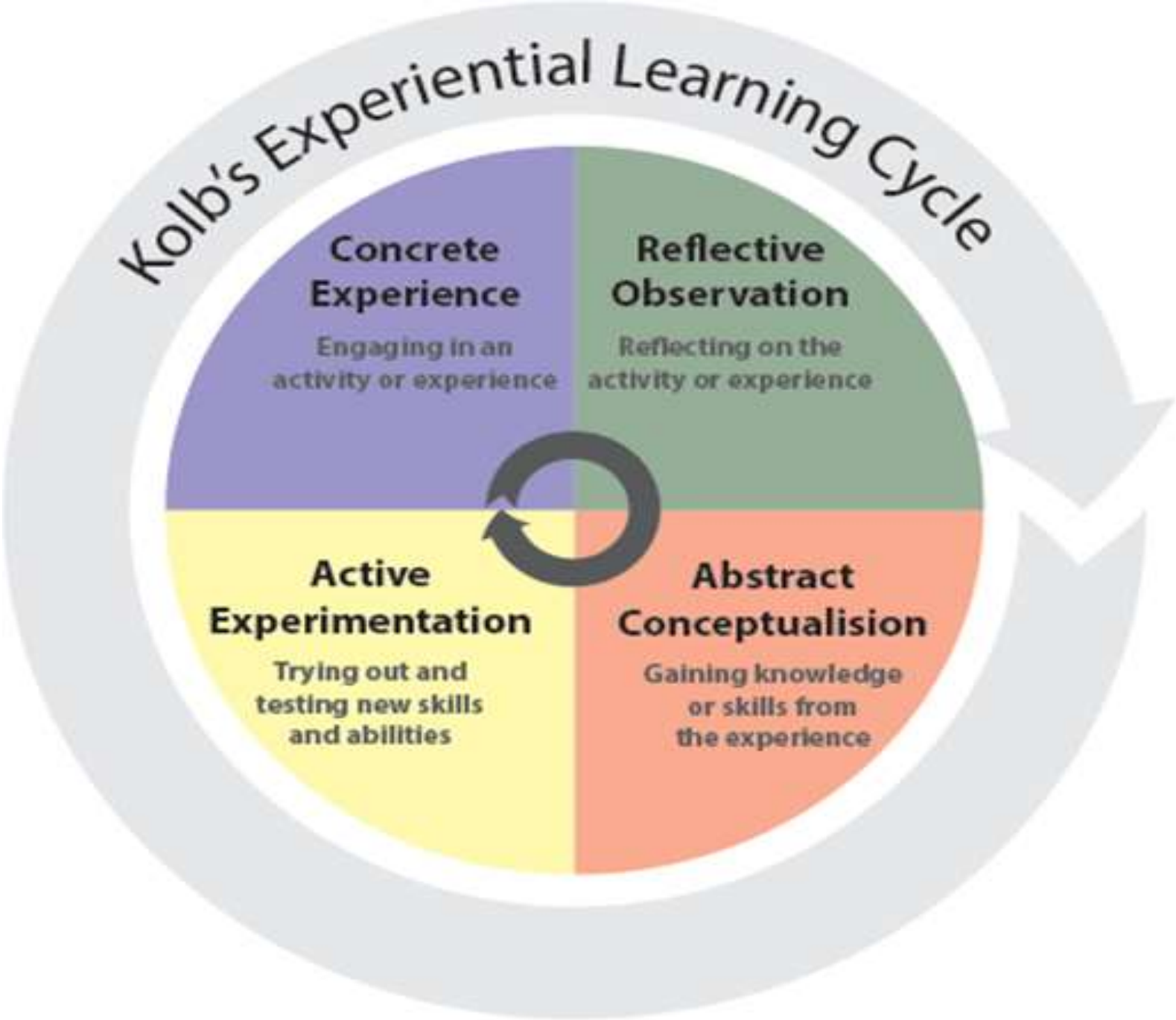
-Encourages openness of self rather than concealment of self.

-In which people are encouraged to trust in themselves as well as in external sources.
-In which people feel they are respected.
-In which people feel they are accepted.
-Which permits confrontation.
-The most effective teacher creates conditions by which he loses the teaching function. (Rogers 1951:p 122)

Learning Process:

Kolb's (1984) 'Experiential Learning Style Theory' is typically represented by a four STAGES learning cycle in which the learner 'touches all the bases'.




Kolb's Experiential Learning Cycle
Concrete Experience
Engaging in an activity or experience
Reflective Observation
Reflecting on the activity or experience
Active Experimentation
Trying out and testing new skills and abilities
Abstract Conceptualision
Gaining knowledge or skills from the experience

Four Learning Styles

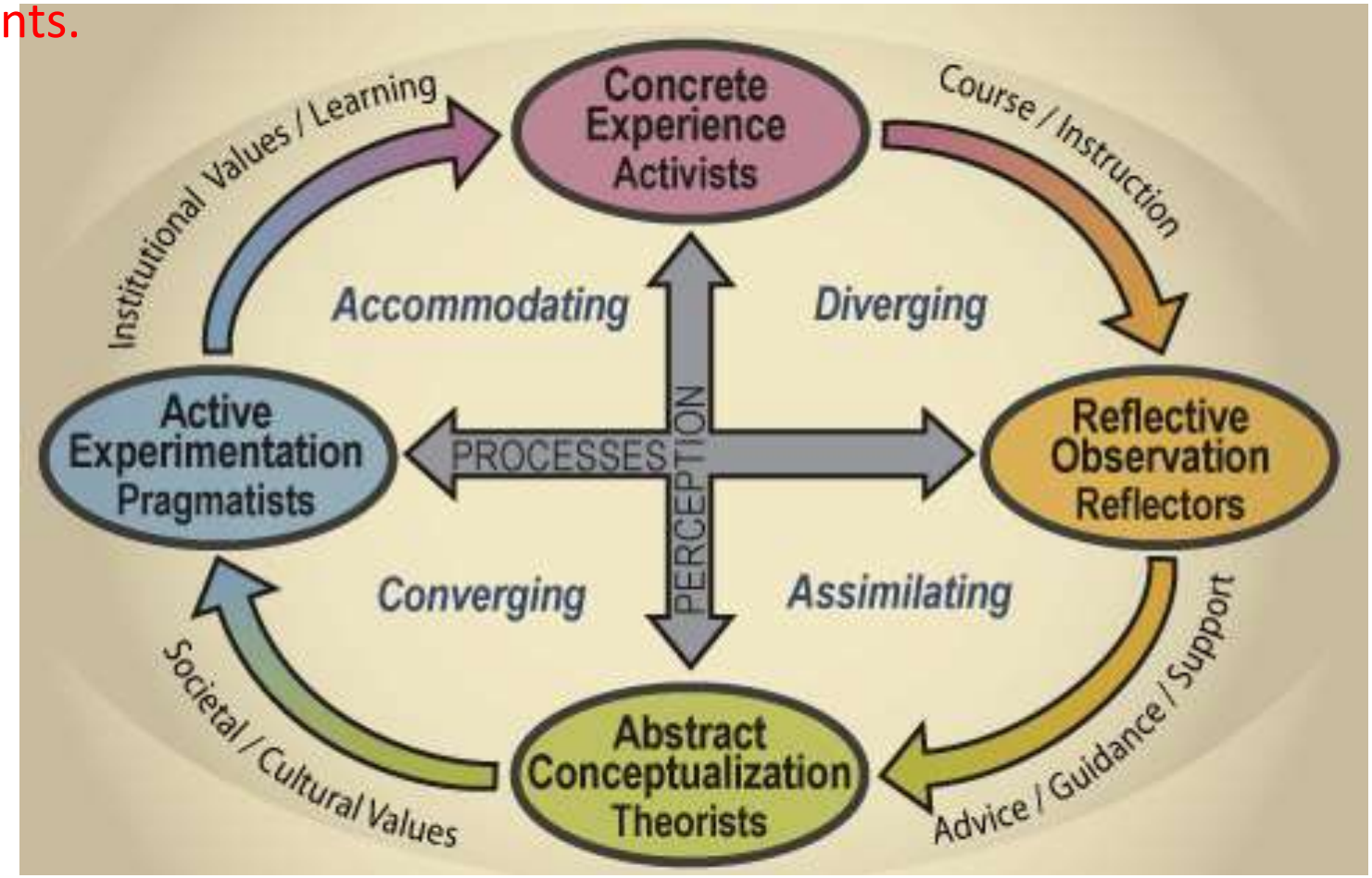
- **Concrete experience (Feeling)**: A new experience of situation is encountered, or a reinterpretation of existing experience.
- **Reflective observation (Watching)**: Any inconsistencies between past experience and understanding of new experience.
- **Abstract conceptualization (Thinking)**: Creating theories to explain observations. Gives rise to a new idea, or a modification of an existing abstract concept.
- **Active experimentation (Doing)**: The learner applies them to the world around them to see what results. Using new theories to solve problems, make decisions.

Kolb identified two separate **learning activities** that occur in the learning cycle:

-Perception (the way we take-in information, our emotional response, or how we think or feel about it) and

-Processing (how we deal with information, how we approach a task).

This is represented on the diagram as two axis dividing the cycle into four quadrants.



From this continuum, Kolb developed **four learning styles**:

-Diverger,

-Assimilator,

-Converger, and

-Accommodator.

Although Kolb thought of these learning styles as a continuum that one moves through over time, usually people come to prefer, and rely on, one style above the others.

2 x 2 Matrix

	Doing (Active Experimentation - AE)	Watching (Reflective Observation - RO)
Feeling (Concrete Experience - CE)	**Accommodating (CE/AE)**	**Diverging (CE/RO)**
Thinking (Abstract Conceptualization - AC)	**Converging (AC/AE)**	**Assimilating (AC/RO)**

Accommodators - (Concrete experience/Active experimenter)

Feeling-Doing:

These students are motivated by the question, "What would happen if I did this?" They look for significance in the learning experience and consider what they can do, as well as what others have done previously. These learners are good with complexity and are able to see relationships among aspects of a system.

These teaching methods would work well for an Accommodator:

- Anything that encourages independent discovery is probably the most desirable.
- Accommodators prefer to be active participants in their learning.
- The instructors working with this type of student might expect devil's advocate type questions, such as "What if?" and "Why not?"

The Accommodating learning style is 'hands-on', and relies on intuition rather than logic.

They commonly act on 'gut' instinct rather than logical analysis. People with an accommodating learning style will tend to rely on others for information than carry out their own analysis. This learning style is prevalent within the general population.

Notes:

Intuition: Ability to understand something immediately, without the need for conscious reasoning.

Logic: Reasoning conducted or assessed according to strict principles of validity.

Assimilator - (Abstract conceptualization/Reflective observer)

Thinking-Watching:

These students are motivated to answer the question, "What is there to know?" They like accurate, organized delivery of information and they tend to respect the knowledge of the expert. They like to get the right answer to the problem.

Instructional methods that suit Assimilators include:

-Lecture method (or video/audio presentation)--followed by a demonstration.

-Exploration of a subject in a lab, following a prepared tutorial and for which answers should be provided.

-They will carefully follow prepared exercises.

The Assimilating learning preference is for a concise, logical approach. Ideas and concepts are more important than people. These people require good clear explanation rather than practical opportunity. They excel at understanding wide-ranging information and organizing it in a clear logical format.

People with this style are more attracted to logically sound theories than approaches based on practical value.

This learning style is important for effectiveness in information and science careers. In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through.

Convergers - (Abstract conceptualization/Active experimenter)

Thinking-Doing:

These students are motivated to discover the "how" of a situation. Application and usefulness of information is increased by understanding detailed information about the system's operation.

Instructional methods that suit Convergers include:

- Instruction should be interactive, not passive.
- Computer-assisted instruction is a possibility.
- Problem sets or workbooks can be provided for students to explore.

People with a converging learning style can solve problems and will use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects. People with a converging learning style are best at finding practical uses for ideas and theories.

People with a converging style like to experiment with new ideas, to simulate, and to work with practical applications.

Divergers (Reflective observer/Concrete Experience)

Feeling-Watching:

These students are motivated to discover the "why" of a situation. They like to reason from concrete, specific information and to explore what a system has to offer, and they prefer to have information presented to them in a detailed, systematic, reasoned manner.

Instructional methods that suit Divergers include:

- Lecture method--focusing on specifics such as the strengths, weaknesses and uses of a system.
- Hands-on exploration of a system.

The instructor would be best to mingle with the students, answering questions and making suggestions.

These people are able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems.

Kolb called this style 'diverging' because these people perform better in situations that require ideas-generation, for example, brainstorming.

They are interested in people, tend to be imaginative and emotional, and tend to be strong in the arts. People with the diverging style prefer to work in groups, to listen with an open mind and to receive personal feedback.

Types of Learning (As in K. Park)

- Affective Learning (Attitude)
- Cognitive Learning (Knowledge)
- Psychomotor Learning (Skill)

Cognitive: Mental skills (knowledge). Affective: Growth in feelings or emotional areas (attitude or self). Psychomotor: Manual or physical skills (skills)

Learning Domain

COGNITIVE	AFFECTIVE	PSYCHOMOTOR
Includes all intellectual behaviors and requires thinking	Deals with expression of feelings and acceptance of attitudes, opinions, or values	Involves acquiring skills that require integration of mental and muscular activity

Cognitive Domain- emphasizes intellectual learning and problem solving activities and is much concern with knowledge comprehension and analysis.

Affective Domain-involves behavior and educational objectives that have some emotional overtones that deals with attitudes, values, interests, beliefs and appreciation.

Psychomotor Domain- deals with motor and manipulative skills

Theories of Learning

MAIN THEORIES

1. Behaviorism
2. Cognitivism
3. Social Learning Theory
4. Social Constructivism
5. Multiple Intelligences
6. Brain-Based Learning

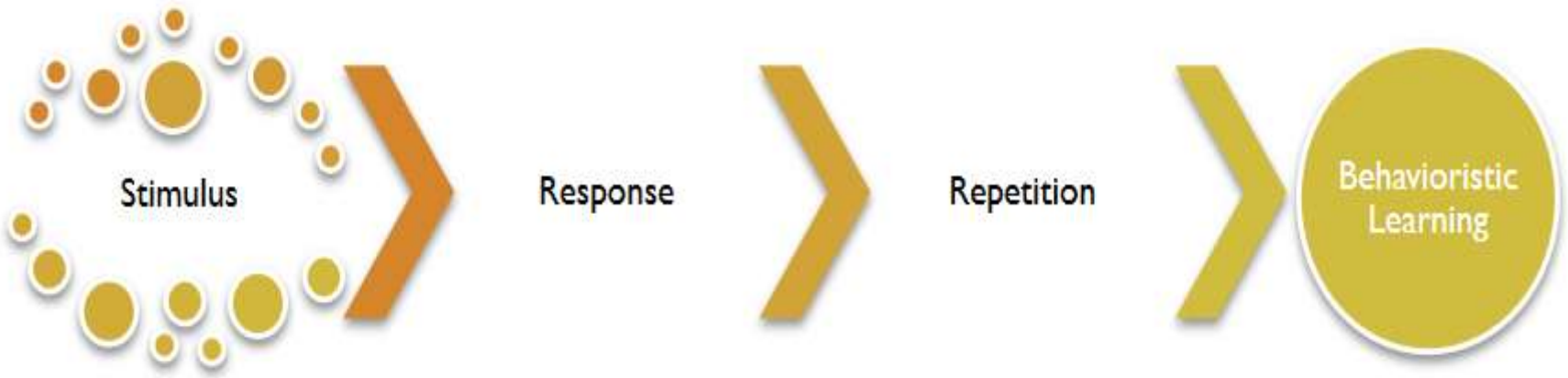
Behaviorism

Definition

Behaviorism, also known as behavioral **psychology**, is a theory of learning based on the idea that all behaviors are acquired through conditioning. Conditioning occurs through interaction with the environment. **Behaviorists** believe that our responses to environmental stimuli shape our actions.

Concept:

-Behaviorism equates learning with behaviors that can be observed and measured.
-Reinforcement is key to successful transfer through behavioristic learning.
-Strong emphasis on the stimulus, the response and the relationship between them
- It does not include the study of emotions or motives.



- Pavlov's Dogs

Behaviorism

Terms

- Stimulus – input from the environment
- Response – a behavior emitted by an organism
- Conditioned – something learned

Behavioral Learning Theory

There are three types of behavioral learning theories:

- **Contiguity theory**
- **Classical or respondent conditioning theory**
- **Operant or instrumental conditioning theory**

Contiguity Theory

Contiguity theory is based on the work of E. R. Guthrie.

It proposes that any stimulus and response connected in time and/or space will tend to be associated.

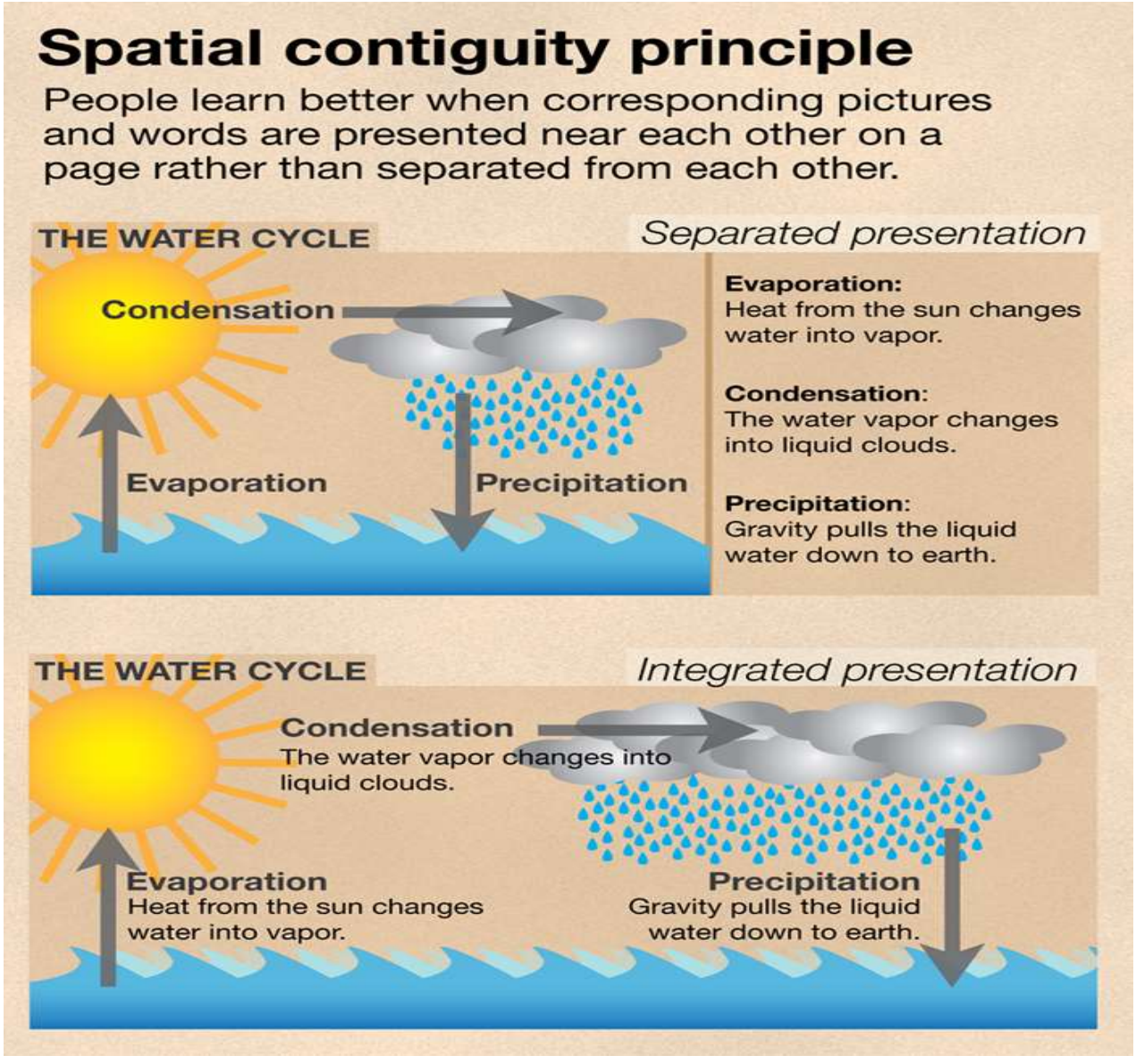
Contiguity Theory (In Psychology)

Examples:

- **A baseball player wearing a certain pair of socks on the day he hits three home runs associates wearing the socks and hitting home runs.**

- **A student making a good grade on a test after trying a new study technique makes an association between the stimulus of studying and the response of getting a good grade.**

Contiguity Theory (In Learning):



Classical Conditioning Theory

Pavlov was studying the digestive system of dogs and became intrigued with his observation that dogs deprived of food began to salivate when one of his assistants walked into the room.

He began to investigate this phenomena and established the laws of classical conditioning.

Basic- ‘Classical Conditioning’

In classical conditioning, we learn to associate something new with something that happens automatically.

The Principles of Classical Conditioning

1. **Unconditioned Stimulus (UCS)**
   The unconditioned stimulus is the one that automatically triggers a response.

2. **Unconditioned Response (UCR)**
   The unconditioned response is the unintentional reaction that occurs when a person is triggered by the unconditioned stimulus.

3. **Conditioned Stimulus (CS)**
   The conditioned stimulus is the neutral signal that, after being paired with the unconditioned stimulus, triggers the conditioned response.

4. **Conditioned Response (CR)**
   The conditioned response is the learned response to the neutral signal.

CLASSICAL (PAVLOVIAN) CONDITIONING

BEFORE

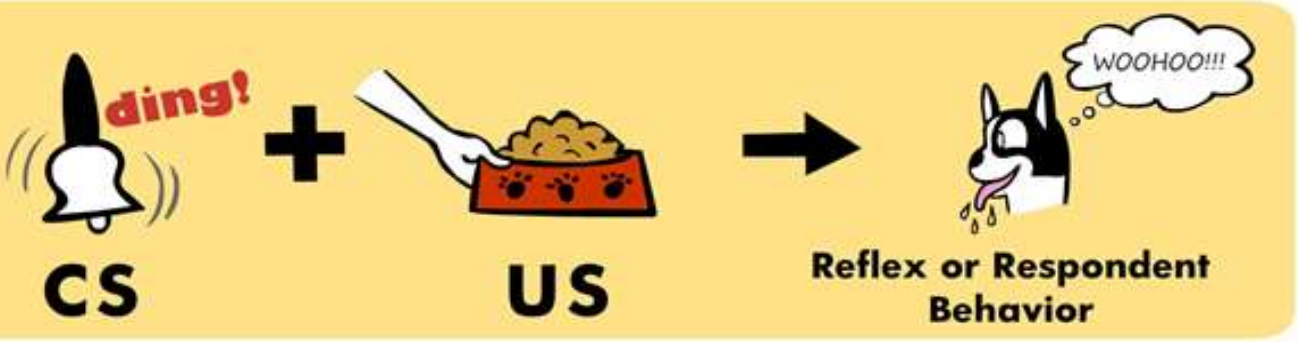
CS = Conditional Stimulus
Neutral signal
No emotional meaning

no response

US = Unconditioned Stimulus
Trigger for hardwired emotions related to survival

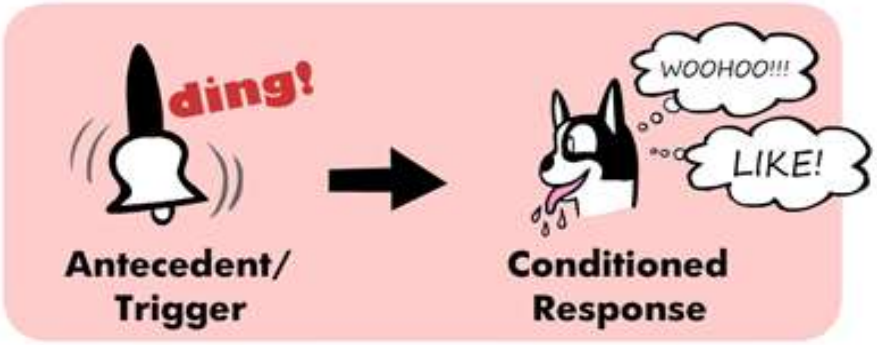
reflex = salivation

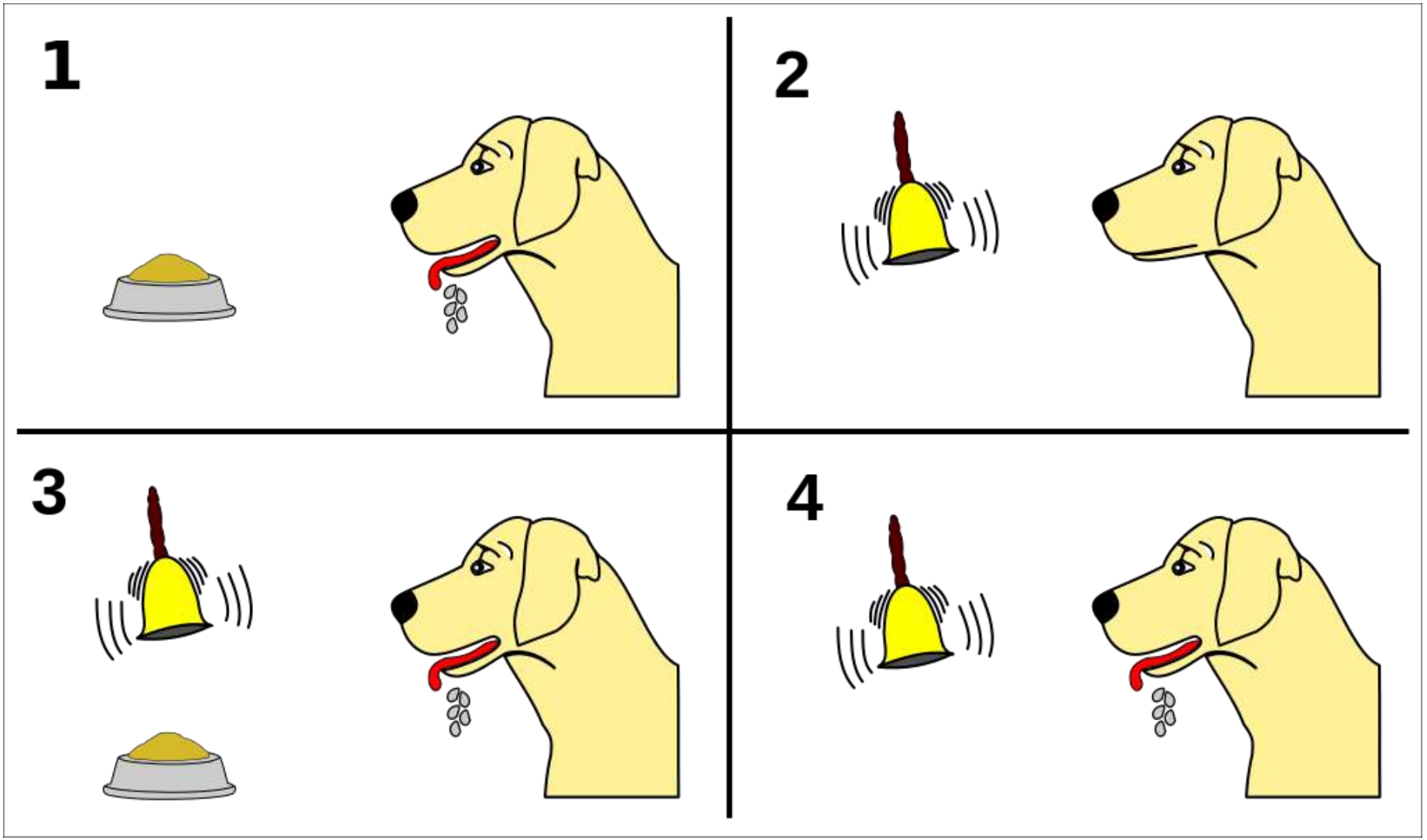
DURING



repeat many times

AFTER

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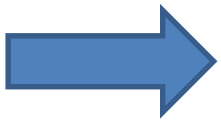
Classical Conditioning Theory

Example:

- **Child is harassed at school**
- **Child feels bad when harassed**
- **Child associates being harassed and school**
- **Child begins to feel bad when she thinks of school**
- **Result is: CHILD DOES NOT WANT TO GO TO SCHOOL**



In order to extinguish the associated of feeling bad and thinking of school, the connection between school and being harassed must be broken.

Health Education through ‘LEARNING’ Process

Unconditioned Stimulus

Unconditioned Response

We need to
Pair these two stimuli
To change response

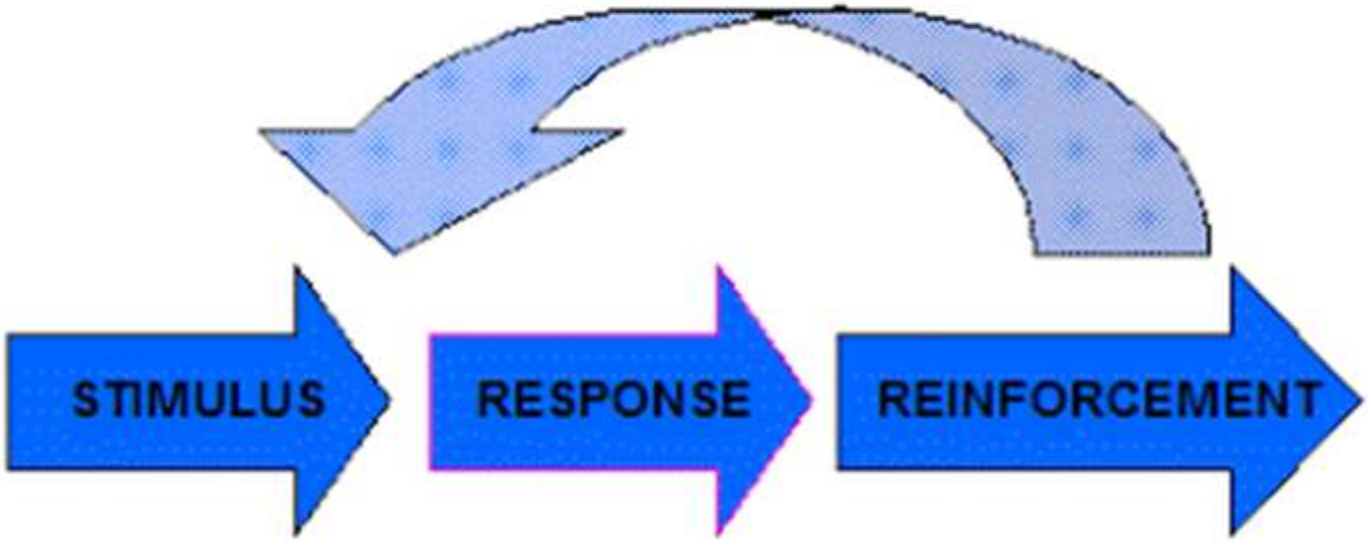
Neutral Stimulus
(After repeated training, becomes Conditioned Stimulus)

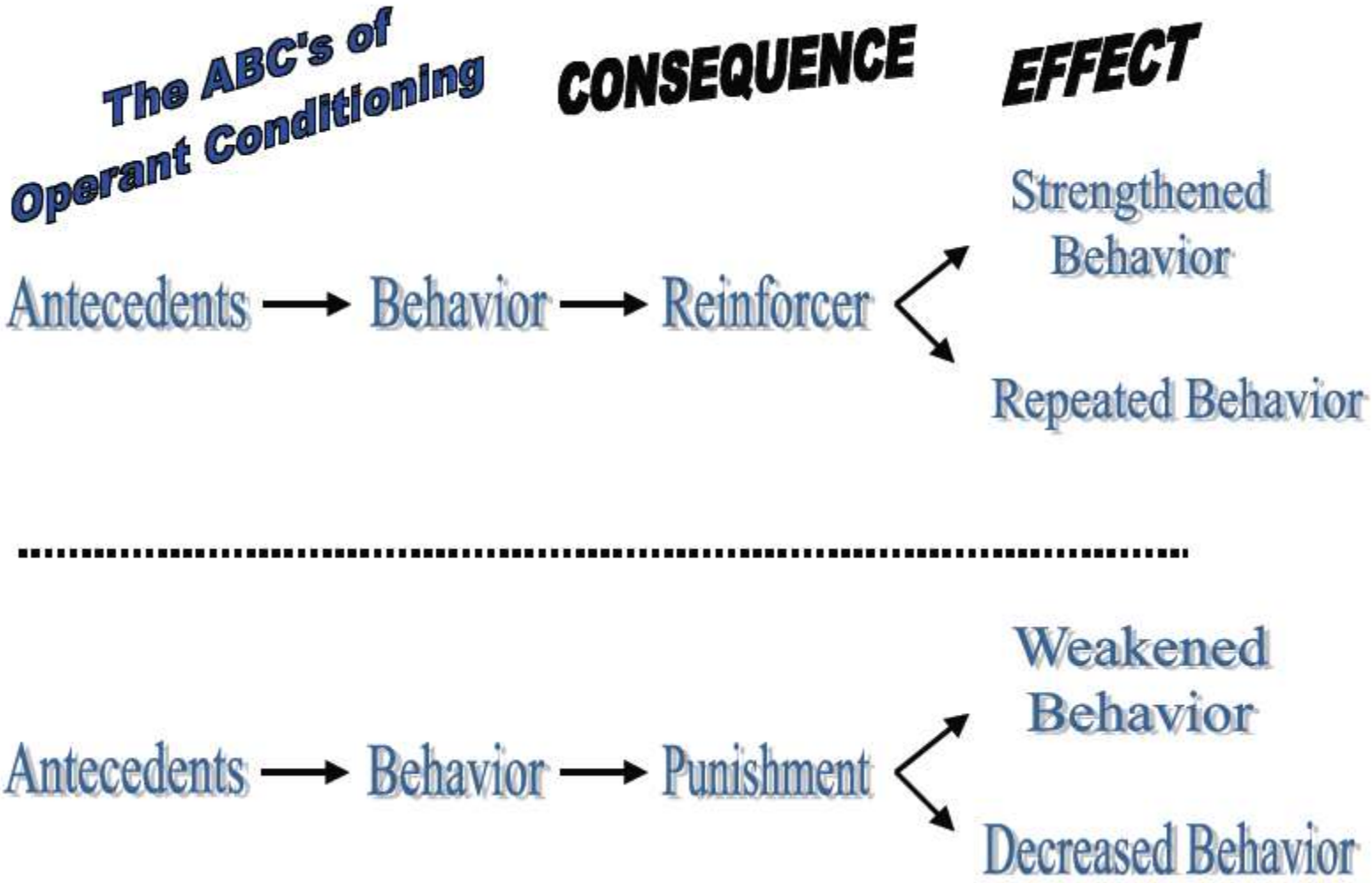
Conditioned Response

Operant Conditioning

- **Operant conditioning is the study of the impact of consequences on behavior.**
- **With operant conditioning we are dealing with voluntary behaviors.**
- If you do something and it leads to good consequences, you do it more.
- If you do something and it leads to bad consequences, you do it less.

Behavioral Theory: Operant Conditioning




The ABC's of Operant Conditioning
CONSEQUENCE
EFFECT
Antecedents
Behavior
Reinforcer
Strengthened Behavior
Repeated Behavior
Antecedents
Behavior
Punishment
Weakened Behavior
Decreased Behavior

Example:

You put $1.25 into a Pepsi machine

You hear the machine work, but nothing comes out. Frustrated, you slam your palm into the sides of the machine.

The pop drops. You get a tasty treat.

Next time it happens...do you hit again?

A dog is bored. It barks and barks. The owner comes into the room (happens to be yelling and swinging a shoe, but that doesn't matter). The dog now has something to do (run and hide) and gets attention from its owner.

Reinforced Response: "bark to get attention."

Reinforcement vs. Punishment

- If the consequences after a response *increase* the likelihood of the response happening again
  - It's reinforcement

- If the consequences after a response *decrease* the likelihood of the response happening again
  - It's punishment

Little Johnny finds a paperclip. He sees a little man's surprised face on the wall. He looks hungry!

Playing, Johnny decides to poke the man in the eyes. *BZZZT!* The wall just punished a boy. Johnny will never poke a power outlet again

Two Types of Reinforcement

1. Positive Reinforcement – add something desirable
2. Negative Reinforcement – remove something aversive

Two Types of Punishment

1. Positive Punishment – add something aversive
2. Negative Punishment – remove something desirable

Positive Punishment- Example:

1. Positive Punishment – add something aversive

A child is writing on the walls with marker. The parent smacks the child's hand. The child is less likely to write on the walls again.

Negative Punishment- Example:

2. Negative Punishment – remove something desirable

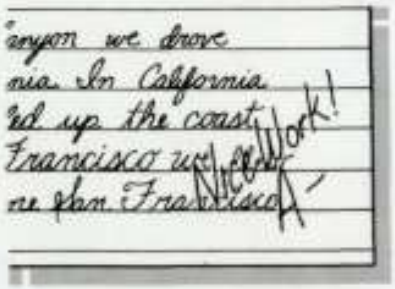
A child is writing on the walls with marker. The parent puts the child in time out. The child is less likely to write on the walls again.

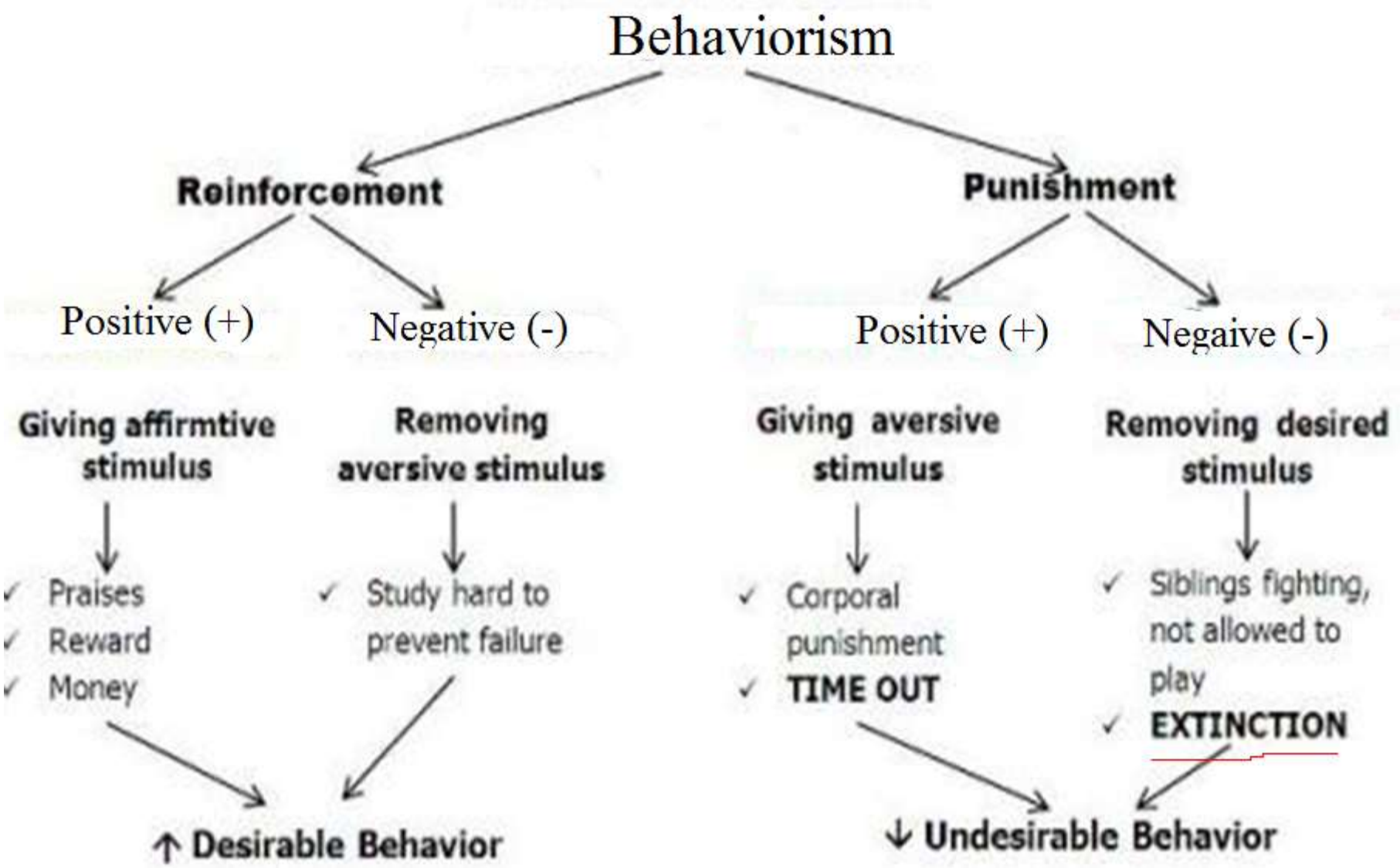
Note: Time out means "an imposed temporary suspension of activities, especially the separation of a misbehaving child from the others as a disciplinary measure."

Response to Reinforcement and Punishment

	Positive	Negative
Reinforcement	Add desirable, Increase response	Remove aversive, Increase response
Punishment	Add aversive, Decrease response	Remove desirable, Decrease response

Kinds of Reinforcement and Punishment

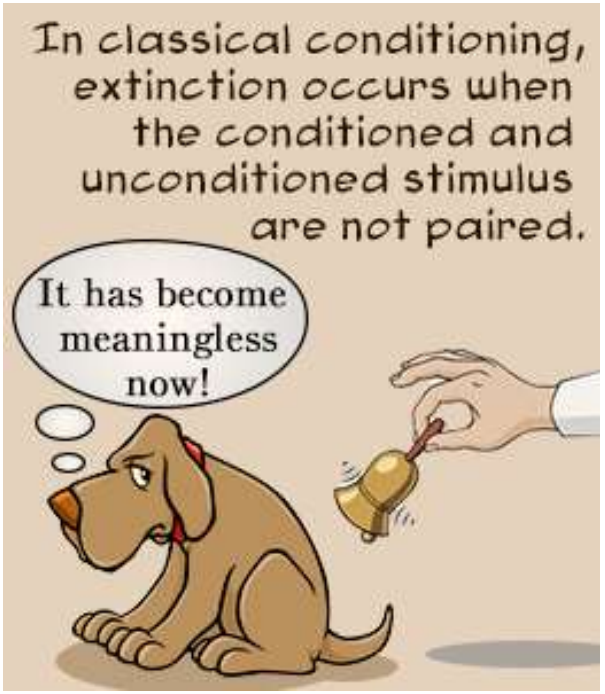
	Behavior Encouraged	Behavior Suppressed
Stimulus Presented	POSITIVE REINFORCEMENT ("Reward") Example: good grades 	PRESENTATION PUNISHMENT ("Type I" Punishment) Example: after school detention 
Stimulus Removed or Withheld	NEGATIVE REINFORCEMENT ("Escape") Example: excused from chores 	REMOVAL PUNISHMENT ("Type II" Punishment) Example: no TV for a week 


Behaviorism
Reinforcement
Punishment
Positive (+)
Negative (-)
Positive (+)
Negaive (-)
Giving affirmtive stimulus
Removing aversive stimulus
Giving aversive stimulus
Removing desired stimulus
✓ Praises
✓ Reward
✓ Money
✓ Study hard to prevent failure
✓ Corporal punishment
✓ TIME OUT
✓ Siblings fighting, not allowed to play
✓ EXTINCTION
↑ Desirable Behavior
↓ Undesirable Behavior

EXTINCTION in Behaviorism

Extinction is when the occurrences of a conditioned response decrease or disappear. In classical conditioning, this happens when a conditioned stimulus is no longer paired with an unconditioned stimulus.

For example: If door bell is replaced with knocking of the door, the parrot will forget talking in response to the door bell after 4-6 months of this change.



Recommendations for Reinforcement

- **Reinforce immediately *following* the desired behavior**
- **Use the least tangible or elaborate reinforcer that will work**
- **Use PreMack Principle or "Grandma's Rule"-- Eat your vegetables so you may go play**
- **Make the reinforcement process informational**
- **Try reinforcement before punishment if possible**
- **Use reinforcement to *shape* behavior**

Note:
PreMack Principle: An individual will be more motivated to perform a particular activity if he knows that he will partake in a more desirable activity as a consequence.

Punishment Pattern- Recommended

Punishment should be:
1. Mildly unpleasant
2. Short in duration
3. Applied as soon as possible after the behavior

Examples of Effective Punishment
- **Time Out**
- **Response Cost**
- **Verbal Reprimand**
- **In-house Suspension**

Punishment Pattern- Recommended

Examples of Punishment to Avoid:

-Physical Punishment

-Psychological Punishment

-Extra Classwork

-Suspension from School

Guidelines for Using Punishment:

- **Choose punishment strong enough to discourage the behavior but not overly severe**
- ***Dont Bluff***
- **Explain why the behavior is unacceptable**
- **Teach and reinforce desirable alternative behaviors**

Rewards- Recommendation

- **Praise, if used correctly, can increase intrinsic motivation by being informational**
- **Give unexpected rewards**
- **Avoid tangible rewards (eg. Money)**
- **Rewards may decrease intrinsic motivation when given for simply engaging in an activity.**
- **Rewards should be contingent upon meeting a standard or advanced level of performance**

Behaviorism in Class-Room

- Reward and punishments
- Responsibility for student-learning rests squarely with the teacher
- Lecture-Based and highly structured.

Strengths of Behaviorism	Criticisms of Behaviorism
-Easy to collect and quantify data and information -Approaches of this theory are often very useful in changing bad behaviors in both children and adults	-One-dimensional approach to understanding human behavior -Do not account for free will and internal influences (ie. Moods and thoughts) -Does not account for other types of learning

Critiques of Behaviorism

- Does not account for processes taking place in the mind that cannot be observed
- Advocates for passive student learning in a teacher-centric environment
- One size fits all
- Knowledge itself is given and absolute
- Programmed instruction & teacher-proofing

Summary

Learning process

The learning process is based on objectively observable changes in behavior. Behavior theorists define learning simply as the acquisition of a new behavior or change in behavior. The theory is that learning begins when a cue or stimulus from the environment is presented and the learner reacts to the stimulus with some type of response. Consequences that reinforce the desired behavior are arranged to follow the desired behavior (e.g. study for a test and get a good grade). The new behavioral pattern can be repeated so it becomes automatic. The change in behavior of the learner signifies that learning has occurred. Teachers use Behaviorism when they reward or punish student behaviors.

Examples and applications of behaviorist learning theory:

- Drill / Rote work
- Repetitive practice
- Bonus points (providing an incentive to do more)
- Participation points (providing an incentive to participate)
- Verbal Reinforcement (saying "good job")
- Establishing Rules

Unfortunately, Behaviorism instruction does not prepare the learner for problem solving or creative thinking. Learners do what they are told and do not take the initiative to change or improve things. The learner is only prepared for recall of basic facts, automatic responses or performing tasks.