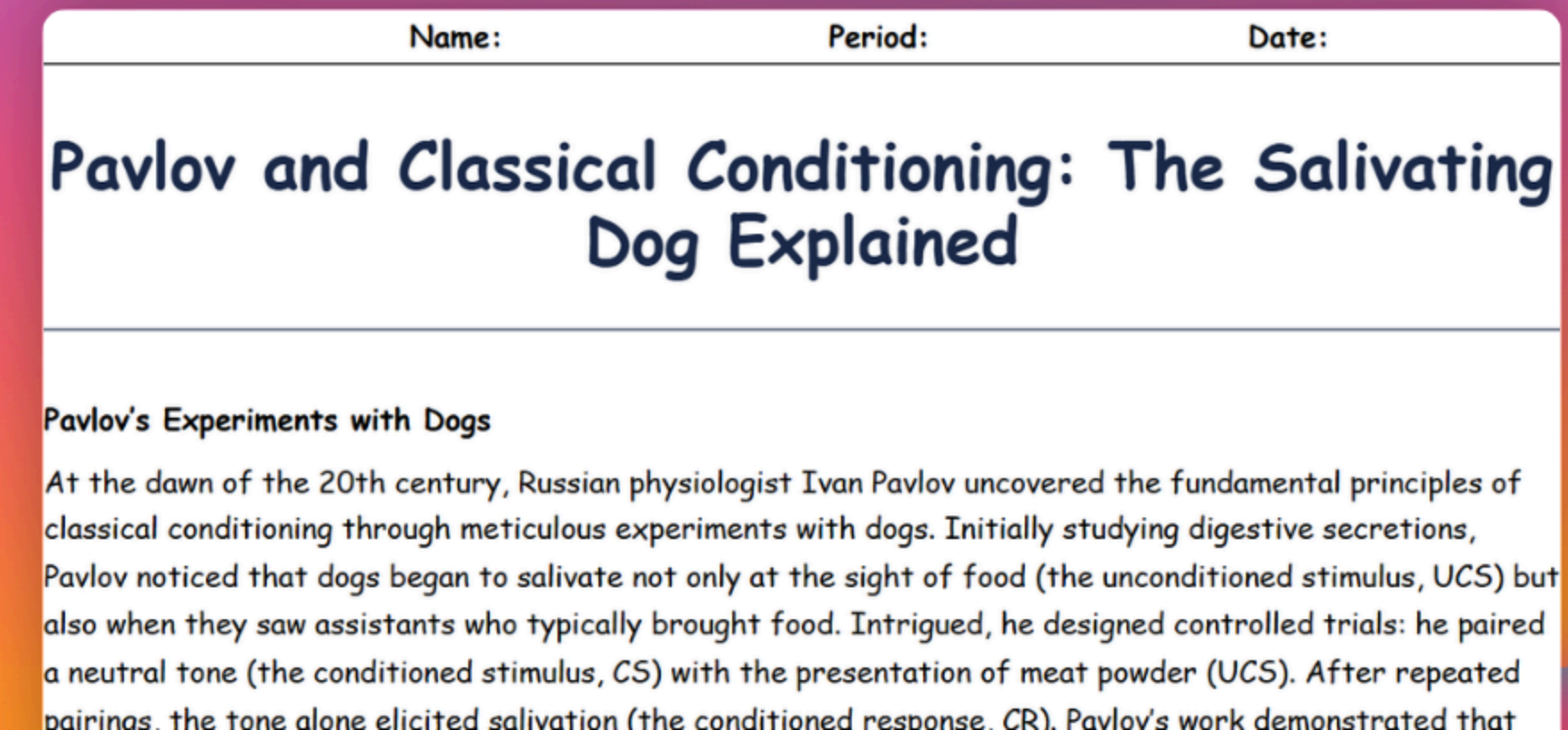
NO PREP

Pavlov and Classical Conditioning

The Salivating Dog Explained

Includes: Student reading, case study, differentiated questions, teacher key



Name: Period: Date:

Pavlov and Classical Conditioning: The Salivating Dog Explained

Pavlov's Experiments with Dogs

At the dawn of the 20th century, Russian physiologist Ivan Pavlov uncovered the fundamental principles of classical conditioning through meticulous experiments with dogs. Initially studying digestive secretions, Pavlov noticed that dogs began to salivate not only at the sight of food (the unconditioned stimulus, UCS) but also when they saw assistants who typically brought food. Intrigued, he designed controlled trials: he paired a neutral tone (the conditioned stimulus, CS) with the presentation of meat powder (UCS). After repeated pairings, the tone alone elicited salivation (the conditioned response, CR). Pavlov's work demonstrated that

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Key Processes: Acquisition, Extinction, and Beyond

Classical conditioning unfolds through distinct phases. Acquisition refers to the period during which the CS and UCS are repeatedly paired, gradually increasing the strength of the CR. If the CS is repeatedly presented without the UCS (tone without food), extinction occurs: the CR diminishes. Yet, after a pause, the CS alone can once again elicit the CR in a phenomenon called spontaneous recovery, indicating that extinction suppresses rather than erases the learned association. Further, conditioned responses can generalize (a dog trained to salivate at one tone may respond similarly to tones of different pitches) and discriminate, learning to respond only to the original CS when similar stimuli predict no reward. These processes underscore the flexibility and resilience of associative learning.

Real-World Examples

Classical conditioning extends far beyond Pavlov's laboratory. In phobias, a neutral stimulus (e.g., a dog) paired with a frightening event (dog bite) becomes a CS that triggers fear (CR) long after the event. Taste aversion demonstrates how one pairing of food (UCS) with illness (UCR) can create long-lasting avoidance of that taste (CR), even if nausea occurs hours later, an evolutionary adaptation protecting organisms from poisoning. In marketing, brands pair logos (CS) with pleasing images or music (UCS) to elicit positive emotions (CR) when consumers later see the logo. These examples highlight how classical conditioning shapes emotional responses, preferences, and even irrational fears in everyday life.

Comparison to Operant Conditioning and Applications

While classical conditioning focuses on involuntary, reflexive responses elicited by stimulus associations, operant conditioning (Skinner) deals with voluntary behaviors shaped by consequences. In therapy, classical techniques underpin systematic desensitization, where patients with phobias learn to relax while gradually facing feared stimuli, extinguishing the CR of anxiety. Exposure therapy for PTSD similarly relies on repeated, controlled exposure to trauma cues (CS) without adverse outcomes (UCS), promoting extinction. In education, pairing a learning activity (neutral stimulus) with praise (UCS) can create positive attitudes (CR) toward study tasks. Understanding both classical and operant principles enables practitioners to craft comprehensive behavior-change programs.

Key Information

Process	Definition
Acquisition	Learning phase during repeated CS–UCS pairings
Extinction	Reduction of CR when CS is presented without UCS
Spontaneous Recovery	Reappearance of a suppressed CR after a rest period
Generalization	Responding to stimuli similar to the original CS
Discrimination	Learning to distinguish between the CS and other stimuli

Case Study Excerpt: Overcoming Test Anxiety

Jamal, a 17-year-old high school junior, experienced intense anxiety—sweaty palms, racing heart—whenever he entered the exam room. His anxiety began after a particularly humiliating experience in ninth grade, when he blanked on a math test and felt judged by classmates. In therapy, the exam room (CS) had become associated with panic (CR) through repeated pairings with the distress of past failures (UCS). Using gradual exposure, Jamal first viewed photographs of his old classroom while practicing deep-breathing exercises (counterconditioning). As he mastered relaxation, he progressed to sitting in an empty exam room without taking a test, continuing breathing and positive self-talk. Over weeks, he simulated study sessions in that room, paired with success imagery and calm affirmations. Eventually, Jamal entered a real exam setting and reported only mild nerves, which he managed through breathing. His panic CR diminished significantly, illustrating how classical conditioning and extinction techniques can remodel emotional responses.

1. What was the original unconditioned stimulus (UCS) in Jamal's anxiety pairing?

2. How did gradual exposure promote extinction of Jamal's CR?

Multiple Choice

1. Extinction in classical conditioning refers to:

    a) Spontaneous reappearance of the CR after a rest period with no CS

    b) Diminishing the CR when the CS is no longer paired with the UCS

    c) Strengthening the CR through more pairings

    d) Responding to stimuli similar to the CS

2. Generalization occurs when:

a) The CS is distinguished from other stimuli

b) Different responses emerge to the CS

c) A CR returns after extinction

d) Similar stimuli produce the CR

3. In advertising, pairing a product logo with upbeat music is an example of:

a) Classical conditioning

b) Operant conditioning

c) Negative reinforcement

d) Positive punishment

Matching

Write the letter of the correct definition on the line next to each term.

Term	Definition
1. ___ Acquisition	A) Responding to stimuli similar to the CS
2. ___ Extinction	B) Learning to distinguish CS from other stimuli
3. ___ Spontaneous Recovery	C) Learning phase with repeated CS–UCS pairings
4. ___ Generalization	D) Reappearance of CR after a pause
5. ___ Discrimination	E) Reduction of CR when CS appears without UCS

Fill-in-the-Blank

1. A conditioned response (CR) occurs after an organism learns the _____ between two stimuli.

2. Taste aversion shows that one CS–UCS pairing can create a long-lasting _____.

3. In systematic desensitization, patients pair anxiety-provoking stimuli with _____.

Short Answer

Answer each question in 2-4 complete sentences.

1. Explain why spontaneous recovery suggests that extinction does not erase learning.

2. Describe how taste aversion differs from typical classical conditioning.

3. Discuss one limitation of applying classical conditioning techniques in real-world therapy.