

# Dollard and Miller: Psychoanalytic Learning / Stimulus Response Theory

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November 19, 2022

## RECOMMENDED CITATION

mohammad looti (2022). *Dollard and Miller: Psychoanalytic Learning / Stimulus Response Theory*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=38566>

General theory is a translation of psychoanalytic theory into behavioristic language and depiction, so concepts could be tested in the laboratory. While Freud described aggression as being driven by internal libido, Dollard & Miller defined aggression as a behavior produced by reproducible stimulus situations (frustration or interruption of goal seeking.) Neurosis was not seen as ego being overwhelmed by internal conflicts, but as a failure to make adaptive behaviors which could be studied as a learning failure, and as such, could be remedied with new learning. While the idea of translating Freud's concepts into lab-ready conceptualizations sounds far-fetched, both behaviorism and psychoanalytic theory are deterministic in nature, so aren't as far apart as one might think. It's simply the determiners which are different in the 2 theories (Freudian- internal conflict between id and superego, and behaviorism- external conflict between different stimulus situations.)

### **Biographies**

John Dollard was born in Wisconsin in 1900. He earned a Ph.D. in sociology at University of Chicago and studied psychoanalysis at the Berlin Institute. He taught anthropology, psychology, & sociology at Yale. He individually researched the issues of race relations & social class, believing much can be predicted about a person if you understand the culture s/he was born into at the time. Social class determines a gamut of specific learning experiences.

Neal Miller was born in Wisconsin in 1909 and his father was an educational psychologist. Miller earned a Ph.D. in psychology at Yale, studying with Clark Hull, who specialized in learning theory & drive reduction. When Miller joined the Institute of Human Relations at Yale, he began collaborating with Dollard, exploring ways to understand psychoanalytic theory using behaviorist techniques. Miller founded the Laboratory of Physiological Psychology at Rockefeller University in New York, where he worked on animal training. He particularly encouraged psychologists to collaborate with neuroscientists to better understand physiological mechanisms involved in motivation, learning, etc. Ultimately his work helped develop biofeedback, which is used today in numerous holistic health regimens for healing. He showed the autonomic nervous system functions like heart rate, gastric vascular responses, and blood pressure could be influenced by operant learning. In the past only classical conditioning was thought to be useful in managing biological functions. Miller received the Citation for Outstanding Lifetime Contribution to Psychology in 1992 from the APA. The citation especially noted his work in using animal models to understand social learning, pathology, health and other topics of interest to psychologists.

Fundamental concepts about learning - their concepts began with accepted behaviorist principles defined by Skinner and Pavlov, stating that "in order to learn one must want something notice something, do something, and get something." As such they articulated the following 4 concepts to learning theory:

### **Drive: Wanting something**

Freud described libido as the driving force in all activity, but D&M used the concept of drive, taken from Hull's work using deprivation to produce drive in animals. Drive is a need- "a strong stimulus which impels action." Drive stimuli can be internal (hunger or even thoughts) or external (infliction of pain, discomfort in environment.) Drives are primary (natural responses to physical need or discomfort) or secondary (learned values for things associated with satisfaction or distress.) Different needs develop in different circumstances, which is why culture is important to understand. D&M believe ambition is fostered more powerfully in the middle class than the lower classes because of forces & models the middle class people are exposed to.

### **Cue: Noticing Something**

Cues are discriminative stimuli that are noticed at the time of behavior. They include sights, smells that may act as cues to a behavior. Even internal thoughts can act as cues. Cues determine "when he will respond, where, he will respond, and which response he will make." Better learning means better connection between the cue and response- more accurate or rapid responses in the face of the cue. Cues can be entire behavior repertoires that indicate a response is necessary or expected. (Social cues are more ambiguous, which is why getting the right response from a partner can be tricky.)

### **Response: Doing something**

Responses are simply behaviors. Any behavior subject to change through learning is a response. They can be overt (voluntary physical behavior) or covert (hidden behavior such as thinking.) We choose our responses based on all the responses possible or useful in any situation- we develop a response hierarchy. The hierarchy ranges from the most likely response (dominant response) to less likely responses that occur when the dominant response is blocked somehow. Punishment of a dominant response will produce alternative responses, according to what the child thinks will most gratify him and least likely result in more punishment. So responses change their position in the hierarchy. When the hierarchy is revised, it's called the resultant hierarchy. Rewards move responses up the hierarchy, and punishment/ extinction moves them lower.

### **Reward: Getting something**

Here is where D&M getting particularly psychoanalytic, suggesting that reward is impossible unless there is drive - here is the link to Freud's libido. Rewards can be innate or learned.

### **The Learning Process**

**A learning dilemma** occurs in a situation in which the existing responses are not rewarded. If your

dominant response always gets rewarded, there is no need for any learning. (Which is why the joke about the definition of insanity strikes a chord: Insanity is doing the same thing over and over with the expectation that you will get something different. If you are doing it over and over- it already must be rewarding to you.) Learning occurs when your dominant response doesn't get a reward- so you are motivated to try something different- giving you an opportunity to learn something new. When the new response gets a favorable reward, the new response will more likely occur again. There are ways to encourage a new response: rearranging the situation so the new response is more likely (often used in training children, especially children with emotional impairments), simplifying the situation, reducing cues for the negative responses (often used for distractible children), coaxing the desired response with desirable rewards described, & showing models of the desired response.

**Undesirable responses** can be eliminated by punishment, producing a change in the response hierarchy. This new behavior will occur more often if it is rewarded. But D&M also noticed a new phenomenon under punishment- spontaneous recovery. Children can change a behavior under punishment, but they often learn to return to the most preferred behavior under certain circumstances- such as when parents aren't looking.

**Extinction** occurs when a response is not rewarded. Teachers and parents often don't understand why their ignoring of behaviors doesn't effect change in children's behavior, but they don't count on how rewarding attention from siblings and other children is. Extinction only works if the behavior truly gets no rewarding response. Well-learned responses from the past are very resistant to extinction, and in children, they have more energy to pursue a desirable behavior than parents, teachers have to ignore it. Fear is a particularly resistant behavior pattern. It may diminish during extinction, but rarely ever is eliminated completely. This shows up in PTSD, when a single trauma gets relived over and over in the subject's mind, reinforcing the scary experience, as well as the feelings of powerlessness. IN real life, people rarely put themselves in the frightening situation again if they don't have to- thereby avoiding the learning experience necessary to unlearn the fear. Powerful phobias develop in this way, as well as rituals to reduce the anxiety of obsessive thoughts. Avoidance is very rewarding.

**Spontaneous recovery** occurs when an extinguished response recurs. They don't last long, but they cause trainers, (and parents) some dismay. It represents the child's testing of the environment- has the environment really changed, or might this behavior get a positive response again?

**Stimulus generalization** is the transfer of a response pattern from one environment to another which offers similar cues. This is the reason we learn so effortlessly- our learning transfers easily when we recognize a past behavior could be useful in a new environment. It's also a reason we develop phobias- a single bad experience can transfer to many things that trigger that fear again. It

also accounts for fetishes- one satisfying sexual experience of slight pain associated with sexual satisfaction can morph into S&M rituals. It may also be why we unconsciously look for a partner that mirrors some aspect of a parent- Freud would be proud!

**Discrimination** is the opposite of generalization- it means we recognize only certain cues are important to trigger a response. This is why some people do well on Multiple choice tests, and others, who know the general material, don't do so well. They haven't learned the critical cues associated with specific concepts. This was the learning experience of the neurotic dogs- they learned specific consequences that could be associated with the circle or oval- but when the stimuli began changing, their powers of discrimination were overwhelmed and they sank into neurosis.

**Gradient of reward states** that the more closely the response is followed by reward, the more it is strengthened.

**Gradient of punishment states** that the more immediately punishment follows misbehavior, the more effective it is in reducing the tendency to misbehave. These 2 gradients are the reason some parents are effective as authority figures, and others are not. Some parents are instantly responsive, as well as dependably consistent. Other parents lag in reward or punishment, and aren't consistent in how they respond. Language also contributes to effective responses. When the child understands language, the parent can explain the problem with the behavior, & teach the child s/he must think about his/her behavior. The thinking will produce an expected consequence in the child's mind which can control his/her behavior. It means the parental response becomes more immediate when the child can think about it, and when it is consistently applied. Talking about aspects of a child's good behavior can be made more powerful, too, as it produces more immediacy due to language and thought. Parents will be more effective rewarders when they describe many aspects of what a child did well, not just generically praise the finished product.

**Anticipatory responses** are responses that precede reward and occur earlier and earlier. Anticipation can produce very speedy responses in recurring environments. (Think Jeopardy!)

Learning by imitation was D&M's attempt to understand Freud's concept of identification. They described 3 processes of imitation:

**Same behavior** is the production of the same behavior as a model- in the same circumstances, under the same cues as for the model.

**Copying** occurs when the learner tries to produce the same behavior as the model, and understands there is a discrepancy between what the model is doing, and what the learner is doing. The behavior is being done for a past reward, not the same trigger as for the model. The cues for the learner are the model's behavior, and the reward is recognition of similarity to the model. This also produces social conformity (Think in terms of college drinking deaths produced by

pledges' desire to belong to a group in which excessive drinking is learned and expected.)

**Matched dependent behavior** is like copying, with a behavior learned from a model, but the response is cued by the model, not the situational cues the model has learned, and there is a different reward.

### Four Critical Training Periods of Childhood

D&M liked Freud's critical psychosexual conflicts depicted in 3 developmental stages, but they added a fourth- conflicts around anger.

**Feeding** occurs upon birth and satisfies the hunger drive, so is inherently rewarding. The responses the infant makes before being fed become strengthened by the reward of food, and associations with feeding become secondary rewards- mother's smell, touch, sounds of comfort, etc. If a child is left to cry when hungry, s/he loses the response of crying for food. These children go within and become very non-responsive, as you see in infants growing up in overcrowded orphanages, or with nonresponsive parents. Character traits of apathy or anxiety develop. When the child is appropriately responded to, the child develops love for parents, self-respect for one's needs, and a more sociable personality, able to give and take, since there is no great anxiety about getting basic needs met interpersonally.

**Cleanliness training**, as Freud described the anal stage, has to do with toilet training. This means the child must learn to override internal drives to empty his bladder/bowels at will, and develop complex behavior such as finding a bathroom, taking off clothes, getting on the toilet, and relieving oneself according to those specific situational cues. This is very complex behavior for a 2-year-old. If there is too much criticism or too high an expectation for training, the child may learn avoidance of the parent to avoid punishment (hiding to do it in the pants.) D&M suggest this stage be delayed until the child has enough language to produce mediating cues. Freud described anxiety/ guilt as producing the superego control. D&M do describe anxiety/ guilt as being related to this training if it is not done sensitively.

**Early sex training** relates to Freud's phallic stage, with the Oedipal conflict producing gender role behavior and moral behavior. D&M see this stage as also related to sexual training- as parents may punish children for masturbating when they explore their bodies. This produces anxiety around any sexual impulses. They favor a relaxed attitude around children's explorations of their bodies, since too much control or criticism can set up fears of authority figures & inhibitions.

**Anger-anxiety conflicts** were developed by D&M as a response to the inherent frustration of childhood. Frustration occurs in response to childhood dependency, limitations physically and mentally, & sibling control or antagonism. When frustrated, children first act out with aggression- public displays of anger. When they are punished, they learn to be anxious about anger. This

produces self-control around their angry impulses. If parents shut down anger too completely, however, they can render their children helpless in the face of reasonable provocation which should be stopped. These children don't learn effective assertiveness which sets good boundaries with others who would take advantage of them. Anger can be effectively motivating in the right circumstances. If appropriate anger is not labeled or acknowledged, it can lead to repression or mislabeling- "I'm just tired." Anger becomes conceptualized as bad, no matter how important it may be in the right circumstances. Guilt occurs whenever anger is felt. This really leaves a child without appropriate responses in many situations. Children need to have anger described to them and to learn how to use this powerful emotion responsibly.

Conflict according to Freud was what produced aspects of personality. D&M wanted to better understand conflict in learning terms. They related conflict to situational cues, not internal fights between the id and superego.

**Gradient of approach-** these gradients reflect the strength of the tendency to make a response, according to distance from the goal. When there are 2 responses, with different gradients toward a goal, people can be paralyzed by choice. The gradient of approach is when the tendency to approach a goal is stronger the nearer the subject is to the goal. (Getting more and more excited, the closer the wedding gets.)

**Gradient of avoidance** is when the tendency to avoid a feared stimulus is stronger the nearer the subject gets to it. (Canceling a job interview the day of the interview, because you fear being rejected.) The gradient of avoidance is steeper than that of approach. And an increase in drive raises the height of the entire gradient.

### Four Types of Conflict

Distance can refer to physical distance from a goal, or time distance from an event. Activities can seem easier at a distance than as you approach them in time or space.

**Approach-avoidance conflict** is when the same goal produces feelings of approach and avoidance. The gradient to approach is less steep than the one to avoid, so in the distance, approach is more likely to be felt, but as one gets closer to the conflicted event, avoidance may become predominate. Anxiety is worst, most disabling at the cross point of the 2 gradients. (Engaged people who were happy with impending marriage until the day or week before the wedding, experience strong internal conflict. Similarly, people feel the most intense anxiety when contemplating divorce the closer they get to filing the papers and telling the spouse of their plans.)

**Avoidance-avoidance conflict** offers 2 goals and both are undesirable. This was the conflict of Sophie's choice- give up your daughter or son to be executed. She never got over her guilt for making a choice. In general, goals that are equally difficult to embrace produce immobilization,

procrastination if possible, or escape. Children raised in punitive environments where they have little means of getting positive attention, will run away from home. Staying produces only pain, no matter what they do.

**Approach-approach conflict** is generally a day in the park- 2 positive goals only represent choosing the one you think offers the most pleasure. There is some anxiety at the choice point of the gradients, but it is rarely disabling. There is a point where you try to envision which goal will be most satisfying, or is there is an unexpected gain or negative possibility of one or the other, but usually these people have a history of success, so they see either goal as ultimately satisfying. (You got acceptances to 3 Ivy League schools- Oh, the challenge of choice!) Moving toward either tends to tip the balance of choice in that direction.

**Double approach-avoidance conflict** occurs when 2 choices have both desirable and undesirable aspects. The closer the person is to the various goals, the more the avoidance gradient looms. Making one choice triggers its avoidance gradient, and the thought recurs that the other choice might be better. Often people stay stuck in a limbo of indecisiveness, doing nothing to promote one or the other- ultimately allowing life to remove one of the choices, as it will do. (The most powerful aspect of the book, *Overcoming Indecisiveness*, was the last paragraph which stated- just know that most choices you make can be undone. Very few choices are set in concrete and can't be overridden. This is also one of the reasons that Bush's and Clinton's lies have been compared- Bush's cost lives, Clinton's did not. You can't come back from choices that cost lives.)

**Reducing conflict** can be facilitated by keeping a certain distance from the situations that produce anxiety, so the person can continue past the avoidance gradient to continue pursuing the goal. This can occur through therapy, or by using tranquilizing drugs, even alcohol. Tranquilizers, especially alcohol, can disengage inhibitions, however, which put people at risk sometimes.

### **The Frustration-Aggression Hypothesis**

Frustration and aggression is the area D&M made the most impact. They differed with Freud on aggression as due to libidinal impulses restrained by social conventions, however. They explained aggression as purely the result of frustration, blocking of one's goals, not a death instinct. The Frustration-Aggression Hypothesis described aggression as the result of frustration, which occurs when obstacles interfere with drive reduction.

Aggression is defined as behavior intended to harm another. Aggression is more likely when the drive is strong, or the interference is more complete, or when the frustration is repeated. (Sometimes seen in victims of domestic abuse finally rebelling with extreme violence against the perpetrator, leading to his death.) This can also be applied to frustrations during adolescence as a result of frustrated and increasing sexual drives, or to those in poverty who experience more crime.

Many manifestations of frustration and outburst of aggression have been studied in the lab to ascertain what circumstances especially lead to aggression.

### **Modifications to the frustration-aggression hypothesis**

Learning responses to frustration- there are various responses to frustration, and aggression is only one. Based on past experience, it will be higher or lower on the response hierarchy. Aggressive responses are learned as a response to frustration, as are the forms of aggression.

Displacement and catharsis - aggression can be displaced to another target, especially if the target of frustration is too threatening to confront. People who are closer to the target in some ways will more likely elicit an aggressive response. (Stimulus generalization) But displaced aggression doesn't fully reduce the aggressive drive. Freud suggested that catharsis- acting on the rage- can reduce aggression. Research has not found that to be so- in more competitive games, more aggression is triggered than reduced.

### **Hostile aggression and instrumental aggression**

Hostile aggression is aggression with the goal of injuring another.

Instrumental aggression is aggression in service of a goal- kids fighting over a toy, or access to the TV.

### **Aggressive cues trigger aggressive behaviors**

This has been seen when people are exposed to violent media, games, especially when the perpetrators suffer no consequences for their violence. This also reduces inhibitions to violence.

### **The role of emotion is powerful**

As aggression is often a response to a cascade of varied negative emotions such as embarrassment, fears, disappointment, depression and physical pain. (It has been said there are really only 2 emotions- love and fear, and all the negative emotions that we see are masks for fear.) Some people are more tightly wound, with a lower boiling point based on past experiences of threat or challenge. Bullies in school often have a hostile world view, seeing others as representing threats to themselves. They justify their own aggressive behavior as defenses to what they expect from others. This paranoia and suspiciousness triggers them to scan the environment for cues of others' threat, so they can protect themselves by getting the jump on the others. D&M also thought aggressiveness could be triggered by anxiety about death (which would support Freud's idea about death instincts driving aggression.) The closer we are to considering our own deaths, the more we consider violence as a response. When a leader tries to get the populace to consider going to war, s/he will use emotional appeals to one's fear of death. When we are acting rationally, we make less aggressive choices. When we fear for our lives, we allow much unjustified violence in the guise of self-protection. (Lynching of blacks in the antebellum South, profiling criminals, dispensing of civil

rights for people we decide are terrorists, whether there is a shred of evidence or any legal justification at all.)

Individual differences in aggressive responses result from a variety of differences:

A failure of ego development that allows aggression to get out of control.

Problems with early attachment, so lack of development of empathy for others.

Childhood physical abuse, which desensitizes some children to the effects of pain in themselves and others.

People with fragile self-esteem, who when challenged may be violent in response to threats to the ego. Aggression is a response to a narcissistic wound. (Object relations theorists, who spun off Freud, suggested this, too.) One particularly powerful threat is a threat to masculinity, which can produce violence against female partners or homosexuals. (Laramie case.)

**Language** provides discriminative cues for learning how to deal with situations. When we have self-control, it often comes in the form of self-talk. Those who may not have the same self-control, often have not had emotional experiences appropriately labeled. So unlabeled emotional experiences go underground, into the unconscious. Language enables faster learning, as children develop insight into their own motivations and outcomes of their behaviors. Language also facilitates generalization of learning from one situation to the next. Self-control particularly generalizes. Language also enables problem-solving skills using reason and planning. People can imagine solutions and outcomes without having to painstakingly endure the experience to see how it works out. Symbolic trial and error techniques enable faster problem solving. Misleading language also slows or misdirects problem solving, as when social problems are labeled to target a group, rather than targeting the inherent inequities. (1984 is being cited as this administration uses terms such as the Clean Water Initiative, which allows more arsenic to go into the water, or the Healthy Forests Initiative, which allows for more clear-cutting of our national forests.)

**Neurosis** is due to maladaptive learning. Fear, conflict, and repression play a role in this development. D&M called neurosis the stupidity-misery syndrome, but we more likely call it today learned helplessness. Many neuroses can be explained as learned ways to avoid anxiety. Phobias develop when a scary experience is not confronted, and generalizes to produce fears in similar situations. So avoidance kicks in, and the fear grows in power. Compulsions also result when anxieties provoke obsessive thoughts. The compulsive hand-washing diminishes the fear around contamination, so it is internally emotionally reinforced. Regression is a response produced in an earlier developmental period, called up later, when more dominant, age-appropriate behaviors are blocked by fear, etc. The book gives a good example of a toddler with a new sibling, who is no longer getting the same positive attention from parents for good behavior, regressing to baby talk or wetting the pants, to get parental attention again. The recently learned positive behavior drops in the hierarchy when it is no longer reinforced. Displacement is emotion displaced toward a

substitute target. Attraction to a partner may be based on his/her subtle similarity to a parent. This can result in repeated victimization later in life, or perpetual childlikeness by finding a partner who will act as a parent.

**Psychotherapy**- if neuroses are learned, they can be unlearned through therapy (if you have enough patience!) Often the therapeutic situation is considered a place for safe reenactment of childhood issues, where the patient can act powerful and overcome his/her feeling of helplessness. Successful requires drive reduction to be rewarding and motivating, so people should be fairly miserable when they enter therapy. (I always felt that people made more changes due to unmitigating misery than anything I ever said. The quote by Anais Nin says it all, "And the day came when the risk to remain tight in a bud was more painful than the risk it took to blossom.") D&M thought the effective therapist would use approval strategically to reward healthier aspects of a patient's function- "The therapist...makes the patient work for approval" and the therapist offers a safe environment for the patient to express feared material without punishment. Approval and permissiveness should be dispensed according to effective learning principles in a timely fashion. They believed though, that most therapists weren't very conscious and consistent in offering these behavior responses. The other benefit of therapy is that when fear is extinguished, creativity can rise higher in the response hierarchy. People often make serious changes in their lives and choices once they overcome their fears. Often their partners are completely undone by these changes, as neither the patient nor the partner saw these changes coming. (As my mentor in grad school said, 70% of people who get a Ph.D. get divorced!) Creativity comes in a variety of new choices that are available to conscious control. No longer do people just react to their lives, they begin creating them anew. D&M also stressed that therapy can't ignore life circumstances- social class opens real doors in life or closes them.

**Suppression** is willful control of thinking- putting thoughts out of consciousness. D&M recommended that therapists teach this skill, but research shows that suppression is counterproductive, as the thought or feeling will erupt later more powerfully. Suppression may be related to depression, PTSD, physical pain, & a weak immune system. People often suppress their values when they desire to join a group of people with different values. This may be seen in an increase or decrease of prejudice, or excessive drinking or drug use to fit in. The White Bear Suppression Inventory was named for the task of "avoid thinking of a white bear." Scores on this inventory correlates with obsessive thoughts, depression, and anxiety. When people try to suppress a thought, it usually comes back later with greater intensity. All sorts of environmental stimuli can trigger this rebound effect. Allowing suppressed thoughts to be expressed prevents the rebound effect. (This is certainly Freudian in nature, as he thought most of our unconscious was repressed urges and thoughts.) Even suppression of amusement, happy expressions puts greater strain on the sympathetic nervous system. Not only does this impair the immune system, it also impairs thought and memory. We don't remember incidents as well when we were under emotional constraint at the time of learning. Expressing emotions through writing has positive health benefits,

enhancing the immune system.

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