Behaviorist and Cognitive Views of Learning and Memory and Motivation

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Contents

Abstract:

This paper discusses some behaviorist and cognitive views of learning and the concepts of memory and motivation as related to human learning. The concepts are discussed theoretically in general and then specific examples are given as to the implementation of the theories especially in the field of language learning and in particular to the field of English as a foreign language, a field in which I have been involved teaching for the past several years.

Behaviorist Views of Learning:

from the Merriam-Webster Dictionary (2003):

behaviorism: a school of psychology that takes the objective evidence of behavior (as measured responses to stimuli) as the only concern of its research and the only basis of its theory without reference to conscious experience.

As behaviorists have demonstrated equipotentiality in relation to human and animal learning, experiments concerning learning processes done on animals often can be applied to human behavior and learning. In classical conditioning (which is involuntary and elicited by a stimulus and which occurs when two stimuli are paired), such as the well known example of Pavlov's salivating dogs, when neutral, conditioned, and unconditioned stimuli are presented to animals they respond with no, conditioned, or unconditioned responses respectively. According to the concept of equipotentiality, humans also respond in a similar way. So using these principles learned in experiments with animals and as applied to learning and education, students can be rewarded directly through signal learning which is the eliciting of a response such as is the result of the introduction of aversive or rewarding positive or negative stimuli.. In the academic realm, other signal responses can include the positive desire for success. Classical conditioning includes the concept of extinction (reversion to an original condition after a positive or negative stimulus is eliminated), spontaneous recovery (a reappearance of a dormant response such as remembering forgotten words or concepts), stimulus generation (generalizing to other situations applying language learning to real life situations or mathematical principles to solve actual problems presented by reality), stimulus discrimination (response to some stimuli but not to others when different effects are discovered such as learning what words and concepts are important and useful to learn), and higher-order conditioning (when a different stimulus with the same result is substituted for the original stimulus such as different rewards in different games are offered). Habit (routine and repetition such as following the same schedule everyday in the language classes or the same verbal or language patterns), contiguity theory (the proximity and logistics of the stimulus and response), inhibiting factors (punishment and fear of failure), and one-trial learning are also employed as aspects of classical conditioning.

Classical conditioning involves a reflexive response shifting from one stimulus to another. The most well known examples are the experiments with the dogs (of the Russian scientist Ivan Pavlov, the founder of classical conditioning research) whose salivation rate was observed when presented with food and also began to salivate in expectation of being fed when noticing the laboratory assistants, or the dogs' feeders, only entering their room. The unlearned and inborn conditioning process involves first the unconditioned stimulus (food) and the unconditioned response (salivation) which is later introduced with conditioned stimulus (a bell ringing) that is reacted to with a conditioned response (salivation). Pavlov described areas of conditioning including acquisition (initial learning), extinction (unlearning or forgetting through disuse or no reward), spontaneous recovery (remembering or reactivating), stimulus generalization (reacting to a different but similar stimulus), stimulus discrimination (determining the difference between positive and negative stimuli). Classical conditioning helps explain emotions such as happiness, anger, excitement, and anxiety and the expectations that accompany them. For example the sight of a test might produce an emotion such as anxiety whereas a plate of food might elicit pleasant emotions of anticipation.

Operant conditioning or connectionism (which is voluntary and initiated by the operant or organism) occurs when a response is followed by a reinforcing stimulus. Operant conditioning involves such concepts as shaping or successive approximations, chaining or sequential responses - and these concepts are used often in language classes, primary and secondary (conditioned), reinforcers, reward (either through positive reinforcement which is the introduction of a pleasant stimulus such as giving the students the school in-house currency for good performance or through negative reinforcement which is the removal of an aversive stimulus such as allowing the students back in the room after they have been sent out), punishment (either through positive reinforcement which is the presentation of an aversive stimulus such as scolding and sending them out of the room or negative reinforcement which is the removal of a pleasant stimulus such as the removal of their in-house school currency). Factors affecting the effectiveness of reinforcement are timing (pacing, planning, scheduling of tasks), magnitude (intensity of the reinforcer and the level of difficulty of the presented concepts), appeal (attractiveness of the curriculum and its presentation with its attending elation or depression effect), and consistency (maintaining a certain level of expectations). Schedules of reinforcement include fixed ratio (scheduled, expected rewards), variable ratio (surprise rewards), fixed interval (e.g. giving time limits for games), variable interval (changing intervals over time to either speed up or slow down activities), and differential rates of high (when everyone knows the answers) and low (when none or few students know the

answers) response. Stimulus control includes antecedent stimulus (to prepare the respondent for future stimuli), discriminative stimuli (responses are relative to given situations or appropriateness), stimulus generalization (adapting knowledge or language skills to new generalized situations), cueing (prompting), setting events (complex environmental settings designed to elicit particular responses such as the settings of educational institutions), behavioral momentum (changes in environmental stimuli which is necessary to keep a child's short attention span on track and this is done with a variety of techniques and activities in the school and classroom). All of these techniques help realize the educational objectives as formulated by B.S. Bloom through the taxonomy of knowledge, comprehension, application, analysis, synthesis, and evaluation.

Operant conditioning requires action on the part of the learner whereas classical conditioning does not. In classical conditioning the reward is the stimulus, in operant conditioning the reward is external to the stimulus. Operant conditioning involves increasing a behaviors with rewards or reinforcers or decreasing a behavior by using punishment techniques.

American psychologist Edward L. Thorndike, in the late 19th century, developed the puzzle box where a reward outside of the box could be obtained after the animal learned the method of opening the box conceived of the law of effect which states: "Responses to a situation that are followed by satisfactions are strengthened; responses that are followed by discomfort are weakened." (Omrod, 2004).

American psychologist B. F. Skinner, who created the term operant conditioning, developed the Skinner Box where the animal stays inside the box and by only pushing a lever or button receives food as a reinforcer for its behavior. He also claimed these reward and punishment procedures involved in operant conditioning could be used for humans in behavior modification, aversion therapy, educational procedures, language acquisition, business motivation, sports performance, psychological therapy, etc. Operant conditioning, the study of which was originated by Skinner, is the shaping of behavior with reinforcement and punishment. The main principles are reinforcement, punishment, shaping, extinction, discrimination, and generalization.

Reinforcement is strengthening behavior with a pleasant stimulus for positive reinforcement and with an unpleasant stimulus for negative reinforcement including escape and avoidance. A reinforcement schedule specifies the frequency and timing of reinforcers and Skinner identifies four main types: fixed-ratio (a reinforcer for each number of responses like a factory worker paid per product), variable-ratio

(random number of responses to receive a reinforcer like throwing dice), fixed-interval (reinforcement is received after time elapses like a student watching the clock toward the end of the class period) , and variable-interval (reinforcement after a certain amount of time like a teacher giving a pop quiz or prizes given at unscheduled times in the future).

Punishment is a way to weaken behavior so that it will not reoccur. Positive punishment involves reducing a behavior with an unpleasant stimulus if the behavior occurs such as in aversion therapy or spanking and corporal punishment while negative punishment involves the removal of a pleasant stimulus such as allowing no TV watching or grounding teenagers.

Shaping is a reinforcement technique that is used to teach animals or people new behaviors that are not natural to them such as teaching an elephant to walk on its hind legs by rewarding them with food for that behavior.

Extinction is the elimination of a behavior through disuse or lack of continuing rewards or reinforcers. Under these circumstances the response rate is decreased and then eventually ceases.

Generalization and *discrimination* function in operant conditioning in ways similar to classical conditioning. In generalization, a learned behavior is performed appropriately in other, but similar situations. In discrimination, different but similar stimuli are differentiated by the organism when it is found that the stimuli produce different results.

Applications of Operant Conditioning can be used in many areas. In schools and in the classroom teachers can reinforce behavior with rewards and privileges. The rewards can also be in the form of points, stickers, stars, grades, play money or even real money or prizes. “Skinner urged educators to focus on reinforcing student successes rather than on punishing student failures. In desperation, teachers often find themselves punishing misbehaviors, through such aversive consequences as displeasure, ridicule, and failing grades, rather than reinforcing appropriate responses; as Skinner puts it teachers ‘induce students to learn by threatening them for not learning’ (Skinner, 1968).” (Omrod, 2004).

Though some may feel it is too much like feeding fish to dolphins to train them to perform tricks, the offering of rewards to encourage learning or academic success, as is done in some of the ESL schools where I have taught, can be an effective method to stimulate interest in learning and does correspond to the “real world” practice of paying people to perform jobs or services. The point should be made that rewards come in a variety of forms, such as a supportive smile, a hardy laugh, a thumbs

up gesture, or a physical or metaphorical pat on the back for encouragement. It can also be in the form of points, stickers, stars, grades, play money or even real money or prizes. The reward can be immediate, which is more along the lines of operant conditioning, or it can be delayed which could encourage sustained, progressive, and continual growth and achievement in order to receive a reward at the "light at the end of the tunnel".

Concerning the ESL classes I have taught, in the privately owned school language schools, the children students sometimes receive as rewards play money currency which is spendable only in the school to buy school supplies such as book bags, pens, pencils, erasers, paint, etc. Some might find this somewhat mercenary but it seems to work as a positive reinforcer since the children enjoy the contest of seeing how many cards or how much in-house currency they can accumulate just as adults do with real currency in the business world. These cards are given instantaneously, one at time, at the moment the achievement is done such as winning a game or having the highest test score, etc. This practice in fact follows the requirements for operant conditioning which are: " (1) the reinforcer must follow the response, (2) the reinforcer must follow immediately, (3) the reinforcer must be contingent on the response" (Omrod, 2004, p. 53).

Concerning a delayed reward to promote sustained behavior, another approach used that can be used to promote good classroom behavior is to give stickers for good citizenship so that the students receiving the most stickers at the end of the year can be awarded with certificates or prizes for good citizenship. If these practices motivate the learners to learn then there should not be negative effects in this type of system but this sort of practice and done to this extent would not occur, and indeed might not be allowed, in some public schools even though the students in public schools do get stars, awards, grades, and certificates for academic achievement and good behavior.

Other concepts important to the practices of behaviorism are the development of self-efficacy and self-regulation.

Self-efficacy is the condition in which people are more likely to engage in certain behaviors when they believe they are capable of executing those behaviors successfully. (Omrod, 2004, p. 142). Self-efficacy involves choice of activities, goals, effort and persistence and learning and achievement (Omrod, 2004, p. 143). Self-efficacy requires practice, repetition, modeling (from the teacher and from other students), praise and encouragement, positive operant conditioning (reward and punishment), and the development of self confidence. Repetition plays a major role in self efficacy especially in young

learners. In older, more mature learners self-efficacy is impacted by the relevance of the subject matter. In older learners the lessons need to have meaning in the learner's life. Repetition counts for something but if the learner is not interested, or does not see the relevance or importance of subject matter then self-efficacy is negatively impacted.

Self-regulation requires self discipline and a daily, weekly, and yearly (perhaps over several years) schedule, exercise, and good daily health habits (such as eating well, not smoking, etc.). Time management skills are necessary for the implementation of self-regulation. Students should also be taught how to prioritize their tasks and for this reason schedules are very important. The use of exercise and playing a team sport can also help students increase their self-regulation regimen as well as their coordination skills and self confidence. Playing sports also teaches discipline and time management skills.

Another form of behaviorist activity involves modeling or replicating behavior that is to be emulated. Some of the language schools provide workshops for the teachers to learn new teaching techniques and activities and this is done by modeling the workshop's presenter, texts, and other teachers or fellow workshop participants. Besides watching the presenter's presentations and demonstrations, the teachers engage in partner-based activities and then within small groups and then sometimes within a larger group. The partner based and small group (three or four people) based activities can be helpful for all subjects but especially for language, or English as a second language, classes since it allows the students more opportunities to speak the language that they are studying rather than waiting to be called on one at a time in a large classroom setting. Some of the activities are game type activities such as board games, bingo, match games, fill in the blank games, spelling games, etc. where the teachers practice the activities by watching each other and modeling each other's examples . Some are group activities where, for example, each of two teams tries to be the first to unscramble letters in words or words in sentences which are written on small pieces of paper. First these activities are modeled for the participants in the workshops by the presenter and then the participants re-enact the modeled activity. The same procedure is done for the students in a classroom where the activity is modeled for them usually by the teacher so that they understand what they are to do.

In art classes, much of the learning of technique and skills is done through modeling. The student watches the teacher and then imitates the action to learn how to handle material or to draw or paint.

For instance, in learning to paint portraits, the student studies various completed portraits that might have been done throughout history, then observes the teacher (live model) using certain materials and then watches as certain techniques are demonstrated such as how to draw a particular feature and the correct proportion of the parts of anatomy and mathematical formulas (such as comparisons of the distances of various features from one another, etc.). A similar technique involving listening (verbal instruction) is done while learning language as when the student listens to a word or phrase and then repeats it so this is also another type of modeling or learning by observing and then doing.

Cognitive Views of Learning

from the Merriam-Webster Dictionary (2003):

Cognitivism: 1 : of, relating to, or involving cognition (the act or process of knowing including both awareness and judgment) **2 :** based on or capable of being reduced to empirical factual knowledge.

Cognitivism involves how we acquire knowledge and concepts through the perceptions of our senses.

Below is an interesting example of how we cognitively perceive words:

> Aoccdrnig to a rscheearch at an Elingsh uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht frist and lsat ltteer is at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae we do not raed ervey lteter by it slef but the wrod as a wlohe. (Ross, 2003).

Following are several theoretical explanations of cognitive processes. Verbal learning is used in the language courses in the learning and explanation of new terminology and concepts. Also in the language courses that I teach, the principles of **Gestalt** psychology and theory are utilized particularly in the organization and presentation of the course material. Used in the course presentation are the law of proximity (items and subjects close together are linked as groups), law of similarity (similar items are viewed as a unit), law of closure (the observer fills in the missing pieces to form a complete picture or concept), law of Pragnanz (terseness or preciseness involving memory traces), and problem solving using restructuring and insight since human perception organizes concepts into comprehensible units or groups so that the whole can be "digested" gradually by consuming the groups or clusters of information.

Some of the findings of Jean **Piaget**, who said that people are active processors of information, are also used in the English as a second language course. Piaget said that knowledge can be described in terms of structures that change with development (scheme, cognitive structures, operations) and that

learning is a process of assimilation and accommodation. People are motivated to make sense of the world and he identified four stages of development: sensorimotor, preoperational, concrete, and formal which are determined to some extent by the maturation of the individual.

Lev Vygotsky's developmental theory involves the following principles:

1. Internalization
2. In the first few years of life thought and language become increasing interdependent
3. Adults transfer their culture to children
4. Children learn from people more advanced than themselves
5. Challenging tasks promote maximum cognitive growth

Other concepts besides verbal learning are **serial learning** (sequential learning — and this is most definitely used in the English language courses where new knowledge is built upon the foundations of previously learned knowledge — which involves **paired associative learning** such as foreign words with their English equivalents or words with their definitions, **primary effect** where the first items are learned quickly, and **recency effect** where the last or most recent items are learned quickly), **overlearning** (which brings to mind the idea of "information overload", such as all of the overwhelming information in a large text book or in a course such as the language courses, which is presented at a rapid pace, the information of which can later be returned to and reviewed in order for assimilation to occur), **distributed practice** (pacing the distribution of information over a realistic period of time). Also, taken into consideration while presenting the language course information, are the characteristics of the course material, such as the difficulty or simplicity of the presented information, that would affect the speed with which the learners can absorb it.

Cognitivism states that some types of learning might be unique to humans and that people learn best by becoming actively involved (such as our school's practice of TPR or Total Physical Response) and when knowledge is organized into comprehensible units. Also taken into consideration in the design of the language courses is that learning is a process of relating new information to previously learned information.

Another principle involved in the cognitive process is the transfer of learned material.

Vertical transfer is a sequential, additive process based on previous knowledge on which the new information is based such as in learning language, one begins with the alphabet then moves up to words then sentences and conversation or in learning mathematics one starts with numbers then

proceeds to arithmetic then geometry then algebra, etc. . **Lateral transfer** involves transfer between two similar, but not interdependent, informational sources such as learning two languages at the same time. **Near transfer** is the transfer of problems or situations that have similar but different variable characteristics and that are solved by the same solutional formula. **Far transfer**, which is less frequent than near transfer, involves problems with very different variable characteristics but that are solved by the same solutional formulas.

Specific transfer involves overlapping or parallel learning and transfer tasks. An example of this in the foreign language field would be the naming of the parts of speech (noun, verb, adjective, etc.) which would transfer and apply to English, French, Chinese, etc. **General transfer**, which is less frequent than specific transfer, such as study habits for one subject could transfer to another, e.g. from mathematics to language. **Formal discipline** involves having a regimen, structure, or curriculum for a course of study and this is also used in learning English as a second language.

Situated learning concerns learning within a context and relative to a particular situation. This is used often in language acquisition such as in the total immersion techniques for learning a new language. For example, to learn a foreign language, it is probably best to learn it within the country where it is spoken and used so that one is constantly surrounded by the use of the language skills that the learner is acquiring. The most difficult subjects to learn would be those that contain **inert knowledge** or knowledge that would not much be used outside of the classroom. An example of this could be learning to speak Latin although the learning to read and write Latin could transfer to learning other languages. Some people mistakenly think that learning algebra is inert knowledge though in actuality such knowledge is useful in many practical situations.

Factors that affect transfer include and that apply to the learning of a new language:

1. Meaningful, understood, and relevant data transfer more readily than data obtained through rote memorization.
2. Thoroughly learned information transfers more readily than superficial knowledge.
3. The more similar a situation is to the original learned skill the more likely transfer will occur.
4. Principles and concepts are more easily transferred than specific, concrete facts.
5. Practice increases the extent to which transferred skills can be applied to new situations (“practice makes perfect”).

6. Increase in the time lapse between the original learned skill and its application decreases the extent of the transfer.

"Modern cognitive psychologists believe that learning involves complex mental processes, including memory, attention, language, concept formation, and problem solving. They study how people process information and form mental representations of people, objects, and events." (Mazur, 2002). Cognitive learning theory involves the processes of obtaining, remembering, and applying knowledge. Cognitive learning is concerned with mental processes, and, unlike behaviorist learning, does not require learning to be done from a model and also does not require previous direct experience. Learning is manifested by a change in knowledge which also causes a change in behavior even though the learning itself is not directly noticeable. Latent learning is an internal process that changes the mental processes but is not indicated through changes in behavior. In 1930 American psychologist Edward C. Tolman, who considered himself to be a field theorist, demonstrated latent learning by showing that rats can make cognitive maps of a maze which they could use if it became necessary for them. Insight is solving through revelation a problem not solved before by the person with the problem. Inventions are examples of solutions through insight. Kohler demonstrated how a chimpanzee can use insight or ingenuity to solve problems in order to obtain food.

Types of knowledge according to cognitive learning theory are:

General: Generally useful information .

Domain Specific: Information specific to one situation

Declarative: Words, facts, etc.

Procedural: Knowledge used in performing tasks.

Conditional: Appropriate use of declarative and procedural knowledge.

Metacognition: Knowledge about one's own thinking. .

Constructivist Perspective: The learner as an active participant

Exogenous Constructivism: People make models of the external world within their minds .

Endogenous Constructivism: knowledge is derived from previous knowledge and not empirically derived by the observer.

Dialectical Constructivism: knowledge developed through the interaction of internal, cognitive and external (environmental) factors.

Radical Constructivism: subjectivity or personal relativism of perceptions.

Perception: The interpretation of sensory information based on past experiences. (Woolford, 1997).

The main areas of cognitive learning are memorizing, understanding, and applying and are listed below with examples of how they are used within the context of teaching English as a second language.

Memorization:

This is used in the memorization of spelling words, vocabulary words, pronunciation, definitions of words and grammatical rules.

Understanding:

When doing any activity or exercise it is important to check for understanding before a task begins. It is best not to ask "Do you understand?" because they might say "yes" but in fact do not understand. It is best to not repeat the target question or concept when asking a question which checks for understanding. In all of the activities the point is to get the students to understand since without understanding there is no communication. One of their vocabulary words recently was "communicate" and the text book define it for the children: "to read, write, or draw for someone" and I added "so that they can understand you" because without the element of understanding no communication occurs.

Application:

This is one of the most important areas of cognitive learning because it is necessary to apply one's knowledge in order to make it worthwhile for having obtained it in the first place. Going on field trips, having students engage in participatory activities, reading out loud, repeating after the teacher, role playing, and having conversations and discussions in English are all ways that the learners can begin to apply their knowledge. The general reason for them to study English in the first place is so that they can communicate with English speakers so that they can someday travel, live, work or study in an English speaking country or in their own country they can communicate internationally for travel, work, business, or social purposes. With this knowledge, their horizons will be greatly expanded and the possibilities for new opportunities can increase exponentially.

Memory and Motivation

from the Merriam-Webster Dictionary (2003):

Memory: **1 a :** the power or process of reproducing or recalling what has been learned and retained especially through associative mechanisms **b :** the store of things learned and retained from an organism's activity or experience as evidenced by modification of structure or behavior or by recall and recognition; synonyms: remembrance, recollection, reminiscence.

Motivation: **1 a :** the act or process of motivating **b :** the condition of being motivated **2 :** a motivating force, stimulus, or influence: incentive.

Learning and memory involve storage, encoding (modified information, changed, and simplified) and retrieval.

In 1890 William James identified the three components of memory as after image, primary memory, and secondary memory. Using a similar concept, W. Watkinson and R. Shiffrin (1968) identified the dual-store model which consists of **sensory memory** (unlimited capacity, visual and auditory form of storage of a very brief duration), **short term** (working) memory or STM which is affected by intensity, novelty, incongruity, emotion, and personal significance), and **long term** memory or LTM. long term memory storage processes involve selection, rehearsal, meaningful learning, internal organization, elaboration and embellishment, visual imagery, and procedural knowledge. Factors affecting working memory are working memory, prior knowledge, prior misconceptions, expectations, verbalization, enactment, and repetition and review. Long term memory can be encoded with symbols (numbers, words, etc.), appearance, meanings, and actions and is organized with hierarchies (the entire network of information within a category), propositional network (the chain of thought within a network), and parallel distributed processing (numerous informational nodes being processed simultaneously). *Concepts*, *schemas* (a connected set of ideas), *scripts* (how events typically transpire), and *conceptual change* are involved in the processes of long term memory. Long term memory involves retrieval using *associative cues*, *construction*, and *forgetting*. Forgetting can be caused by decay, obliterative subsumption (information replaced by new information), interference (one set of information interfering with recalling another set), failure to retrieve, repression (repressing painful memories), nonstorage, and construction error ("remembering" unencountered information).

Increase of wait time by three seconds (Mohatt and Erickson, 1981; Rowe, 1974, 1987;

Tharp, 1989; Tobin, 1987) can increase student participation, better quality of student response, better classroom performance, different kinds of questions, flexibility in instruction, and changes in expectations (Omrod, 2004). I have noticed this while teaching the ESL classes that, the students like the excitement of playing word games, etc., it is helpful to their learning process if I briefly pause while waiting for answers rather than expecting rapid-fire interaction.

Learning also involves metacognition, self-regulated learning, and study strategies which can include meaningful learning and elaboration, organization, note taking, identifying important information, summarizing, comprehension monitoring, and mnemonics.

Some examples of **mnemonics** are the well known "Roy G. Biv" for remembering the colors in the rainbow or attaching definitions according to the sounds in the word or other associations. For example, “stalactites” hold “tight” to the ceiling and “stalagmites” “might” make it to the ceiling. Or “meteoroid” sounds like “asteroid” or something from outer space, “meteor” can make one think of a meteor shower through the Earth’s atmosphere, and “meteorite” sounds like an earthly rock like bauxite or graphite. “Lava” is the most visible and obvious and is therefore the most often used word whereas “magma”, as is expected since it is underground and out of sight, is the least used word.

Also in the ESL classes I have been teaching many visual learning devices, including flash cards, have been used. Pictures, role play, and drawing all give a visual dimension to the learning of a language. For example, to a very young child first learning the word “look”, the two Os in the word can be made into eyes. Also, realia is effective where real objects are used to teach principles to be learned such as dissecting a frog for biology class or using a real clock to teach the students how to tell time.

The **social nature of learning** involves student interaction with adults and peers and includes apprenticeships, class discussions, reciprocal teaching (gradually turns the teaching role over to students), cooperative learning, peer tutoring, community of learners, and technology-based solutions (computers, on-line courses, audiovisual equipment, etc.). Apprenticeship includes modeling, coaching, scaffolding (support system), articulation, reflection, increasing complexity and diversity of tasks, and exploration. Norm Chomsky in the 1950s developed the ideas of shaping, reinforcement, generalization, discrimination, and observational learning for children and adults learning language

Factors that influence learning ability are motivation, prior experience, intelligence, and learning and developmental disorders. Memory and learning are interrelated and the processes of each are similar. Although the English language uses a single word for memory, there are many different kinds.

Usually the three main types listed are sensory memory, short-term or working memory, and long-term memory. .

Encoding is the process of perceiving information and bringing it into the memory system. **Recoding** is also called chunking, because separate bits of information can be grouped into meaningful units, or chunks. For example, unscrambling individual nonsensical letters into one meaningful word can make those collection of letters remembered and this technique can be used in my ESL language classes. One recoding method that people often use to remember information to rehearse the information,

or to repeat it mentally. Also useful is elaborative processing, which involves thinking about information in a meaningful way and associating it with existing information in long-term memory.

Explicit memory refers to the conscious recollection of facts. Recognition tests require students to examine a list of items and find the ones they have seen before, or to decide if they have seen an item before, or identify the correct choice. Multiple-choice and true-false exams are kinds of recognition tests and these are used often while teaching my ESL classes.

In some cases, recall can be even more effective than recognition in teaching ESL there is quite a bit of eliciting to get the students to recall an answer. In a class of fifteen students usually the collective consciousness of the class usually brings up a correct answer especially if they have been told the answer previously within the course lessons.

Implicit memory refers to using stored information without trying to retrieve it. Psychologists use the term priming to describe the relatively automatic change in performance resulting from prior exposure to information. Priming occurs even when people do not consciously remember being exposed to the information.

A **retrieval cue** is any stimulus that helps us recall information in long-term memory and this technique is used often to get the ESL students to recall words by eliciting responses from the students by supplying clues and prompts. Distinctiveness is another principle that determines the effectiveness of retrieval cues. Overt cues such as sights and sounds can induce remembering such as, for the ESL students, recorded music. One listening exercise is to get the students to listen to songs and give them paper with the songs lyrics but with some of the lyrics blank so that they have to fill in the blanks with the word as sung in the song that they are listening to.

There is also mood-dependent memory such as deja vu and jamais vu (someone sees something they have seen before but they think they have not). There is also the tip-of-the-tongue state and flashbulb memory (a clear memory of a traumatic or important event).

Another way our cognitive system introduces error is by means of inference. Forgetting is defined as the loss of information over time. The decay theory of forgetting is the oldest idea about forgetting that says that forgetting is caused by decay. But reminiscing of long ago memories seems to contradict this theory. Some scientists say that forgetting occurs because of interference from other information or activities over time. The two types of interference are proactive interference, where prior learning interferes with the ability to recall newer information, and retroactive interference, where new information interferes with the ability to recall earlier information or experiences. Repression, which refers to forgetting an unpleasant event, is another cause of forgetting. The idea of repression was introduced by Sigmund Freud.

Concerning the physiological processes of learning, remembering involves the chemical connections within the brain and alterations in the neural pathways. Long term memories are thought to be stored in the **hippocampus** and the **prefrontal cortex** links the long-term memories to the senses so that one can respond to events as they happen. The **cerebellum** processes the skill memories so that movements are coordinated.

Learning is usually most efficient and rapid when the learner is motivated and attentive.

Motivation can be **intrinsic** (internal rewards) or **extrinsic** (external rewards). Motivation involving the basic human needs includes drive theory (survival drive, etc.), arousal (attentiveness), Maslow's *hierarchy of needs* (physiological, safety, belonging, esteem, and self-actualization), competence and self-worth, and relatedness (feeling of social connectedness). Individuals have different needs for affiliation, approval, and achievement. Also, related to motivation is affect which includes the emotions of pleasure, anxiety, excitement, pride, depression, anger, guilt, etc. (Omrod, 2004).

Cognitive factors in motivation include intrinsic motivation such as self-efficacy, self-determination, and response from others as well as establishing goals towards which the student progresses. Motivational attributions include contingencies (conditional possibilities), self-efficacy, learning strategies, metacognition (people's recognition and regulation of their own learning processes), self-regulated learning, self-worth, self-handicapping, relatedness, expectancies, values, and affect. (Omrod, 2004).

Motivation is the cause of an organism's behavior. In a human being, motivation involves both conscious and unconscious drives. Psychological theories must account for a "primary" level of motivation to satisfy basic needs, such as those for food, oxygen, and water, and for a "secondary" level of motivation to fulfill social needs such as companionship and achievement. The primary needs must be satisfied before an organism can attend to the secondary drives.

Motivation can be primary such as the need for food and clothing or secondary such as the need for companionship and success (and perhaps fashionable clothing). The American psychologist Abraham Maslow devised a hierarchy of needs that, according to his theory, explain human behavior. Maslow a states that the needs are: (1) physiological; (2) safety; (3) love and belonging; (4) esteem; (5) self-fulfillment and curiosity and (6) self-actualization. Some theories say that an organism is thought to desire a state of no stimulation which brings to mind the Buddhist concept of nirvana. Though recent cognitive theories of motivation, however, say humans want to optimize, rather than minimize, stimulation and this better explains their exploratory nature and the need for variety, art, travel, and curiosity. (Mazur, 2002).

The teacher functions as a facilitator and mediator between the student and the body of knowledge to be learned and should provide the sort of knowledge, expertise, and training necessary for the students' intellectual and cultural growth. The teacher can only make the students aware of the immediate and future extrinsic rewards. Concerning intrinsic and extrinsic learning, I think when we as learners read or study, for our own enjoyment or edification, subjects on our own that we are not required to take then we are involved in more intrinsically motivated behavior. The contents of on-line courses or other university courses could conceivably be studied by the learners themselves at their own structure and pace and that type of motivation could perhaps be considered intrinsic depending upon the ultimate intent of the learners. Enrolling in a course for credit and usually working toward a degree implies that the enrolled student is extrinsically motivated in taking the courses.

Intrinsic motivation, by definition of the word, is internal to the student so therefore it can not be increased by the teacher through a series of immediate rewards and punishments or the promise of future rewards and punishments of success, communication skills, technical skills, career advancement, and material possessions or of the lack of the previously mentioned rewards. For these reasons the teacher can only offer extrinsic motivation since intrinsic motivation comes from within the student. In my ESL classes the extrinsic rewards include the in-house school currency given to them for positive achievements and scaffolding and support from the teachers, staff, and peers.

A student's motivation as a graduate student is a combination of intrinsic and extrinsic factors and my educational motivation has been throughout my life. An infant or very young child is motivated intrinsically out of curiosity and survival drives. Later, the motivation becomes more extrinsic as the child attempts to please its parents and others. I think as a person matures, in addition to the rewards that are

intrinsic and for personal satisfaction, the rewards are external to the internalized knowledge and become increasingly more extrinsic in nature. As a motivational technique, in the ESL classes I have been teaching, in-house school currency is given as a reward for good performance — or they are taken away as punishment. Another motivational technique is posting the Student of the Week's name in the front of the classroom every week on a poster created for that purpose. These externalized rewards can include success, communication skills, technical skills, career advancement, and material possessions or of the lack of the previously mentioned rewards and are in line with the concepts of B.F. Skinner as described in his theories of operant conditioning. Also, students can be motivated to learn by taking elective courses that are of use and interest to them.

During each ESL classes, at some point, I always ask the students: Why do you study English? The answers vary. Some even say that they are forced to or have to. But others give more positive answers. I tell them that, if they are to live, study, travel, or work abroad, they will need to learn English since it is the international business. Other reasons are: to enjoy cultural products such as music with lyrics, movies, books, magazines, and the Internet. Even if they never leave their country they at some point will need to communicate internationally for international trade or social communication and they might also need to communicate with foreign visitors to their country who most probably will speak English. Most of them are motivated since they are interested in a university education in the future and they realize that it is essential for them to learn English. All of these reasons provide motivation to study and learn English.

Conclusion

Behaviorism is important in learning a new language in that it is the physical participation — some have referred to this as total physical response — that instills the knowledge that is learned. As in a flashbulb memory or with traveling , there is nothing like actually being at an event in remembering that event. To be able to actually use the acquired knowledge is really the purpose of learning it. So in order to be able to actually read, write, speak, listen to, and understand a language one must physically participate in the behavior involved in doing these activities. As a behaviorist technique, modeling is an effective way of learning a language by imitation or emulation especially when pronunciation is involved.

Cognitively, the physiological processes involved in learning are important but at the chemical and cellular biological level these processes are of interest primarily to scientists to study in order to improve learning abilities for learners in all areas. In language learning, cognition and understanding is essential to learning the meanings of words and concepts and even for the learning of the formation of letters and the arrangement of letters for words for spelling purposes.

Memory assures that the knowledge is retained to be later retrieved and motivation supplies the fuel for all learning. If the student can see no reason for his learning a particular subject then the chances of his adhering to an academic program are minimal at best. To demonstrate to the students the practical uses of learning is one of the best services a teacher can provide and, in the field of language learning, the uses of the new language. These uses include communication through reading, writing, speaking, and listening to English speaking people, in order to be able to travel worldwide, study in a foreign country, live in a foreign country, to meet people from all over the world, to do business internationally, to meet and entertain English speaking people within their own country, and also to enjoy English language cultural products such as books, magazines, movies, games, compact disks, and the Internet, to name a few.

Learning involves the concepts of behaviorism, cognitivism, memory, and motivation. The concepts from each of these areas can be applied toward all areas of learning including the teaching of English as a second language, in which I have been involved for the last several years. With their newfound knowledge, the language learners can (as students, travelers, hosts to foreigners, friends of foreigners, or business people) communicate worldwide using the international language of English thus helping to create a more communicating, democratic, and peaceful world.

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'Psychology as a behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is â€¦ prediction and control.' (p. 158). The components of a theory should be as simple as possible. Behaviorists propose the use of operational definitions (defining variables in terms of observable, measurable events). Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking and emotionÂ The theory has often been called a bridge between behaviorist and cognitive learning theories because it encompasses attention, memory, and motivation. Reductionism. Reductionism is the belief that human behavior can be explained by breaking it down into smaller component parts. cognitive, and provide a definition of cognition that is, not only inconsistent across texts, but so broad as to overshadow the behaviorist contributions. Suggestions are provided for.Â learning in a department where I am probably the only behavioristâ€”at least the only one proud to say. so. In my 18 years of teaching both the undergraduate and graduate courses on learning, I am often. shocked by how little colleagues and students know about behaviorism apart from the catch-phrases. and stereotypes associated with attacks on John B. Watson and B. F. Skinner.Â and motivation. Of course, they are not the only behaviorists who attempt to tackle the intricacies of. human behavior and are part of the tradition of Watson, Hull, Miller, Tolman, Guthrie, Mower, and. Skinner among others. Behaviorist theory says that learning is just the acquisition of new behavior based on environmental cues (observable behavior) i.e. linking a new behavior to a stimulus by providing a reward after the right behavior is produced. In other words, a...Â The cognitive perspective on learning is that it involves changes in memory, and there are many different theories within the cognitive perspective about how memory is structured and about the processes involved in memory. The dominant perspective in cognitive psychology is that human beings â€œprocess information,â€ and that mental structures and processes are the building blocks of mind. This is a very simplistic description, but provides the essentials. Related Questions.