**PS385: Targeted Topics in Applied Behavior Analysis**

**Discussion Board Lecture: Unit 7 Media Lecture**

**Unit 7: Applied Behavior Analysis Applications in the Special Needs Population**

**Lecture:**

Welcome, students! Many of the applications of applied behavior analysis (ABA) are rooted in work with special needs populations. More than ever, people today have become increasingly aware of, and sensitive to, the needs of those individuals with special needs, such as, autism, cerebral palsy, and moderate to severe intellectual impairments, and other developmental disabilities. Behavior analysts are often charged with the task of helping these individuals develop skills in many routine activities of daily living that most people tend to take for granted, such as tying shoes, getting dressed, bathing, even making a bed. While most people do not need special training programs to gain such skills, others do. Many people think applied behavior analysis (ABA) addresses only unwanted behaviors that one wishes to reduce or do away with completely. Actually, an important area of our work is the development of acquisition programs, i.e., programs that teach new skills or improve and increase existing skills.

The techniques of shaping and chaining can be used to effectively teach new skills or improve upon ones that are in the client’s repertoire but that may need improvement. These strategies can be used to teach a variety of skills. You will learn about specific situations in which shaping and chaining can be applied.

In addition to exploring the acquisition techniques of shaping and chaining, you will revisit the antecedent modification techniques of non-contingent reinforcement, high-probability (high-p) request sequences, and Functional Communication Training (FCT) that you studied in Unit 4.

Shaping is a technique used to teach new behaviors, i.e., behaviors that are not currently in the learner’s repertoire. It is the process of reinforcing closer and closer approximations to the desired behavior, referred to as the “terminal behavior.” This shaping is accomplished through Differential Reinforcement (DR) that is applied to produce a series of slightly different response classes, with each successive response class becoming closer to the desired behavior goal – or terminal behavior.

In Unit 4, you learned about the many applications of DR. Basically, DR is used to extinguish an unwanted behavior – or, in this case, a previous form of the desired behavior, and to reinforce the desired behavior – or, closer and closer versions of the terminal behavior.

There are two effects of using DR in a shaping program, i.e., responses similar to those that have been reinforced occur with greater frequency and responses resembling the unreinforced members are emitted less frequently (In other words, they undergo extinction.). This results in response differentiation, i.e., the emergence of a new response class composed primarily of responses sharing the characteristics of the previously reinforced subclass – with the caveat that each newly reinforced subclass resembles, more closely, the desired terminal behavior. By setting a gradually changing criterion for reinforcement during shaping, you obtain a succession of new response classes, or “successive approximations,” each one closer in form to the terminal behavior than the response class it replaces.

A shaping program can be made more efficient by including a discriminative stimulus, a vocal prompt, physical guidance, or an imitative prompt. Later, any prompts that have been used are faded.

Chaining is a training technique in which specific sequences of stimuli and responses are linked to form new performances. A behavior chain is a specific sequence of discrete responses, each associated with a particular stimulus condition. Each discrete response and the associated stimulus condition serve as an individual component of the chain.

Each stimulus that links two sequential responses in a chain serves dual functions, i.e., it is a conditioned reinforcer for the response that produced it and a discriminative stimulus for the next response in the chain.

Chaining can be used in a variety of training programs to improve independent living skills; to join stand-alone behaviors to create more complex sequences of behavior; and to build behavior repertoires in generalized settings.

The three major chaining approaches include forward chaining, backward chaining, and total task chaining. The first order of business after determining the task you wish to train is to create a task analysis. Creating a task analysis involves breaking a complex skill into smaller, teachable units, the product of which is a series of sequentially ordered steps or tasks. Basically, this is a step-by-step guide to accomplish a task. You will want to validate your task analysis to insure that the sequence of stepwise critical behaviors that comprise the complete task lead to it being performed efficiently. There are several ways to validate your task analysis: 1. Complete the steps in the task analysis yourself; 2. Observe someone else performing each step; and 3. Consult an expert.

Prior to beginning the training using the chaining procedure, it is a good idea to assess the masterly level of the learner. The purpose of assessing mastery is to determine which components of the task analysis the learner can already perform independently. The two main approaches to mastery assessment include the single-opportunity method or the multiple-opportunity method:

1. Single Opportunity Method: The learner is being assessed on his/her ability to perform the given tasks in the correct sequence. Once a mistake is made, the assessment is ended. Subsequent steps are scored as prompted and independence is calculated accordingly.
2. Multiple Opportunity Method: The learner is assessed on the mastery of all steps in the given task. If the learner completes a step incorrectly or out of sequence, the assessor completes the step for the learner and then positions the learner for the next step. Once the task is completed, independence can be calculated.

Training using forward chaining requires that the behaviors identified in the task analysis be taught in their natural sequence. Reinforcement is delivered when the predetermined criterion for the first behavior in the sequence is achieved. The learner only moves to the next step in the task analysis when that criterion has been achieved. Thereafter, reinforcement is delivered for criterion completion of Steps 1 and 2, etc. With each successive step, reinforcement is delivered contingent on the correct performance of all steps trained up to that point.

Backward chaining is always a bit confusing. Many people think that the task analysis is trained in reverse order. This, of course, isn’t the case. In backward chaining, all steps identified in the task analysis are completed by the trainer in sequential order except the last step. The trainer steps aside and allows the learner to then complete the final step. When that final step is performed to criterion, reinforcement is delivered. Once the learner meets the predetermined criterion for the final step in the sequence, the trainer completes all of the steps in sequential order except the last two. The trainer then has the learner complete the last two in the sequence. When the last two steps in the sequence are performed to criterion, reinforcement is delivered. Training continues in that fashion until all steps in the task analysis can be performed proficiently. One of the advantages of using the backward chaining method is that the learner comes into contact with the contingencies of reinforcement immediately, which allows the functional relationship to develop.

Total-task chaining is a variation of forward chaining. The task analysis is trained in sequence – as in forward chaining, but the learner receives training on each step in the task analysis during each training session. Trainer assistance is provided using response prompts for any step the learner is unable to perform. The entire chain is trained until the learner performs all the behaviors in the sequence to criterion.

The shaping and chaining methods of training new behaviors and increasing the performance proficiency of complex sequences of behavior have been highly valuable in increasing independent living skills of many individuals, as well as laying a foundation for learning more complex skills. An understanding of how to implement these strategies will be highly valuable to you in your career. But, this understanding goes beyond teaching desired behaviors; an understanding of the chaining process can allow you to interrupt an unwanted behavior chain. If you can identify the initial discriminative stimulus that sets the occasion for the first behavior in the chain and substitute an alternative discriminative stimulus, you can work to prevent the unwanted behavior.

These techniques, derived from the principles of ABA, have been highly effective in modifying unwanted behaviors and teaching new behaviors that work to increase the reinforcement our clients receive in their daily lives, thus increasing their quality of life!

Thank you for viewing your Unit 7 lecture!