Satiation and motivation: a discussion of experimental findings research papers e...

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- Introduction

Motivation is a behavioral concept used to illustrate momentary effects of administration of a conditional operation. A motivating operation was initially developed in order to show the results of changing the normal conditions of an organism by either increasing or reducing the operant can either increase or reduce its effectiveness. Motivation can therefore be defined as a measure of effectiveness on change of amount of a reinforcer. This operation affect whether an organism wants or does not want a stimulus. Motivating operations that result increase of effectiveness of a stimuli are referred to as establishing operations (EO). On the other hand, those that decrease the effectiveness of a stimulus by a reinforcer are referred to as abolishing operators (AO).

Establishing operations hence indicate increase in effectiveness of a reinforce while abolishing operations imply a decline in effectiveness of the administered consequence. The results of Colwill and Rescorla's experiments show a decided modification in the instrumental response wherein the reinforcer has been devalued, meaning that it no longer is desired or sought after. As seen in experiments 1 and 2, the devaluation was accomplished by providing an aversion to the reinforcer, thereby making it easier to avoid. In experiment 3 the same result was gained by satiation. In all three of the mentioned cases it was seen that the design set forth does in fact permit the conclusion that there was a very noticeable change in performance that was response-specific, and thereby the desired result.

Motivation and satiation have a distinct effect on operant problem behavior as well, making this discussion incredibly important in terms of addiction

response and treatment (Sweeny and Shahan 2013). Sweeney and Shahan (2013) looked at the use of alternative reinforcement on operant problem behavior, particularly addictive behavior; when higher rates of alternative reinforcement are used, there is a much faster response elimination of the behavior. However, when lower rates of alternative reinforcement are used, the behavior was slower to subside, but there was also less resurgence of the unwanted behavior (Sweeny and Shahan 2013). Ideally, it was discovered that to target operant unwanted behavior, a high rate of alternative reinforcement is needed in beginning stages of treatment and then the alternative reinforcement must be thinned considerably (Sweeny and Shahan 2013). Sweeny and Shahan (2013) note that there is a balance to be struck between motivation, scarcity, and satiation; this balance is functionally important in altering the course of behavior for individuals. Hodos (1961) discovered that there is a progressive ratio that can be used to measure motivation; according to Hodos' (1961) theory on motivation, there is a distinct and measurable relationship between reward and deprivation variables. In terms of behavior, Hodos (1961) demonstrated conclusively that behavior and the progressive ratio schedule seems to correlate with reward and deprivation parameters.

Satiation is, by and large, stimulus-specific. This discussion will not focus on associated learning; the reality of being satiated is a stimulus-specific state, not a learned state. This is the fundamental discovery articulated by Colwill and Rescorla (1985). Colwill and Rescorla are not interested in associated learning. One mainstay of the experiments that has been produced is that each one has employed a within-subject procedure. This of course has many

important consequences. It has allowed the choice, or the use of a choice between responses where the reinforcer has been shown differential treatment with the same animal. This may well enhance the ability to notice the effects of these treatments. The procedure also allowed the ability to conduct treatments that were seen to modify the values of the reinforcer within the testing chamber. It is worthy to note that this was done without fear that any treatments could have a nonspecific performance. The consequence remains is that it can be certain that, prior to the test, that the treatments have seen successfully introduced differences in the reward values in the test chamber. It might very well be that the procedural differences are responsible for the detectable differences. After a satiation period there should be lower breakpoints, under the reinforcement condition only for the reinforcer that was satiated, the researcher should not see changes in the breakpoint for the other reinforcement conditions that was not satiated. The hypothesis utilized in this experiment is as follows: after a satiation period there should be lower breakpoints, under the reinforcement condition only for the reinforcer that was satiated, the researchers should not see changes in the breakpoint for the other reinforcement conditions that was not satiated.

II. Methods

The class experiment involved administration of candy until no more could be eaten.

Participants

Participants were randomly selected with data of each participant recorded. They were all required to string the beads until they could string no more

Setting

Regardless of this outcome all of the groups showed a decreased response in an extinction session after the introduction of contingency-degradation training, which again indicated goal-oriented behavior. The results sufficiently demonstrate that such tests of behavioral flexibility can produce very dissimilar results in the same test subjects

Materials

The materials provided were a two foot long elastic string, a small cup of black beads, and collected data on a on a sheet of paper with a writing utensil. The reinforcers provided were candies such as Twix, Reeses, gummy bears and pretzels

Design

The design of the experiment was arranged by alternating treatment design with a baseline phase. It included a dependent measure with breakpoint (y axis) that sat on a progressive ratio schedule of reinforcement. The dependent variable in this discussion is a progressive ratio schedule of reinforcement. Breakpoint is the last completed ratio requirement on a trial. There are two independent variables in this trial: IV1 and IV2. IV1 is the reinforcement condition: it has 2 levels, and participants can either earn candy or time off. IV2 indicates the level of motivation/satiation/EO. In the baseline state, there was no AO present, and there is a 2nd phase that occurs after satiation. There were 4 means total for the experiment: because there were two conditions under which the researchers tested each variable,

there were 4 means for the experiment. These were different conditions under which the researchers investigated four different behaviors.

Procedure

The participants would string beads to earn tally mark for specific stimulus. Stringing enough beads earned the participant a tally mark and each was allowed to continue stringing as long as they wanted and also quit tallying whenever they wanted or alternatively stop stringing for a minute. They were not allowed to either converse with experimenter; eat candy or use laptops, cell phones or tablets.

Verbal cue presented, ' you can start beading' indicated start of the experiment. The participants had to string one black bead. Stringing was counted when a string is placed in the hole of bead and pushed to the knotted end of the string which earned each a mark when the bead removed. A verbal cue, ' you can continue stringing if you wish' increased the ratio requirement. Whenever a participant stopped stringing, it marked the end of the trial and were given a one minute break to serve as an intertribal interval. The breakpoint was indicated by completion of ratio requirement. It was recorded in the right most shaded column and then move to the next trial after one minute inter-tribal interval.

III. Results

The overall results for the intersection between satiation, reward, and motivation are provided in the graph of Figure 1 below. Breakpoint is provided as the y-axis, while trial number is graphed on the x-axis:

Figure 1.

The result of the test shows a definite link between reward and motivation, as has been stated above, and amid variations the same is true. What is increasingly difficult to control are the variant behaviors. In this experiment participants were free to make their choices, only the reinforcement and conditions were manipulated, thereby making it far easier to observe and record the behaviors of the participants.

When responding for candy under these condition and for time off, the breakpoint level decreased relative to the baseline level, particularly post-satiation. As can be seen from the graphs, in the post-satiation phase, the candy breakpoint remains the same, while the time off breakpoint decreases to zero.

IV. Discussion

The experiment began when the experimenter informed the participant that they could start by stringing a single bead. Once this was done a tally mark was written down on the data sheet, and the experimenter took the bead - off. This process was to be repeated again and again until the participant stopped. Once this happened, the experimenter stopped writing tally marks, which were used as points for candy or the reinforcer, and the participant was allowed to either rest for a minute or else stop altogether. In this manner the experimenter was allowed to assess the participants' behaviors by either rewarding them with candy or time off from the activity (Colwill & Rescorla, 1985). Like the mice studied so diligently by Hodos, Colwill, and Rescorla, the students tested were more prone to show devaluation of the deprivation stimulus and move towards the reinforcement, thereby affirming the purpose of such tests that subjects are driven by motivation to perform

acts that can sometimes run contrary to what they desire (Shillinglaw, Everitt, & Robinson 2014). Motivation is a strong and deciding factor in many decisions that range from basic, instinctual reactions to more highly functioning, decisive moments in which an organism defines itself in a manner that is easily observed.

Colwill and Rescorla (1985) suggest that there are a number of ways to change the performance of a response by devaluing the reinforcer: the most important of these ways, for the subject of discussion, is the satiation response. When the satiation level is reached, Colwill and Rescorla (1985) note that the reinforcer is significantly devalued; this is the same response that was witnessed in the experimental procedure described above. The relationship between the breakpoint, candy, and the time off with satiation has been show to follow the same rules that Colwill and Rescorla (1985) demonstrated in their study. In a similar vein, Hodos (1961) notes that there are trackable ratios that exist between reward and deprivation ratios. These ratios were both trackable and predictable based on the parameters of the experiment (Hodos 1961).

The experiment and the results from the experiment fall within the expected bounds of the information given by Hodos (1961), Colwill and Rescorla (1985) and Sweeney and Shahan (2013). The researchers discovered that there is a definite link between reward and motivation, but also that satiation has a dampening or devaluing effect on the value of the reward to the subject. Indeed, the experiment showed a distinct link between motivation and the point of satiation-- that is, that satiation has a dampening effect on motivation.

The flaws within this system are that the given variables are subject to change-- most likely to exhibit change and variance are the test subjects, regardless of how they've been trained and or treated prior to the test. Such a variable cannot always be adequately recorded. Another flaw is the parameters of the test. While running mazes and showing problem-solving skills is indicative of a need to reach a desired motivation, it is not imperfect, as studies conducted within a laboratory are not entirely indicative of the natural habitat. There is little say that a rat within its natural surroundings, even trained to respond to certain stimuli, will act any different than its nature dictates. Third is the bias of the researcher: it is important to remain objective and record only what happens and what is noted, but far too many researchers possess their motivation for stretching forward and seeing what is not there at times. Although there were flaws in this particular experiment, no confounds were found; there were, however, a number of experimental flaws in the system. One of the main flaws was the choice of candy for rewards: candy as a reward is certainly not alluring to everyone, and many people find candy to be an unwanted sweet, not necessarily a rewarding experience. In this experiment, participants were free to make their own choices, and satiation was the only one of the variables that was controlled for; hunger, for instance, was not a variable that was considered to be applicable, despite the obvious effects that hunger could have on the motivation and satiation variables.

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