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Experimental Analysis of Human Behavior Bulletin

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THE EXPERIMENTAL ANALYSIS OF HUMAN BEHAVIOR BULLETIN

The EAHB Bulletin is published twice yearly, in the Spring and Fall, by the Experimental Analysis of Human Behavior Special Interest Group (EAHB SIG), a group organized under the auspices of the Association for Behavior Analysis (ABA). See the inside back cover for information about joining the SIG and contributing to the Bulletin.

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The cost of publishing the Bulletin is paid for by the dues of SIG members and by the Department of Psychology of West Virginia University.

CALL FOR GRADUATE STUDENT REVIEW PAPERS

The EAHB SIG will sponsor its third annual awards contest for graduate student authors. The purpose of the contest is to foster graduate student thinking and scholarly writing in the area of the experimental analysis of human behavior.

Papers must be an integrative review of some area of operant research involving the use of human subjects, although it is acceptable to include discussions of the behavior of other organisms. Papers may be written from historical, conceptual, theoretical, or empirical perspectives. Papers will be judged according to their clarity, scholarship, conceptual rigor, and thoroughness by a panel of experimental analysts who are established in this area. Names and affiliations of authors will not be revealed to members of the review panel. Authors of outstanding papers will be awarded certificates of merit and receive invitations to present their papers at the 1987 ABA convention. There will not be a set number of awards or a "first prize." Each author, whether or not they are awarded a certificate of merit, will receive a detailed, written review of their paper.

Submission materials must include three copies of the review paper and a letter from the student's major adviser stating that (a) at the time of submission, the student has not completed the requirements for the doctoral degree and (b) the paper has been written primarily by the student submitting the paper (although the major professor may help the student organize the paper as well as make conceptual and literary contributions).

Inquiries and submission materials should be sent to Barbara Wanchisen, Baldwin-Wallace College, Berea, OH 44017. The submission deadline is December 31, 1986.

PROCEEDINGS OF THE EAHB SIG GROUP POSTER SESSION
ABA CONVENTION, 1986

Thirty-six posters were presented at the third annual Experimental Analysis of Human Behavior poster session held at ABA on May 23, 1986 from 12:00 to 1:50 p.m. The session was well attended and stimulated much discussion. The following posters were among those presented. To encourage correspondence, we have included the name of a contact person at the end of each abstract.

TEMPORAL CONTROL OF HUMAN
BEHAVIOR: EFFECTS OF
TIME-RELATED STIMULI
UPON PERFORMANCE

Robert H. Bennett
University of Washington

Experiment 1 exposed four subjects to an FI 60-s schedule and VI 60-s schedules with interval ranges of ± 12 and ± 24 seconds. Experiment 2 exposed four subjects to a fixed DRL 20-s schedule and variable DRL 20-s schedules with interresponse time ranges of ± 4 seconds and ± 8 seconds. Lever presses produced points and illuminated a digital clock which counted seconds in real-time during the FI and fixed DRL conditions and in non-real time under the variable conditions. In Experiment 1 responding was similar across all conditions and three of the four subjects reported not counting (not using self-produced cues). In Experiment 2 responding altered with changes in the contingencies and all subjects reported counting. The results indicate that whether a response-independent clock attenuates the use of subject-produced cues and increases schedule sensitivity depends upon the requirements of the contingencies in the situation.

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DISCRETE-TRIAL S2 PROBES
WITH RETARDED CHILDREN

David A. Coleman, Jr.
Westchester Association for
Retarded Citizens

Transfer of stimulus control in retarded children was tracked, using Coleman's (1985) adaptation of Fields' (1975) probe procedure. Probes consisted of discrete presentations of S2. Control was transferred from colors (S1) to letters or numbers (S2) by fading colors from an S1/S2 compound. The present data replicate Coleman's (1985) finding of a gradual acquisition, as compared to Touchette's (1971) finding of an abrupt acquisition when probes consisted of delaying the S1 element of an S1/S2 compound. Also, the present data demonstrated a contrast-like effect on S2 performance. Solutions for attention-related acquisition problems, and for the contrast effect were discussed. Contact: D. A. Coleman, Jr., Westchester Association for Retarded Citizens, 121 Westmoreland Ave., White Plains, NY 10606

FUNCTIONAL TRANSFER BETWEEN
MANDS AND TACTS

G. A. Hall & P. N. Chase
West Virginia University

This study assessed some of the necessary conditions for transfer versus functional independence between mands and tacts. During pretraining, one deaf developmentally delayed male in

his early forties learned to complete three chains of behavior involving making and eating food items. Set A objects were used with Chain 1, Set B objects with Chain 2 and Set C objects with Chain 3. Probes were conducted to determine when the subject learned to tact and mand objects. During tact probes, an object from Set A, Set B or Set C was placed on the table in front of the subject. If he made the correct sign for the object, he received a reinforcer. During mand probes, the subject initiated one of the behavioral chains, but an object was missing. If he made the correct sign for the missing food object, he received it, completed the chain, and consumed the food item he had prepared. When the pretest was conducted, no mands or tacts occurred for any object. After tact training for Set A objects, tacting Set A objects increased to 100% accuracy, but there were no collateral increases in manding any objects, or tacting Set B or Set C objects. After mand training for Set B objects, manding and tacting Set B objects increased to 100% accuracy. In addition, tacting Set A objects was maintained at 100% accuracy and manding Set A objects increased to 63% accuracy without explicit training. No increase in tacting or manding Set C objects was observed. After tact training for Set C objects, both tacting and manding Set C objects increased to 100% accuracy. In addition, tacting Set A objects was maintained at 100% accuracy and manding Set A objects increased to 100% accuracy. Tacting and manding Set B objects were maintained at between 88% and 100% accuracy. These results demonstrated transfer between mands and tacts, when a subject with a history of tacting was trained on manding. Both functional independence and transfer between mands and tacts are possible, depending on a

subject's history.

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LEVELS OF COOPERATION BETWEEN HUMANS IN A COMPETITIVE SITUATION

M. J. Rossi & W. F. Buskist
Auburn University

Sixteen undergraduate students served as subjects in two experiments investigating cooperation between teammates in a competitive situation. In both experiments, subjects competed in same-sex dyads against a second dyad by pressing a lever for points. Experiment 1 investigated the effects of schedules of reinforcement using fixed-ratio and fixed-interval schedules. Levels of cooperation were directly related to the schedule subjects were initially trained under. In Experiment 2, subjects were paid either according to the team score, or according to the amount each earned individually. Distribution of payment did not differentially affect subjects' responding.

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CHOICE IN A SELF-CONTROL PARADIGM WITH HUMAN SUBJECTS: EFFECTS OF CHANGEOVER DELAY DURATION

G. R. King & A. W. Logue
State University of New York
at Stony Brook

This experiment examined the choices of human subjects as a function of changeover delay (COD) duration. A self-control paradigm was used; subjects chose between larger, more delayed and smaller, less delayed reinforcers. The COD durations were 1 s, 15 s, and 30

s. The results indicated that at the 1-s COD, the subjects distributed their responses approximately equally between the two response alternatives. However, at the 15-s and 30-s COD durations, the subjects tended to demonstrate virtually exclusive preference for the larger, more delayed reinforcer. Furthermore, increasing the COD duration significantly increased the subjects' sensitivity to variation in reinforcer delay. The results are qualitatively consistent with the predictions of optimal foraging theory regarding the effects of travel time on subsequent allocation of behavior. Contact: A. W. Logue, Department of Psychology, SUNY at Stony Brook, Stony Brook, NY 11794

THE ANALYSIS OF HUMAN
BEHAVIORAL ALLOCATION USING
VIDEOGAME TECHNOLOGY

H. L. Miller
Brigham Young University
S. W. Manning
The Waterford School

A "Space Wars"-styled videogame was developed for the Apple IIe microcomputer and interfaced to a PDP 8e minicomputer equipped with the SUPERSKED software system. Experiments were conducted with human subjects in which response and time allocations associated with the principles of maximizing and matching could be conveniently dissociated. This was accomplished by sampling response or time allocation at adjustable intervals and modifying schedule parameters in real time according to the size of the deviation of the obtained allocation from an "ideal" that conformed either to the maximization of overall reinforcement rate or to matching. Results demonstrated subjects' sensitivity to both patterns of allocation and suggested that, with continued exposure, there is

an orderly transition from one pattern to the other, specifically from matching to maximization. Contact: Harold L. Miller, Jr., Department of Psychology, Brigham Young University, Provo, UT 84602

CHOICE PATTERNS ON FIXED VS.
PROGRESSIVE RATIOS WITH
SHAPED GUESSING

B. A. Wanchisen, T. A. Tatham, &
P. N. Hineline
Temple University

Three undergraduates chose between a fixed ratio (FR) 140 and a progressive ratio (PR) 20 schedule of reinforcement. The PR schedule started with a requirement of 1 response and increased by 20 each time it was selected. The first response locked in the schedule until the schedule requirement was satisfied. Every selection of the FR reset the PR back to its original value of 1. Subjects were paid for their written guesses. Subject guesses were evaluated by two experimenters and points were assigned based on the topography of each guess. Subject's behavior was shaped to model optimal switching strategies, that is, selecting the PR only up to a value of 60 and then switching to the FR for one trial. Guessing resulted in a disruption of schedule performance even though the guess sheets were submitted during the time-out period. One subject reported that, with the introduction of the guessing phase, he would continue to think about what he was doing while he was doing it in order to prepare for the next guessing phase. This caused schedule performance to suffer. Another subject made a clear distinction between the two tasks and reportedly said one thing while actually doing another and, accordingly, her schedule performance was not disrupted by the guessing phase.

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DELAYED MATCHING-TO-SAMPLE:
A TEST OF THE TEMPORAL
DISCRIMINATION HYPOTHESIS
WITH HUMAN SUBJECTS

S. R. Menich & A. Baron
University of Wisconsin-Milwaukee

According to the temporal discrimination account of delayed matching-to-sample performances, subjects must discriminate whether the current stimulus or some previous stimulus is the sample on a given trial. One test of the hypothesis is to compare performances when stimulus pools of different sizes are employed because interference effects should be larger with small stimulus pools. Results indicated that subjects responded faster and made fewer errors on delayed matching-to-sample discriminations when the stimulus pool size was two than when the pool was eight. Although these results with human subjects are contrary to the temporal discrimination hypothesis and opposite to findings with monkeys, they are consistent with the well-known finding that human reaction times increase with increases in the number of stimulus and response alternatives.

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EXPERIMENTAL ANALYSIS OF
SELF-EDITING

C. Hyten & P. N. Chase
West Virginia University

This study made functionally covert verbal behavior in a speaker-listener relation accessible to the experimenter for

analysis of self-editing. The experimenter interacted with the subject via interfaced microcomputers. The experimenter asked the subject a question, the subject composed and transmitted an answer, and the experimenter delivered a consequence. In baseline sessions, most of the trials received approval by the experimenter. In the Disapproval phase, subjects lost points for their answers. Three out of four subjects showed some degree of elevated editing during the Disapproval phase. Two subjects produced more text in the early portions of the Disapproval phase. Pausing developed before, during, and after composition. Future research needs to examine changes in answer topography as a function of listener consequence.

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RESPONSE RATE AS A MEASURE OF
NORMAL HUMAN NON-VOCAL
VERBAL BEHAVIOR

T. H. Kelly, D. R. Cherek,
D. R. Micinski, & J. Grabowski
Veterans Administration and
Louisiana State University
School of Medicine
in Shreveport

Isolated dyad members pressed buttons and illuminated messages on response consoles to communicate. One subject viewed slides and pressed buttons labeled with categories of the slide images. The response illuminated similarly labeled buttons on the console of the paired subject, who did not have access to the slides. If illuminated buttons matched the slide categories, responses by the paired subject produced points exchangeable for money. The paired subject pressed buttons to illuminate a "thank you" message on the first console.

Concurrently, responses on unlabeled buttons on both consoles produced points independent of communications. Communication responses were affected by concurrent reinforcement contingencies, suggesting that nonvocal verbal response rates are sensitive to environmental manipulations.

Contact: Thomas H. Kelly, Albert Einstein College of Medicine, Bronx Psychiatric Center, 1500 Waters Place, Bronx, NY 10461.

THE DELAYED PROMPT WITH COMPLEX DISCRIMINATION

K. M. McCandless, B. C. Etzel, & J. M. LeBlanc
University of Kansas

Experiment 1 was a systematic search for procedures that would be effective for teaching complex discriminations to preschool children. Of the procedures implemented, three were variations on prompts delivered on a progressively delayed schedule; four were manipulations of the contingencies; and two, fading and reconstruction, were designed to be errorless teaching programs. The success of the prompt variations and the contingency manipulation procedures was inconsistent, successful for only a few children on some tasks. The errorless procedures were successful whenever used, and even though a delayed prompt was programmed as part of the errorless procedures, prompting was rarely needed. Experiment 2 further examined the function of the progressively delayed prompt in conjunction with reconstruction, an errorless training program. Reconstruction was effective for training complex discriminations to each of four preschool children. Modifications of the training procedure were indicated when independent correct responding decreased and prompting

increased. In this way, the delayed prompt served as a diagnostic tool while maintaining the subjects' contact with the correct stimulus.

Contact: Kathleen M. McCandless, 130 Haworth Hall, University of Kansas, Lawrence, KS 66045.

SYNTACTIC GENERATIVE GRAMMAR VIA MATCHING-TO-SAMPLE

A. A. Imam & P. N. Chase
West Virginia University

Four undergraduate students performed matching-to-sample tasks using English proper nouns and Arabic pronouns and verbs as grammatical elements, to establish syntactical classes based on gender. Following a pretest on probe relations, subjects matched proper nouns to their respective male and female pronouns and verbs. Correct responses on these trials were reinforced. Symmetrical and transitive relations were then tested. Also, new English proper nouns and Arabic verbs were used to test the generalization of the emergent relations. All subjects performed above the criterion of 90% in all equivalence probes. The results show that matching-to-sample procedures can establish gender classes.

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HUMAN PERFORMANCE UNDER PROGRESSIVE RATIO CONTINGENCIES: INITIAL INVESTIGATION

R. H. Bennett & H. H. Samson
University of Washington

Ten subjects experienced a progressive ratio schedule under three reinforcement conditions: (a) 20-point increments for each ratio, (b) 5-point increments with

each point redeemable for 1 cent, and (c) 20-point increments with each point redeemable for 1 cent. The 20-point/money condition produced the most responding while the 20 point/no money condition produced the least. Cumulative records revealed occasional breaks in responding and abrupt changes in response rate during some sessions. More breaks and slowing in response rates occurred during the points-only condition than in the 20 point/money condition. The results suggest that progressive-ratio contingencies can be effective for examining relative reinforcement value with humans.

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DIVIDED ATTENTION IN OLDER ADULTS: EFFECTS OF STIMULUS COMPLEXITY AND MODALITY OF PRESENTATION

W. R. Mattila, S. R. Menich, & A. Baron
University of Wisconsin-Milwaukee

Younger men and older men (65+) indicated whether a test stimulus was contained within a previously presented list by lifting one of two keys. The lists contained 1, 2, or 3 words presented visually and either occurred singly (undivided condition) or together with a second visual or auditory list (divided condition). Response speeds decreased with increases in the length of the lists and were slower under the divided than the undivided condition. The difference between attention conditions was smaller when the stimuli were presented in different modalities than in the same modality. When time limits were placed on responding, response speeds increased and

changes were maintained when the limits were removed. These effects generally were similar for the older and younger men except that the older men were slower. Although the time limit procedure led to substantial improvements in the older men's performances, the younger ones improved to the same extent with the consequence that age differences were not reduced.

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HUMAN NONVOCAL TACTING: EFFECTS OF GENERALIZED CONDITIONED REINFORCEMENT AND CONCURRENT REINFORCEMENT SCHEDULE CONTINGENCIES

T. H. Kelly, D. R. Cherek, D. R. Micinski, & J. Grabowski
Veterans Administration and Louisiana State University School of Medicine
in Shreveport

Subjects pressed buttons that ostensibly signaled, to a "partner" located in a separate room, the category of a slide image projected on the subject's response console. Responses were followed by "thank you," blank, or no message presentations. Messages were ostensibly controlled by the partner. Unrelated button responses produced points, exchangeable for money, according to concurrent reinforcement contingencies. Slide identification responses were affected by "thank you" presentations and concurrent reinforcement contingencies, suggesting that units of human nonvocal verbal behavior are functionally related to environmental events.

Contact: Thomas H. Kelly, Albert Einstein College of Medicine, Bronx Psychiatric Center, 1500 Waters Place, Bronx, NY 10461.

THE EFFECTS OF FEEDBACK IN
HUMAN CONCEPT LEARNING

T. Karlsson & P. N. Chase
West Virginia University

Previous research has suggested that feedback cannot be described in terms of reinforcement principles. However, the many methods of this research suggested reexamining the function of feedback within an operant framework. Five undergraduates learned to identify examples of concepts from a computer. Responding on fixed ratio (FR) 1 and FR 3 schedules of feedback were compared. Feedback was provided dependent upon correct responding only. The results showed that FR 1 feedback increased correct responding for all subjects who were exposed to that condition, while FR 3 feedback failed to do so. When feedback was withdrawn, most subjects' correct responding did not extinguish. Results were discussed in terms of the defining features of reinforcement.

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FEATURE-VALUE EFFECT IN CHILDREN:
AN ATTEMPT TO REPLICATE AND
FURTHER EXPERIMENTATION

K. M. Wright
Georgia Southern College
J. Michael & R. W. Fuqua
Western Michigan University

The initial purpose of this series of experiments was to determine whether the variables responsible for the appearance of the "feature-value effect" (FVE) are similar across three types of subjects that have been used in previous research, i. e., nonhumans, children, and adult humans. This initial purpose was abandoned, however, when the children who served as subjects in

Experiments 1 and 2 failed to make errors using the same procedures as had been used in previous FVE research with children. The results of Experiments 3 and 4 indicated that the provision of "yes/no" feedback and subject characteristics were not entirely responsible for the small number of errors obtained in Experiments 1 and 2. It was concluded that differences related to the use of automated vs. nonautomated equipment may account for the failure to replicate previous research with children. The purpose of Experiment 5 was to determine whether a FVE would be obtained in children using stimuli similar to those used in previous research with adult humans. No FVE was obtained. To test the possibility that it is difficult to replicate FVE research in humans, Experiment 6 was conducted with adult humans and a FVE was obtained. It may be that the FVE can only be obtained in children using stimuli of moderate difficulty. It is also possible, on the other hand, that the FVE is not as robust a phenomenon as previous research suggests.

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SOCIAL CONTINGENCIES FOR
RULE FOLLOWING: EFFECT ON
REINFORCEMENT-INDUCED
STEREOTYPY

D. Barrett-Rueger, G. R. Gaydos,
P. C. Quinn, & S. M. Deitz
Georgia State University

Two aspects of human operant learning were investigated in this study: reinforcement-induced stereotypy and social contingencies involved in rule-following. In a computer task, reinforcement was earned by responses which moved a lighted square through a 5 x 5 matrix. For half of the subjects the

experimenter remained in the room, for the other half she did not. Sixty-five percent of the subjects developed stereotyped response patterns. However, stereotypy was found to be more complex than the development of just one predominant response pattern. Manipulating social contingencies for rule-following was found to affect responding, with the Experimenter Present subjects showing higher degrees of response variability even though this contradicted the programmed contingencies.

Contact: Drue H. Barrett-Rueger, Georgia State University, Psychology Department, University Plaza, Atlanta, GA 30303.

RECOGNITION MEMORY IN OLDER ADULTS: RESPONSE BIAS AND SENSITIVITY

T. M. Surdy, D. Dougherty, &
A. Baron
University of Wisconsin-Milwaukee

Younger and older men (62+) identified repeated items in a series of verbal stimuli (continuous recognition memory). Signal detection analyses indicated that age-associated deficits in sensitivity were largest when the stimuli were low in meaning (alphanumeric strings vs. words vs. sentences). The procedure of reinforcing more liberal response patterns (increasing the penalty for misses and reducing the penalty for false alarms) had the effect of decreasing accuracy of the younger men and increasing it for older men. Contrary to some views of aging, the older men did not manifest more conservative bias patterns. They were, however, slower to adjust when the payoff matrix was changed.

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THE GENERALIZATION OF MATCHING-TO-SAMPLE IN RETARDATE

B. Lowenkron
California State University,
Los Angeles

Retarded children were trained in a form of matching-to-sample which produced generalization to novel stimuli. Subjects were taught to: (a) code shapes of samples using an appropriate handsign, (b) maintain the coding over a delay interval, and (c) repeat the coding response to the identical comparison. Generalization to novel shapes did not occur initially, but appeared immediately after handsigns were trained to these shapes. When handsigns were prevented, matching did not deteriorate. Rather, modified forms of the handsigns appeared and matching continued. Results extend prior findings concerning the structure of stimulus control sufficient for generalized matching.

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THE EXPERIMENTAL ANALYSIS OF INSTRUCTIONAL STIMULUS CONTROL IN HUMAN BEHAVIOR

J. Danforth & P. N. Chase
West Virginia University

Five college students were taught 12-component chains using a repeated acquisition design programmed on a Commodore 64. The experiment was a follow-up to Vaughan (1985) and tried to separate the effects of (a) learning with instructions combined with exposure to contingency-shaping, from (b) learning with just instructions and no contingency-shaping experience. Subjects responded to the 12-component chain with instructional stimuli in morning sessions and were subsequently

tested on the same chain without the instructional stimuli in afternoon sessions. When no molecular consequences were programmed in the afternoon, subjects did not respond accurately to the chains. As subjects were exposed to differential consequences they gradually began to emit accurate responses. Thus responding can be conditioned with the aid of instructional stimuli if subjects are also exposed to differential consequences.

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GROUP CONTINGENT, PUBLICLY POSTED
PERFORMANCE DATA AND RESPONSE
CLASS IN A RESIDENTIAL SETTING

R. Duus
Northland Mental Health Center,
Grand Rapids, MN

Location specific, publicly posted performance data were effective in improving and increasing interactions between staff and residents of an institutional residential program. The procedure used to provide the performance feedback to direct care staff also identified a response class of which feedback was not contingent but which covaried with the specified group of behaviors upon which the performance data was contingent. This resulted in larger increases in rates of interactions than could have occurred if only those behaviors upon which the performance feedback was contingent had increased. Not only the original purpose of improving staff-resident interactions was met, but also the maintenance of an apparently unreinforced but work related behavior. It is suggested that

the identification and use of response classes in organizational settings is an efficient way to maintain work related behavior. This study is the first deliberate identification and use of response class in an organizational setting.

Contact: Richard Duus, Northland
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REINFORCEMENT RULES AND
STEREOTYPY: A FAILURE TO
REPLICATE SCHWARTZ

D. L. Steele, S. C. Hayes, &
A. Brownstein
University of North Carolina
at Greensboro

The effects of reinforced pretraining on subsequent rule discovery were examined with college students as subjects. Levels of behavioral stereotypy observed during reinforced and non-contingent pretraining were compared. During pretraining subjects received reinforcement if they pressed each of two keys four times, beginning with two presses on the left key. During the problem session pressing each key four times was again a necessary condition for reinforcement. Subjects were asked to solve the problems by discovering the rule which determined whether or not they received reinforcement. Levels of stereotyped responding during pretraining were equivalent for contingently and non-contingently trained subjects. During the problem session contingently pretrained, non-contingently pretrained, and naive subjects required equal numbers of trials to solve the same number of problems. The results suggest that behavioral stereotypy observed in this experimental preparation may be due to repeated exposure to the task. Differences between the results observed in this study and

those of Schwartz (1982) and implications for use of reinforcement procedures in applied settings were discussed. Contact: David Steele, Area Health Education Center, Moses Cone Memorial Hospital, 1200 N. Elm St., Greensboro, NC 27401.

THE ESTABLISHMENT OF HIGH RATE SCHEDULE CONTROL THROUGH THE USE OF CLINICAL TRANSFER PROCEDURES: HISTORICAL, INSTRUCTIONAL, AND IMITATIVE TRANSFER

A. M. Wylie
The University of Chicago

A number of procedures used to establish or transfer patterns of behavior in the clinic were examined in the laboratory. Human operant responding of four subjects was examined under the control of either a modified geometric-ratio 2 schedule of reinforcement with a maximum value of fixed-ratio 250 or a fixed-ratio 250. High rate lever-pressing performance characterized by a steady and high rate pattern with negligible post-reinforcement pausing evolved during the first sessions of exposure to the geometric-ratio contingency by two subjects. A historical transfer was observed when this pattern was maintained by one subject when the controlling schedule was changed to a fixed-ratio 250. The particular high rate response pattern was not observed in the other two subjects. However, high rate patterns were established after exposure to an imitative transfer procedure for one subject and after an instructional procedure describing schedule relations for the second. The laboratory examination of clinical transfer procedures allowed precise demonstration and quantification of effects. Contact: A. Michael Wylie, 2800 N. Pine Grove Unit #8H, Chicago, IL 60657.

CORRELATIONS BETWEEN SCHEDULE-INDUCED PHYSIOLOGICAL RESPONSES AND SCHEDULE-INDUCED MOLAR BEHAVIOR

R. Spiga
Auburn University
J. D. Allen & A. Zeichner
University of Georgia-Athens

The proposal (Wayner, 1974) that adjunctive behavior is released by appropriate environmental stimuli in conjunction with heightened hypothalamic and brain stem motor activity was investigated. Human cardiovascular responses associated with sympathetic and parasympathetic interaction, as well as molar adjunctive behaviors (eating, drinking, grooming, and activity), were measured over a wide range of intervals between trials on a videogame. The intermittently scheduled game, "Starwars", consisted of Klingon Starships crossing a monitor screen one at a time at random times and latitudes over a 15 s period. During this game period subjects could launch missiles to down the invaders. Each hit netted 10 points; each miss cost 2 points. Cardiac deceleration occurred at game onset and acceleration at the intergame interval's onset. Vasoconstriction was observed 1 - 4 s after game onset and returned to baseline 8 s into the game interval. Post-game bursts of activity, eating, and drinking were observed 2 - 6 s after the game. A time series regression analysis demonstrated that the magnitude of vasoconstriction predicted the frequency of activity occurring 5 s later. The frequency of consummatory adjunctive behavior was predicted by vascular tone and an auto regression component. These observations suggest that physiological measures mediated by hypothalamic activation are associated with subsequent human adjunctive behavior. This link

supports Wayner's (1974) arousal theory of adjunctive behavior. Contact: Ralph Spiga, Department of Psychology, School of Sciences, Auburn University at Montgomery, Montgomery, AL 36193-0401

IMPLICIT PROGRAMMING STRATEGIES
IN THE DEVELOPMENT OF HIGH RATE
SCHEDULE CONTROL

A. M. Wylie
The University of Chicago

Human performance was examined under modified geometric-ratio and a progressive-ratio schedules. A systematic program, as used in programmed instruction, influenced the lever-pressing performance of a single subject. The terminal outcome was a consistent and high rate response pattern under the control of the geometric-ratio. Uninstructed performance was characterized by an unsteady break-and-run pattern of responding over the initial six sessions. Patterns approximating the terminal repertoire were observed during the seventh and eighth sessions under a progressive-ratio schedule; however, these patterns were not maintained when the progressive-ratio was reversed to a geometric-ratio. Terminal high rate performance patterns were established and maintained following the thirteenth of fourteen sessions through an imitative transfer procedure, whereby the experimenter acted as a model exhibiting the desired performance. The analysis and strategies provided by the model of programmed instruction in the current development of high rate schedule performance are useful from a control-experiment research perspective and because of their appropriateness to behavior-change processes.

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PERSONALITY INVENTORY AS
PREDICTOR OPERANT BEHAVIOR ON A
MULTIPLE SCHEDULE OF
REINFORCEMENT

E. Wulfert, R. L. Shull,
S. C. Hayes, & D. E. Greenway
University of North Carolina
at Greensboro

A paper-and-pencil test identified two groups of subjects, scoring either high (n=24) or low (n=24) on the personality construct "Rigidity". One half of each group received accurate, the other half minimal instructions on how to earn points on a MULT DRL 6-s FR 18 schedule. After two sessions of reinforcement, extinction was introduced in a third session. A response-perseverance measure was calculated (allocation of responses to DRL vs. FR during reinforcement compared to extinction). High scorers on "Rigidity" tended to show greater perseverance during extinction than low scorers, and accurate instructions tended to induce greater perseverance than minimal instructions. These results suggest that not only current situational determinants (e.g., instructions, schedules), but also previously established response tendencies (e.g., behavioral "rigidity") account for operant performance, and that the latter may be predicted from a paper-and-pencil test.

Contact: Edelgard Wulfert, c/o Brown University Internship Consortium, Office of Dr. Follick, Miriam Hospital, Providence, RI 02906

1987 DUES

THIS ISSUE OF THE BULLETIN
MARKS THE END OF ANOTHER
YEAR OF SIG ACTIVITIES.
PLEASE CONTINUE YOUR SUPPORT
BY SENDING YOUR 1987 DUES AT
YOUR EARLIEST CONVENIENCE.
SEE THE INSIDE BACK COVER.

RESEARCH PROFILE

Barbara A. Wanchisen
Baldwin-Wallace College, Ohio

These days, behavior analysis crops up in the most unusual of places, including small colleges. And small colleges can support a good deal of research in terms of both space and money, if the academic climate is right.

I graduated from Temple University approximately a year ago and was worried at that time about the academic job prospects. When I was interviewed by Baldwin-Wallace College, with a student population of roughly 3,500, I was impressed by the enthusiasm of faculty and administration to build a new laboratory facility. This, of course, made their eventual job offer more attractive.

Less than one year later, a fully-equipped laboratory was ready, able to support just about any type of behavior research. In the laboratory proper, we have 3 IBM computers, two PCs and one XT with a hard disk. One of the PCs is connected to a MED Associates Interface, which in turn supports three rat and (within a month) one pigeon chambers. We also have installed cabling to support human research -- the human lab is across the hall from the animal lab -- and preparing that space will be our next major effort.

Last spring, there were a number of advanced research projects running simultaneously as students began to take advantage of the facility. Currently, we have started a rather extensive program of research aimed at studying the effects of reinforcement history on subsequent schedule performance in rats, as an attempt toward understanding human and animal differences. We are also supporting independent study

projects as well as "rat labs" for our experimental course, so at times the work load becomes alarming.

Unlike highly competitive larger colleges and universities, Baldwin-Wallace College does not expect a researcher to obtain major grant funds. While grant-seeking certainly is encouraged, it is not necessary, and one can go about the business of research with little pressure from that front. Along these lines, I feel free to conduct research that truly interests me instead of that which is potentially more attractive to funding agencies.

I also enjoy a great deal of autonomy given the relatively small size of the department's faculty (6 full time and 2 adjunct) and do not experience serious space or social pressures. Equally important, the students are receptive to

conducting research and thus getting hands-on experience in the lab. While there are no psychology graduate students here, the undergraduates can help out quite a bit and their enthusiasm and intellectual contributions are refreshing and welcomed.

Of course, unlike major universities, the course load here is greater than I would prefer, but I recognize that there are pros and cons at both large and small institutions. At present, I'm finding my position here rewarding and would be interested in hearing from those of you who are (or were) in similar situations. Contact me at:

Baldwin-Wallace College, Berea, Ohio, 44017, or call 216-826-2026 or 2165.

BEHAVIORISTS' EUROPEAN SUMMER ACADEMY

Cloyd M. Hyten
West Virginia University

We came, we saw, we talked behavior analysis. For ten days in June, a collection of some 40 to 50 international behavior analysts attended the Behaviorists European Summer Academy (BESA) in Bad Kreuznach, West Germany. The conference was conceived as a way of facilitating the growth of behavior analysis in Europe, and to give the participants a chance to have a mini-convention focusing on the analysis of verbal behavior. Its secondary function was to give ABA-weary psychologists a refreshing break from the Milwaukee/Columbus/Peoria circuit, a chance to see Europe, see a few sights in a lovely resort town in the Nahe River valley, drink a lot of beer, and eat enough schnitzel to make them bust clean out the their lederhosen.

The conference was composed of two parallel tracks. Linda Parrott, of Saint Mary's University, Nova Scotia, and Philip Chase, of West Virginia University, organized the Summer Institute of Verbal Relations (SIVR). This track featured papers addressing conceptual and empirical issues in the analysis of verbal behavior. The second track was the Conference on Behavior Management, organized by Claus Thiermann and Thomas Skutella of VerhaltensAcademie in Frankfurt, featuring a series of workshops on various topics in the application of behavior analysis in education and business settings.

The workshops were intended for the students of the German Behavior Academy and other European colleagues. In the behavior management area, Julie Vargas discussed computer-assisted

instructional design. Julie Smith gave a workshop on Organizational Behavior Management. Dick Malott and Maria Emma Garcia presented a workshop on minimizing procrastination. Ruth Wylie talked about self management in academic settings. Paolo Moderato closed the workshop with a discussion of issues in the behavior management of retarded children.

The SIVR began with a pair of workshops presenting the interbehavioral and radical behavioral approaches to the analysis of verbal relations. Thirteen papers followed, generally three each morning, with discussants for each paper leading afternoon discussion sessions. Papers by John Donahoe and Rosalind Burns, Hayne Reese, and Kurt Salzinger discussed cognitive and behavioral approaches to analyzing verbal behavior. Papers by Phil Himeline, Phil Chase and Jeff Danforth, Dick Malott, and Steve Hayes focused on defining and understanding rules and rule-governed behavior. Methods for the analysis of conversation and self-editing were presented by Ullin Place and Cloyd Hyten, respectively.

Other papers addressed conceptual analyses of verbal processes. Linda Parrott discussed the interbehavioral concepts of substitution and reference. Dave Palmer presented a behavioral interpretation of memory. Ernie Vargas' paper concerned artificial intelligence. Thomas Skutella and Margret Schreier elaborated Skinner's concept of the autoclitic. Discussion sessions were led by a number of people, including Jack Marr, Margaret

Vaughan, Jan LeFrancois, Paul Andronis, Joe Layng, Helga Guckel, Ruth Wylie, Simon Starbuck, Jeff Danforth, Margret Schreier, Richard Malott, Christoph Leonhard, Julie Vargas and Laura Methot.

The talks were given in the classrooms of a local agricultural school in the morning, and discussion sessions were held in the afternoon in the beer garden of the Hotel Birkenhof, a small country inn just down the hill from the ag school. Nights were spent in continued discussion of the day's hot issues and general revelry at the Birkenhof. Most of us were billeted in the dorm rooms of the ag school - hardly the stuff of "Lifestyles of the Rich and Famous", but the excitement of the conference and the warm

weather gave it all a sort of informal summer camp atmosphere.

One participant said that BESA was more like an encounter group than a conference. The intellectual stimulation was intense. There was little doubt that the hottest topic was rule-governed behavior. Nearly everyone weighed in with their opinion about it, but, unfortunately, there was little consensus about its definition or its role in human affairs. Nevertheless, I think all of the discussion helped clarify some viewpoints, and I expect some illuminating articles to come out of the chaos. Phil Chase and Linda Parrott will be editing a book of the conference papers for everyone who wasn't there to share the repartee and the *gemutlichkeit*.

RESEARCH PROFILE

Carol Pilgrim
University of North Carolina at Wilmington

As a new faculty member, I am currently in the exciting and frequently challenging process of beginning a research program. At present, my research activities are concentrated on two somewhat different projects.

First, in collaboration with Suzanne Fletcher and Michael O'Malley of the University of North Carolina - Chapel Hill School of Medicine, I am working on a project recently funded by the Center for Disease Control. My collaborators have identified deficits in the proficiency with which primary care physicians are able to detect high-fidelity simulations of abnormal breast lesions. My involvement with the project is concerned with the development and testing of a discrimination training procedure designed to enhance clinician's

detections of small, abnormal breast masses. More specifically, training involves shaping both an effective palpation technique and a discrimination between normal but nodular breast tissue and suspicious lumps. The procedure is based on work done with Henry Pennypacker and associates on breast self-examination training at the University of Florida and Mammatech Corporation.

The current project will follow the lump detection proficiency exhibited by resident physicians and graduate student registered nurses as a function of discrimination training. Future plans include a clinical trial in which all practicing primary care physicians in one North Carolina county will be trained. Ongoing assessment of lump detection competency will be compared to

that of physicians in a demographically-matched control county. In addition, the pathologic stage, size, and number of newly diagnosed breast cancers will be compared for the two communities so that the practical effectiveness of the training may be assessed.

My second research direction concerns the effects of orienting instructions on human operant performance. It seems that control by instructional stimuli, as opposed to experimental contingencies, often becomes apparent and may be most troublesome under conditions of contingency change; therefore, I am interested in studying the effects of instructions on the repeated acquisition of response sequences. The experimental task is similar to one used by Vogel and Annau (1973), Schwartz (e.g., 1982), Hayes (e.g., 1986) and others, and involves moving a light through a stimulus matrix. Stimulus presentation, reinforcement contingencies for patterns of movement through the matrix, and data collection will be controlled by a TRS-80 microcomputer system. In this way, the impact of different instruction types (e.g., descriptions of responding vs.

descriptions of contingencies vs. shaping) on sequence variability can be assessed, and instructions can be designed to either enhance or restrict variability. The effects of instructions on contact with contingency change and subsequent acquisition of new sequences may then be measured as a function of the variability induced.

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SOME THOUGHTS ON QUANTITATIVE ANALYSIS

Eb Blakely and Alan Poling
Western Michigan University

Articles published in JEAB over the past decade reveal that quantitative analysis has grown in popularity, and that researchers have increasingly used mathematical models in an attempt to describe relations between the behavior of nonhumans and its controlling variables. Modest attempts to extend quantitative analyses to human behavior have appeared (e.g., Myerson & Hale, 1984), and are likely to become

more common. Unfortunately, quantitative analysis in the experimental analysis of behavior is not a simple good.

At its best, quantitative analysis leads to equations that are accurate and concise descriptions of general relations between some measure of response strength (e.g. rate) and variables such as rate, delay or magnitude of reinforcement. At its worst, quantitative analysis leads to

trivial theory testing in the Hullian tradition.

Even when well conceived, quantitative analysis is likely to be poorly received by many behavior analysts. To some extent, this reflects the absence of appropriate history. Understanding complex equations -- which may be the only kind that adequately portray relations between behavior and environmental events -- requires a good grounding in mathematics. Individuals who lack such training tend to ignore or to disparage studies that employ equations to summarize results. Though we have no data on which to base the claim, it appears that a schism is developing between basic researchers who favor quantitative analysis and those who do not. Taking heed of the "house divided" aphorism, we suggest that steps be taken to ensure that the developing schism not be allowed to widen.

Given the clearly established role of quantitative analysis in science, it would be foolish to suggest that behavior analysts not devise formulas describing relations between response strength and environmental variables. However, concern with such equations need not be at the expense of straightforward verbal descriptions of results. For example, Moore (1984) examined the performance of pigeons under a concurrent-chains procedure, and concluded that a particular value of "r," an exponent in an equation proposed by Killeen, best fit the data. To the benefit of those not familiar with Killeen's equation, he also summarized the data in straightforward fashion: "Pigeons prefer the terminal link with the more immediate reinforcer, even though some aggregate measure of reinforcement may not be consistent with this local feature of the schedule" (p. 331). Moore's analysis involved comparing arithmetic means and

harmonic means interreinforcement intervals, which are not familiar to many behavior analysts. Although he did not describe how harmonic means are calculated, Moore did capture their essential feature with this statement: "The notion of immediacy, upon which the harmonic averaging process is based, does indeed assign greater weight to short delay..." (p. 332). Moore's efforts facilitated interpretation of the study without sacrificing a detailed quantitative analysis.

Although researchers who employ elaborate quantitative analyses can aid nonexpert readers by verbally describing results, adequately defining terms, and summarizing how the preferred analysis bests alternatives, the extent to which these tactics can be employed in published articles is necessarily limited. Writers of scientific articles must presuppose readers of some sophistication; technical journals cannot be the mechanism for basic education.

Unfortunately, it appears that many graduate programs offering training in behavior analysis fail to train students in the subtleties of quantitative analysis. Many students leave their graduate training with a superficial knowledge of quantitative analysis -- and a generally critical orientation to the entire enterprise. Such individuals could benefit from an introductory treatment of quantitative analysis. The appropriate forum for such a treatment could be a session at the Association for Behavior Analysis convention. Experts in quantitative analysis could provide a nontechnical update designed to inform nonexperts about the general goals and procedures of quantitative analysis, and of important developments in the field. A written version of such a work, ideally published in a place that

would reach many behavior analysts (perhaps The Behavior Analyst) might prove invaluable. If physicists can explain relativity to laypersons without making recourse to underlying mathematics, behavior analysts who favor quantitative analysis surely can describe and defend their practices to ignorant, but interested, peers. We hope they are willing to do so.

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GRANTS TO EAHB SIG MEMBERS

Following are summaries of research grants recently awarded to SIG members.

TITLE: "Improving the Sociolinguistic Behavior of Retarded Children in Relation to Nonhandicapped Peers;"
INVESTIGATORS: S. W. Bijou & J. Umbreit, University of Arizona;
Dates: 8-85 to 8-86; Amount: \$83,475; AGENCY & PROGRAM: U. S. Department of Education, Office of Special Education.
ABSTRACT: An effective teaching/training technique for helping a handicapped child participate in and enjoy social relationships with nonhandicapped and handicapped peers and adults is needed, but is unavailable. The goal of the proposed research is to evaluate two teaching/training techniques from the literature and, based on the findings, to develop a teaching manual to be used by staff, particularly resource teachers, to enhance the sociolinguistic behavior of retarded children. Three experiments will be conducted using a multiple-baseline design. Each will involve eight mildly to moderately retarded children who are six-to-nine years of age. Each

retarded subject will be paired with a nonhandicapped peer. Conversations between children will be vidoetaped and analyzed with a set format that focuses on the speaker, listener, and referent, for the purpose of evaluating the effectiveness of different intervention procedures (teaching/training packages). The best procedure, or combination of procedures, will be used as the basis for developing a teaching manual. This manual will focus on enhancing the retarded child's use of language as an instrument, enabling him or her to engage in desirable social behavior such as sharing, playing cooperatively, maintaining social discourse, and the like.

TITLE: "Factors Influencing Response Strength;" INVESTIGATOR: Edmund Fantino, University of California at San Diego; DATES: 9-1-85 to 8-31-88; AMOUNT: \$268,000 (including indirect costs); AGENCY, PROGRAM, & OFFICER: National Institute of Mental Health, Behavioral Sciences Research Branch, Cognition and Learning Processes Section, Dr. Thomas Plaut, Phone (301) 443-3942.

Ed notes that "only one-half of the proposal utilizes human subjects (the other half utilizes pigeons, primarily in operant analogs to foraging), mostly in studies of observing."

ABSTRACT: The proposed experiments investigate choice behavior. One group of experiments further assess the PI's delay reduction hypothesis of choice and conditioned reinforcement. Some of these experiments use the hypothesis as a guide to assess whether principles that have evolved from the study of decision making in the laboratory are consistent with decision making in situations that share important properties with naturally occurring foraging. Experiments in the first group investigate: varying the accessibility of the less profitable outcome on its acceptability in the successive encounter procedures and in standard choice procedures; the adequacy of Killeen's incentive theory vs. the delay-reduction hypothesis; the relation of choice, risk-aversion, and economic context. The second group of experiments assess variables affecting observing by children, human adults and pigeons in standard laboratory tasks, in videogame playing and in health-related settings. We propose to investigate the effects of delayed reinforcement, superstitious responding, instructions, risk-aversion, economic context, whether observing obeys the same principles whether subjects are losing rather than gaining points, and theories including Dinsmoor's selective observing hypothesis.

TITLE: "Research in Autism: Parent Intervention;" INVESTIGATORS: Laura Schreibman, University of California at San Diego, & Robert Koegel, University of California at Santa Barbara; DATES: 9-1-86 to

8-31-89; AMOUNT: \$221,813; AGENCY, PROGRAM, & OFFICER: National Institute of Mental Health Clinical Research Childhood and Adolescent Disorders Branch, Sigmund E. Dragastin, Ph.D., (301) 443-5944.

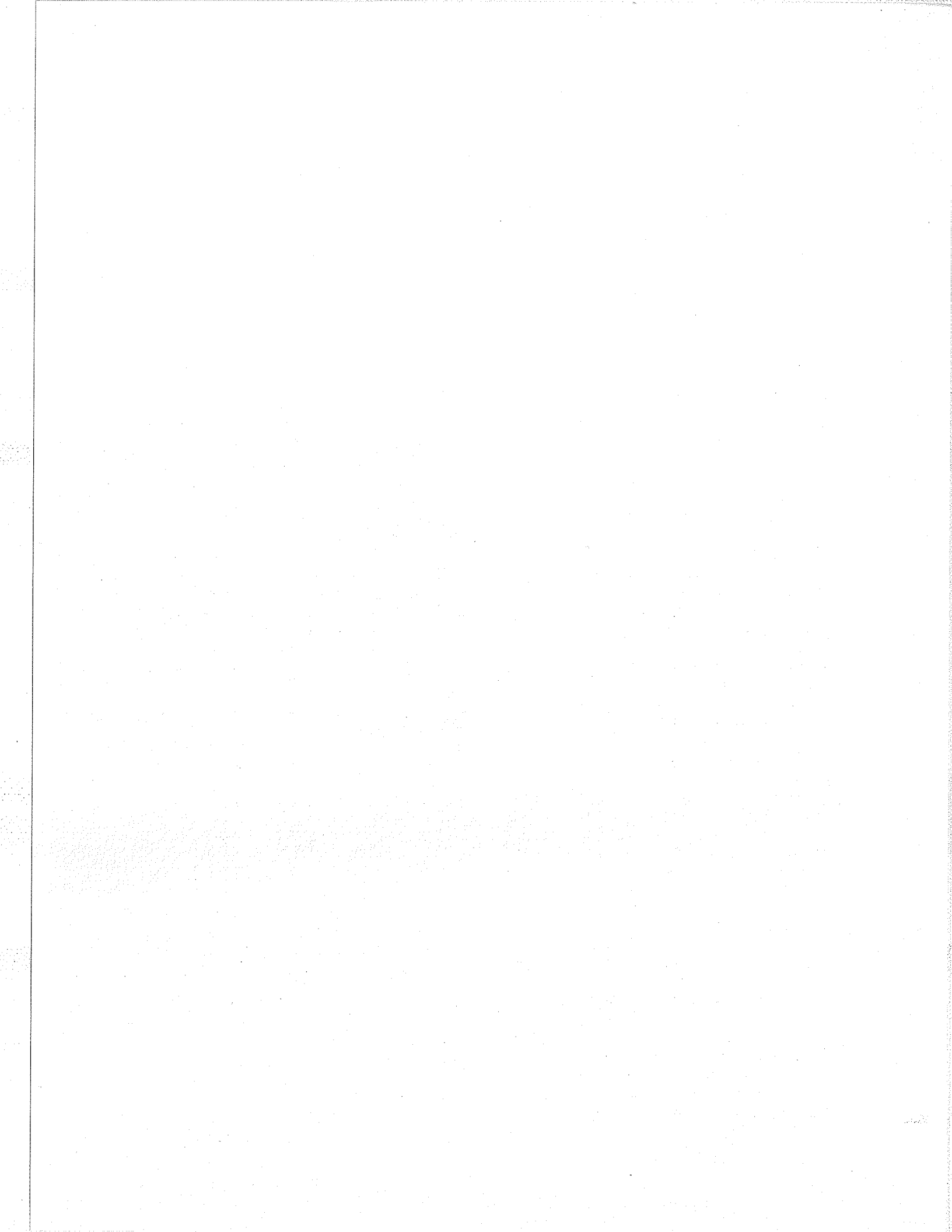
Laura notes that "this is an ongoing collaborative effort between the (San Diego and Santa Barbara) campuses. We are currently in our tenth year of the research."

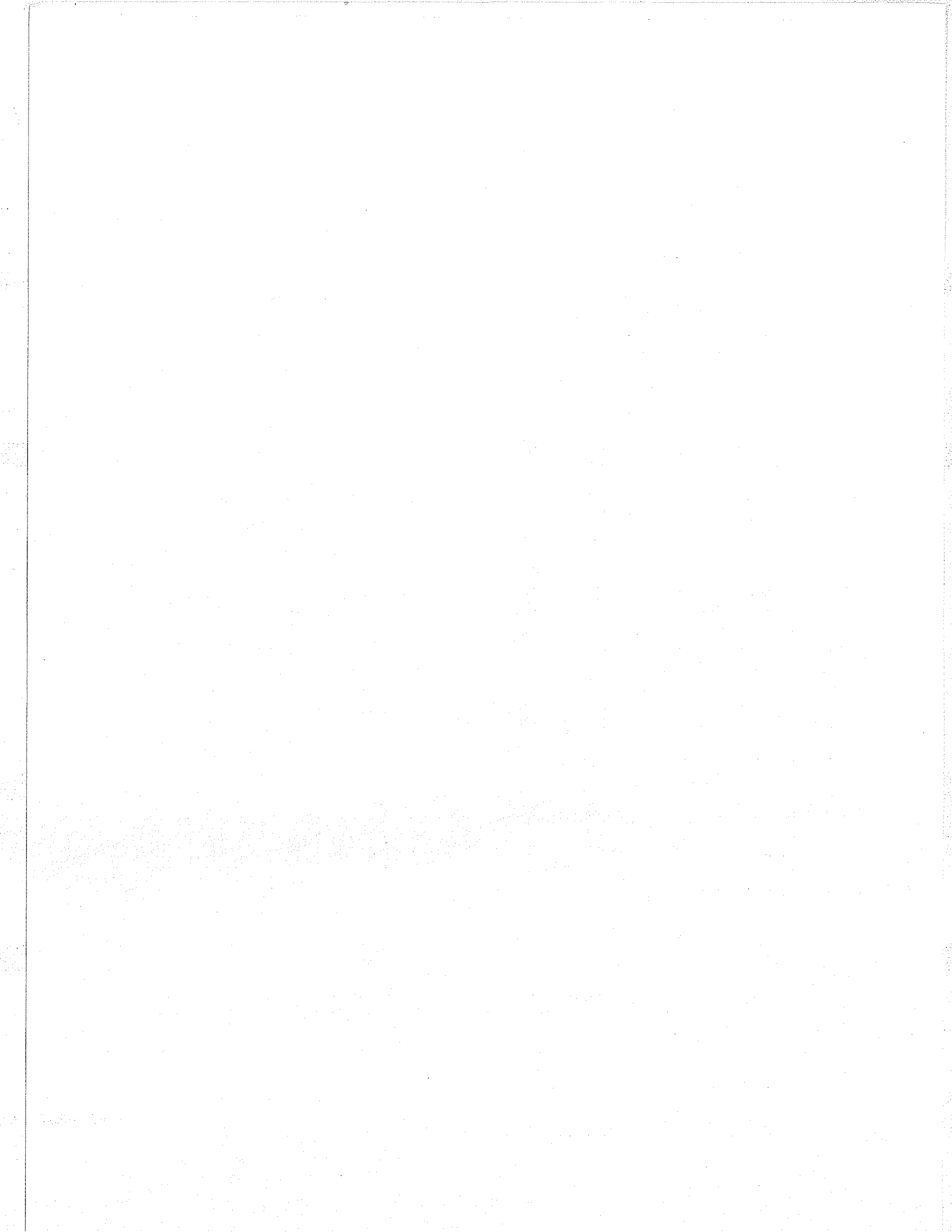
ABSTRACT: Our approach in the previous funding years of this project has been to assess the effectiveness of a parent training approach to the treatment of autism. Previous studies indicate that this is a very effective treatment format, but seems to have some limitations due to the extreme lack of motivation and unresponsiveness to multiple cues characteristic of autistic children. Therefore, the purpose of the proposed renewal study is to systematically compare a new parent-training program that focuses on teaching the parents to treat the above pivotal responses (motivation and responsivity to multiple cues) versus a control group of parents who receive the existing parent--training program (which focuses on teaching numerous individual target behaviors). We hypothesize differential effects, favoring the pivotal response training, on three sets of dependent measures. These include measures of child behavior, measures of family stress, and social validation assessments of the significance of the treatment changes.

PHIL'S FUN FACT

Who was Pavlov's Russian contemporary who conducted some of the first conditioning studies with humans?

V. M. Bekhterev





ABOUT THE EAHB SIG

The Experimental Analysis of Human Behavior Special Interest Group (EAHB SIG) consists of over 110 members of the Association for Behavior Analysis (ABA). The group is organized to facilitate the growth of a multi-faceted experimental literature using human subjects to analyze the relations between behavior and the variables influencing it. The EAHB Bulletin serves the SIG by disseminating information that customarily is not published in the archival journals of behavior analysis.

CONTRIBUTORS are encouraged to submit materials such as articles about EAHB as a speciality area; research notes, e.g., information about specific procedures, anomolous findings, etc.; annotated bibliographies; research profiles; convention and conference notices; course materials; and job announcements and other news of interest to SIG members (see recent issues for examples). Submissions should be sent to the EAHB Bulletin at the address given below.

NEW MEMBERS may join the EAHB SIG by completing the membership form and sending it, along with a check for dues (see below) to the Bulletin.

CONTINUING MEMBERS may renew their membership for 1987 by sending their name and a check for dues (see below) to the Bulletin. Please write "Renewel" in the memo section of your check. Send membership form only in you wish to report a change of address or interests.

DUES for 1987 are \$6 U. S. Funds. Despite rising costs, the SIG has been able to hold dues at a low level because (1) mailing and administrative costs have been subsidized by West Virginia University, and (2) approximately 35% of our members have generously added a voluntary contribution of \$2 or more to their dues. Unless this support continues, the SIG may have to cut back on its activities. If you can afford an extra \$2, please send it--the SIG will put it to good use in promoting the experimental analysis of human behavior.

ADDRESS all correspondence to: EAHB Bulletin, Department of Psychology, West Virginia University, P. O. Box 6040, Morgantown, WV 26506-6040.

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