Friday, November 30

#68 Business Meeting

11/30/2001
9:00 AM - 9:50 AM
Bibliography Hall

Applied Gerontology
Chair: Mark Mathews (University of Kansas)

#69 Business Meeting

11/30/2001
9:00 AM - 9:50 AM
Hall of the Ceiling

Autism Special Interest Group
Chair: David Celiberti (Eden II Programs)

A Business Meeting will be held to address administrative matters relevant to the SIG. An open forum will be provided for attendees to discuss their accomplishments and challenges in disseminating information about applied behavior analysis within their respective countries. All interested parties are welcome to attend.

#70 Symposium

11/30/2001
10:00 AM - 10:50 AM
Photographs Hall
AUT

ABA Approaches in Autism: Convergence, Divergence, and Mythology
Chair: B.J. Freeman (UCLA-NPI)

Perhaps there is no application area in which Applied Behavior Analysis has a greater presence than in autism. Years of research and clinical application have produced a proliferation of behaviorally based intervention programs for persons with autism, including university based projects, institutes, educational, residential or day treatment entities, and clinical service agencies. Though all are under the umbrella of ABA, often originating from the same seminal efforts, divergent directions in philosophy, conceptualization, and application have often been followed between and within these various types of ABA programs. Despite these differences, it is possible to define shared foundations and commonalities across the varied approaches to autism treatment within the ABA community. Additionally, misconceptions exist regarding ABA research and practice in autism which further contributes to the culture of ABA.

- **ABA Approaches in Autism: Convergence.** MITCHELL TAUBMAN (Autism Partnership)

  This presentation examines such mainstream ABA approaches and programs as discrete trial teaching, pivotal response training, natural language paradigm, picture schedules, incidental teaching, picture exchange communication systems, integrated school programs, and parent training. Overarching fundamental ABA principles that unite such approaches as well as common origins and shared history are discussed. Comparisons of these programs in regards to foundational, philosophical, empirical and methodological considerations are made, highlighting

areas of correspondence and comparability. Given such convergence, discussed is the sensibility and value of measures of cooperation and collaboration within ABA, as pertinent to the facilitation of the quality, comprehensiveness, and integration of services for persons with autism.

- **ABA Approaches in Autism: Divergence.** RONALD LEAF (Autism Partnership)

  The sometimes subtle and sometimes substantial disparities that may be found between some Applied Behavior Analysis approaches to treating persons with autism constitutes the core of this presentation. Divergence between schools of thought and resultant differences in strategy and application are fully explored. Underscored are dissimilarities in clinical practice, even within a specific or particular approach, such as with variant forms of discrete trial teaching. Speculation on forces which have shaped such divergence, description of the competitiveness and territorial landscapes which have often resulted, and strategies for peaceful and collegial co-existence are also offered.

- **ABA Approaches in Autism: Mythology.** JOHN MCEACHIN (Autism Partnership)

  As with other interventional disciplines, the ABA approach to the treatment of autism is comprised not only of empirically supported and field tested theory and methodology, but also of folklore and legend-based practice. This presentation attempts to separate that which is largely substantive from that which is primarily, and often incorrectly, presumed. Examined is the lore around content and comparative procedural analysis within ABA as well as mythologies and misconceptions that surround programmatic efforts and long term outcome analyses. The contributions of such misapprehensions and myths both to the culture and practice of ABA in autism and to what unites and divides that

#71 Panel Discussion

11/30/2001
10:00 AM - 10:50 AM
Cloister of the Cypress Hall
EDC

Behavior Analysis and Instructional Design Meet Hollywood
Chair: Janet S. Twyman (Headsprout, Inc.)

Headsprout, Inc. is a education company leveraging the internet to teach one of the most fundamental human survival skills--reading. Headsprout's early reading program can take non-reading child to reading at the mid second grade level, guaranteed, by interacting on-line with engaging web cartoons. It does this by merging behavior science, instructional design and discovery through empiricism with Hollywood--or at least the Hollywood-like production of instructional episodes. The internet is rapidly becoming a valuable portal for the dissemination of behavioral technology, and a forum for improving lives through applications of behavior science. Many more people can be reached simultaneously over the internet than locally in classrooms, business, or treatment centers. Headsprout has built a system that not only delivers the strategies and tactics of behavior analysis and instructional design to the masses, but in turn is informed by the behavior of individuals using the program. All of this is done in the context of appealing game like activities. This panel discussion will describe the benefits, pitfalls and learning curve associated with the union of science and multimedia internet production.

- T. V. JOE LAYNG Headsprout, Inc.
- KENT R. JOHNSON Headsprout, Inc.
- GREG STIKELEATHER Headsprout, Inc.

#72 Paper Session

11/30/2001
10:00 AM - 10:50 AM
Barbantini Hall
CBM

Coaching and Social Skills Training
Chair: Thomas Gumpel (The Hebrew University of Jerusalem)

- **Why Does Social Skills Training So Often Fail? Skill or Performance Deficits?** THOMAS GUMPEL (The Hebrew University of Jerusalem)

  The theoretical understanding of social competence deficits has developed along two principal lines. Molecular approaches delineate a finite set of behavioral components which when chained together and when adequately performed solicit reinforcement from the environment. In an attempt to breach problems with maintenance and generalization of treatment gains based on this approach, theoreticians attempted to extend these molecular training paradigms to include both overt and covert behaviors. These process approaches differ from traditional molecular approaches because they do not train a large set of minute behaviors and link them to relevant SDs. Instead, they focus on teaching social problem-solving skills that guide the individual in deciding which skills to perform and the performing them. Unfortunately, the process approach, like the molecular approach, also has yielded poor maintenance and generalization of treatment gains. This presentation presents the findings of four studies and our reconceptualization of social skills deficits and social skills training.

- **Behavior Analysis Contributions to the Practice and the Coaching of Soccer.** CELSO GOYOS (Federal University of San Carlos)

  Behavior Analysis is solidly planted on two formidable pillars, respondent and operant conditioning. The purpose of this paper is to illustrate how this approach may be applied to the better understanding of the behaviors involved in the most popular sport on earth, soccer. Initially, it will be shown how conditioned stimuli may come to exert control over respondent behavior and how many behaviors typical of this sport can be understood as respondent behavior. These behaviors involve those of young and professional players, coaches, parents and the cheer. Examples will illustrate anxiety and its implications to soccer (penalty kicks, defense plays, etc.), and possible solutions, such as mental rehearsal and relaxation will be treated. Likewise, operant conditioning will be treated. It will be shown that Behavior Analysis may offer a very important contribution to the development of soccer practice with special emphasis on basic principles, including rule-governed behavior, thinking, and stimulus control, and their effects on motivation, emotional behavior, attendance to practice, etc.

#73 Symposium

11/30/2001
10:00 AM - 10:50 AM
Carnelutti Hall
OBM

Conceptual Developments in Organizational Behavior Management/Performance Management
Chair: Tracy Zinn (Auburn University)
Discussant: Darnell Lattal (Aubrey Daniels International)

The principles of behavior have provided a conceptual base for analyzing a wide variety of organizational phenomena. The analytical tools involve identifying the conditions under which interesting behaviors occur and searching for consequences which might explain the development or maintenance of those behaviors. This symposium will extend these analytical methods to two applications, the activities of our professional organization and organizational change efforts in very different kinds of organizations. In both cases, analyses will examine the history of change of the phenomena and the ways relationships among establishing operations, antecedents, behaviors, and their consequences could drive those changes. Finally, certain arguably useful objectives will be specified and the principles will then be extended to ways those objectives might be achieved. Possible empirical tests and results of the implications of the analyses and applications will be stated.

- **Possibilities for Changing the Culture of the Organizational Behavior Management Network.** BILL L. HOPKINS (Auburn University)

  The effectiveness of organizations depends on the behaviors of the people who manage the basic processes of the organization. Those behaviors depend on their consequences. Certain interesting objectives for the Organizational Behavior Management Network will be specified. Process changes that might generate those objectives will be developed. Speculative ABC analyses will be conducted to provide explanations for current behaviors that fail to drive the processes and generate those outcomes. Ways in which more useful processes might be developed and antecedents and consequences might be deployed to better generate the outcomes will be specified.

- **A Behavioral Systems Approach to Organizational Change: Applications.** MARIA E. MALOTT (Malott & Associates)

  This presentation will address applications of organizational change across several industries. It will show that although the results of change might be unique, the process of implementing change has the same components. Changing organizations takes understanding of the organization, understanding of the system in which the organization operates, collection of meaningful data, analysis of organizational processes and structures, specification of tasks within processes, identification of critical behaviors and the design e implementation of interrelated behavioral contingencies.

#74 Paper Session

11/30/2001
10:00 AM - 10:50 AM
White Hall
DDA

Developmental Disabilities II
Chair: Dennis Rose (National Institute of Education)

- **Evocative and Discriminative Effects of Others on the Occurrence of Problem and Communicative Behaviors.** MICHAEL HEARN (University of Birmingham, England)

Few studies have documented the evocative and discriminative effects of others on the occurrence of problem and communicative behaviours in the natural environment. In this single case study, a 15-year old boy with severe developmental disabilities who showed chronic SIB was observed for eleven hours interacting with his mother in his living room at home. Inter-observer reliability was acceptable for all behavior codes (Kappa $0.6). Conditional probabilities were calculated using the method described by Lerman & Iwata (1993). SIB systematically increased when his mother left the room and decreased when she returned. Communicative behaviours varied inversely with SIB. It is hypothesized that the presence of the boy's mother in the room acted as a discriminative stimulus for communicative behaviours, whilst her absence acted as an establishing operation for SIB.

- **Including Children with Downs Syndrome in a Regular Singaporean Kindergarten.** DENNIS ROSE (National Institute of Education) and Penny Tok (Downs Syndrome Association, Singapore)

  Special education in Singapore is segregated. All children with developmental disabilities attend segregated special schools. One consequence of this is that teachers and the public in Singapore have little or no understanding of the move towards inclusion in other parts of the world. Regular education is also highly structured, with even kindergarten children sitting in rows, completing workbooks, and being assigned homework.

  This paper reports on a project promoted by the Downs Syndrome Association of Singapore. Four children with Downs Syndrome were introduced to a regular kindergarten. The data reports on their social adjustment to the setting and to regular children, their learning, and the responses of regular children and teachers to their presence.

#75 Symposium

11/30/2001
10:00 AM - 10:50 AM
Little Theatre Hall
AUT

Intensive Behavioral Intervention with Young Children with Autism or PDD NOS: Outcomes, Obstacles, and Opportunities
Chair: Jane S. Howard (California State University, Stanislaus)

This symposium describes outcomes of intensive behavior intervention with young children diagnosed with Autism or PDD NOS from three sites in the United States and Great Britain. Treatment effects on standardized measures of cognitive problem solving, language development, and adaptive functioning are discussed, along with other measures such as educational placement. The value and difficulties associated with various measures of treatment effectiveness are discussed. Certain child, parent, and treatment characteristics that may influence treatment impact, are identified. Directions for future research, along with the challenges of conducting this type of research, are outlined.

- **Outcomes of an Intensive Behavioral Program for Preschoolers with Autism or PDD-NOS.** Jennifer Anderson, Kathy Clark, Amy Geckeler, GINA GREEN, William Holcomb, Rebecca MacDonald, and Renee Mansfield (The New England Center for Children)

  Several studies have shown that intensive, comprehensive intervention using applied behavior analysis methods can produce substantial improvements for many

young children with autism. We describe a program model derived from that research, and summarize outcomes for 35 preschoolers with autism or PDD-NOS. On entry to the program, their mean chronological age was 44 months. All had substantial cognitive, communication, social, and self-help skill deficits. After 2-3 years of intensive behavioral intervention, one child was enrolled full-time in a regular classroom with no special services or supports; 4 were enrolled part-time in regular classrooms and part-time in special education classrooms; 5 were enrolled part-time in regular classrooms and part-time in intensive ABA programming; 2 were in public school special education classrooms full time; and 23 continued to participate in intensive ABA programming full-time. Post-treatment standardized test scores indicated that 9 children had mental age equivalents that were within 6 months of their chronological ages in one or more skill domains. Child characteristics and treatment variables that may be related to differential treatment outcomes are discussed.

- **Preliminary Outcomes of Intervention with Young Children with Autism Spectrum Disorder: A Comparison of Home-based IBI and Public School Treatment Programs.** JANE S. HOWARD (California State University, Stanislaus), Howard G. Cohen (Valley Mountain Regional Center), and Coleen R. Sparkman (Therapeutic Pathways)

  There are a limited number of peer-reviewed reports of intensive behavior intervention with young children with Autism Spectrum Disorders. Less than half of these studies have included a control or comparison group. We describe data from 26 children who were diagnosed and began treatment before 48 months of age. Seventeen of these children received intensive intervention based on applied behavior analysis in an in-home program (IBI). The other 9 children were enrolled in generic or specialized public school special education classrooms formed the Comparison Group. Children receiving home-based intensive ABA programs were diagnosed earlier and with more severe behavioral deficits and excesses than children in the Comparison Group. However, at baseline the two groups did not differ significantly on standardized measures of cognitive, language, and adaptive functioning. ANOVAs performed on data from testing 1 year after the start of treatment showed that children in the IBI Group demonstrated significantly greater gains on measures of receptive and expressive language and motor development. Similar gains were found on measures of cognitive abilities and adaptive functioning. Limitations on the conclusions based on the length of intervention, small N and potential differences in characteristics of the two groups are noted. The potential value of non-traditional ABA research tools such as group designs, scores on standardized measures, inferential statistics, etc., to augment other efforts to assess treatment impact are discussed along with the need to develop other behavioral measures.

- **Toward Increasing the Validity of Early Intensive Behavioral Intervention Research.** NEIL MARTIN (Tizard Centre, University of Kent), Oliver Mudford (Keele University), and Peter Bibby (Autism & Developmental Disorders Education Research)

  We conducted a group study on the effects of early intensive behavioral intervention (EIBI) with 66 children. Results will be reviewed, and further data presented that illustrate some of the difficulties in conducting internally and externally valid group research on EIBI. Specifically, this presentation highlights the range within variables concerning children (e.g., diagnosis, age, initial IQ), their

families(e.g., socio-economic status, participation in their children's treatment), and their treatment (e.g., details of behavioral program, varieties of school placement, and supplementary interventions). Problems in identifying an appropriate comparison group are also discsussed. Recommendations for future research on EIBI are developed that encourage more frequent use of single-case experimental designs.

#76 Symposium

11/30/2001
10:00 AM - 10:50 AM
Palladian Refectory Hall
EAB

Molar and Molecular Influences on Behaviour
Chair: Phil Reed (University College London)

These papers explore a range of issues connected with analysing whether behaviour is controlled by molar or molecular factors.

- **Some Causes of Pauses in Operant Behavior.** IVER IVERSEN (University of North Florida)

  When the behavioral microscope is applied to pauses between individual instances of operant responses a myriad of seemingly chaotic activities emerge. How are these activities related to the operant behavior? Is the operant superimposed on this background of behavioral noise, is the background generated by the reinforcement schedule, or does the background influence the operant? The research attempted to cast some light on these questions. RatsÆ lever pressing was reinforced by food pellets under fixed-ratio, fixed-interval, and variable-interval schedules. Some background activities such as water drinking, wheel running, contact with the feeder area, and general exploration and grooming activities were recorded concurrently with the operant. The results revealed that under some conditions the pauses in the operant behavior are directly related to these other activities. Such relationships were demonstrated in a functional analysis where some background activities were manipulated from moment to moment. For example, the duration of access to water was varied within sessions of fixed-ratio or fixed-interval food-reinforcement schedules for lever pressing among values of 0, 10, 20, 30, 40 and 60 s. The post-reinforcement pauses in operant lever pressing were systematically related to the duration of access to water; when rats drank for a long time the pause was long and when the rats drank little or no water the pause was short. Hence, at least under these circumstances, the operant pause was caused partly by the temporal extent of the background activity. Other experiments demonstrated similar relationships. With these manipulations one can demonstrate control of individual post-reinforcement pauses to the extent that the duration of a given pause can be predicted ahead of its occurrence with an accuracy error of just a few seconds. The more general conclusion from these experiments is that the moment-to-moment pattern of operant behavior is influenced both by the reinforcement schedule and by background activities. Hence, it is possible to identify some local
- **The Effects of Concurrent Punishment on Rats' Sensitivity to the Response-Reinforcer Feedback Function.** MARIANE SOH and Phil Reed (University College London)

Two experiments examined the effects of punishment on rats' sensitivity to the molar and the molecular aspects of various types of reinforcement schedule. Punishment was produced by delivering a loud response-contingent tone on a schedule operating concurrently with the contingency under investigation. Experiment 1 investigated whether such a concurrent punishment procedure made rats more sensitive to the molar contingencies on variable ratio (VR) and variable-interval-plus-linear feedback (VI+) schedules. To the extent that the rats displayed sensitivity to the molar aspects of the schedules, performance on the VR and VI+ schedules should be similar. Experiment 2 compared the effects of tone-punishment on VI+ and variable interval (VI) schedules. To the extent that sensitivity to the molar aspects of the schedules was promoted, performance on the schedules would differ and responding would be greater on the VI+ schedule. The results are discussed in relation to the conditions under which rats' performance is governed by the molar or the molecular characteristics of the operative schedule of reinforcement.

- **Choice and Temporally Extended Units: Evidence from People and Pigeons.** TIMOTHY D. HACKENBERG, Cynthia J. Pietras, Eric A. Jacobs, and Nicole Doreys (University of Florida)

  Fixed and progressive schedules have proven useful in studying choices in situations with contrasting short-term and longer-term consequences. The basic procedure involves recurrent choices between a fixed-interval (FI) schedule and a progressive-interval (PI) schedule that begins at 0 s and increases in fixed increments with each reinforcer delivered by that schedule. Selecting and completing the requirements of the FI schedule resets the PI schedule to its minimum value. Under these conditions, short-term consequences (i.e., delays to reinforcement on the upcoming trial) favor switching from the PI to the FI at the point of equality between the schedules, but longer-term consequences (i.e., overall reinforcement rate) favor switching well in advance of that point. Because switching prior to the equality point entails selecting an FI schedule over a currently-shorter PI schedule, long-term gains on this procedure are embedded within short-term costs. Despite these short-term costs, we have found that both pigeons and humans switch consistently prior to the equality point under a variety of conditions, indicating clear sensitivity to temporally remote consequences. Collapsed across procedural arrangements and species, switching from the PI to the FI has occurred prior to the equality point in 92% (133 of 144) of conditions conducted thus far. Taken as a whole, the results are in broad agreement with molar analyses of schedule preference and with versions of optimal foraging theory designed to address behavior in

#77 Paper Session

11/30/2001
10:00 AM - 10:50 AM
Council Hall
VRB

Verbal Behavior in Preschool and Autistic Children
Chair: Paolo Moderato (University of Parma, Italy)

- **Induction of Imitative Behavior in Preschool Children through Contingent Imitation of Children's Verbal Responses.** Martha Peláez (Florida International

University), SEBASTIÁN FIGUEROA-RODRÍGUEZ, Teresa de Jesús Pompsa Luna-Domínguez

Twenty preschool children with developmental delays participated in this study using a between groups repeated-measures-reversal design. The children vocal responses were followed by caregiver's imitative verbal responses as reinforcers. For the experimental group, (n=10) during the first phase (A1), the researcher modeled words and sentences to the children without any contingent feedback. During the following phase (B1), modeling plus contingent imitation of children vocalization was implemented as a treatment. During the third phase (A2) modeling alone was used, just as in phase A1, and finally, in the last phase (B2), modeling plus imitation of children vocalizations was provided again. For the second group or control group (n=10), during the first phase (A1) modeling was used, in the second phase (B1) modeling and contingent social praise were used; in the reversal phase (A2) modeling alone was presented, and finally, in the last phase (B2), modeling and contingent social praise were provided as treatment. Results showed that imitation of children imitated vocalizations was more effective in increasing their vocalizations than contingent social praise and than modeling alone. These results are discussed within the context of effective interventions for language acquisition with children showing language developmental delays.

- **Pronominal Mand with Autistic Children.** RENATO GENTILE and Olimpia Pino (University of Parma, Italy), and Giovanbatista Presti (Aretre, Italy)

  Language in autistic children is often at very low operant level and under restricted environmental control. Their language is characterized by a production confined to the repetition of meaningless phrases or useless labels. The aim of this paper is to investigate the action of verbal operants, namely pronominal mands, in the development of human language in a context of establishing operations. This strategy seems particularly useful when mand repertoire is lacking and echoic is interfering with language learning. Consequences of verbal events specify and qualify verbal operants. If mands function for the benefit of the speaker, in practical applications, when language is delayed, the problem is making consequences more available to improve interactions with a listener and discriminative stimuli. Experimental procedures to increase mand behavior use intraverbal and echoic. However, particularly with autistic subjects, they do not allow for an adequate stimulus control, except in controlled settings. Results show that using pronominal mand procedures with autistic subjects overcomes the obstacles of echoics and increases mands. At the same time a decrease of disruptive and interfering behaviors has been observed.

#78 Special Event

11/30/2001
11:00 AM - 11:50 AM
Tapestry Hall
DEV

Behavioral Gerontology: Promoting Engagement in Meaningful Activities
R. MARK MATHEWS (University of Kansas)

The conventional wisdom surrounding persons with Alzheimer's Disease is that their behavioral problems are inevitable and will only get worse as the disease progresses. While the behavioral decline of persons with Alzheimer's Disease may be inevitable, a supportive

environment may have a significant impact on the rate and nature of that decline. The tutorial will describe a series of evaluative studies on changes in institutional environments to make them more supportive of desired behaviors and measuring the impact of those changes on the behaviors of persons with Alzheimer's Disease who live in residential care. These studies took place in locked dementia care units that were a part of larger residential care facilities. The studies were designed to evaluate (1) the effects of training on certified nursing assistants (CNAs) ability to use the system of least prompts in caregiving interactions with residents, (2) the impact CNA training on contact with residents, praise for desired behaviors, and activity choices by residents, (3) the impact of staff's use of prompts on residents' independence during dressing, (4) the effects of external memory cues on resident ability to locate their own rooms, and (5) the effects of a music therapy intervention on resident participation in group exercise activities. Taken together, these data suggest that staff training and reporting procedures, along with other environmental changes that promote engagement and independence, can have an important positive impact on the behavior persons with dementia living in institutional settings.

#79 Symposium

11/30/2001
11:00 AM - 11:50 AM
Carnelutti Hall
OBM

Behavioral Safety: Applications to Ergonomics
Chair: Beth Ann Foate (Auburn University)
Discussant: Beth Sulzer-Azaroff (Browns Group)

Organizational behavior managers have developed behavioral safety technologies that have been proven effective in reducing both the frequency and severity of traumatic injuries. However, there have been few applications of derivatives of the principles of behavior to ergonomic injuries. Such injuries are among the most prevalent in work world wide and they intimately involve behavior. This symposium will focus on ergonomic safety problems and illustrate ways in which behaviors that are important to ergonomic injuries can be pinpointed and controlled. Special emphases will be placed on common-place kinds of ergonomic injuries.

- **Science and Office Behavior: Using the Science of Human Behavior to Improve Ergonomics.** JOHN AUSTIN, Alicia Alvero, Jennifer Madden and (Western Michigan University)

  We will present the findings of two experiments of ergonomic behavior in a simulated office setting. Both studies measured the impact of various interventions on each of eight ergonomic behaviors (i.e., hand-wrist position when typing; posture; etc.). Both studies used multiple baseline designs across 2 sets of 4 behaviors each, counterbalanced between two groups of participants. Experiment I examined the effects of scoring the behavior of a confederate (shown on a 5-min video) on the ergonomic performance of participants when they performed the same office tasks as the confederate in the video. When compared to baseline safety and to a condition, in which participants were exposed to behavioral definitions of target behaviors, the results strongly suggest that observing video (using a detailed behavioral checklist) changes the behavior of the observer. Experiment II added a comparison condition under which participants were exposed to feedback (based on performance during the previous session) on the

percent safe of the target behaviors at the start of each session. Results of Experiment II were equivocal: Both observing and receiving feedback seemed to have behavior change capacity. We speculate that the causal mechanisms differ between the conditions, however.

- **Behavioral Ergonomics in Italy.** VINCENZO RUSSO (Libera Universita de Lingue e Comunicazione)

  Many ergonomic problems are thought to result from behaviors that involve massed repetitions of extreme deviations of joints against resistances. If these assumptions are correct, it should be possible to conduct task analyses for specific jobs to determine the tasks that require the suspect behaviors. Once the behaviors are identified, it should be possible to train workers and their supervisors to identify the targeted behaviors and engage in behaviors that reduce the hazards either by changing the tasks or the suspect behaviors. This approach, called behavioral ergonomics has been applied to sites with varying tasks and behaviors. Reliable data indicate that the target behaviors can be observed and changed with behavioral training and motivation methods.

#80 Symposium

11/30/2001
11:00 AM - 11:50 AM
Photographs Hall
AUT

Challenges for ABA Service Providers in Autism: Measuring Effectiveness, Improving Public Awareness, and Addressing the Full Spectrum of Needs.
Chair: Jan Handleman (Douglass Developmental Disabilities Center, Rutgers
Discussant: Sandra Harris (Douglass Developmental Disabilities Center, Rutgers University)

There has been impressive growth and progress in ABA research and clinical services for individuals with autism. Researchers and agencies committed to serving this population are faced with the challenge of improving service delivery, expanding existing technology, and coordinating efforts in these areas. During the past decade the emphasis on empirical validation and documented efficacy has become increasingly critical with growing consumer awareness and demand for services. These concerns are compounded by increased reporting of prevalence of Autism and PDD-NOS, a broadened spectrum within Autistic Disorder, and the addition of Asperger's Disorder to the PDD category. These changes present ABA researchers and clinicians with the challenge of meeting diverse and growing consumer needs, exploring and implementing current technology, and documenting and disseminating efficacy data. Our symposium presents data on how these challenges are addressed at the Douglass Developmental Disabilities Center, a program founded in 1972 and committed to conducting research and providing empirically supported services to children and adults with autism. Data will be presented on past and current measures of program efficacy and treatment integrity as well as from a statewide sample of consumers regarding the availability of ABA services and research information.

- **Measuring the Effectiveness of a Center Based ABA Program: Evaluating Student Progress and Monitoring Treatment Integrity.** MARY JANE WEISS, Lara Delmolino, Maria Arnold, and Rita Gordon (Douglass Developmental Disabilities Center, Rutgers University)

  Two of the hallmark characteristics of ABA programs are reliance on data-based

decision making and empirical validation of instructional efforts. The DDDC has been serving children with autism for over 25 years. Pilot data of 27 children indicated that 11% of children were placed in regular educational settings without support, 30% were enrolled in regular educational settings with support, and the remainder were enrolled in special education. Additional data will be presented on the educational outcomes of preschool and older children who have subsequently been enrolled in the DDDC. Furthermore, data will be presented on characteristics related to these educational outcomes. Pilot data on the development of treatment fidelity measures will also be presented. These measures verify the intensity of the instructional model, and include the assessment of the number of trials in learning sessions, the engagement of learners, and adherence to the educational program and schedule. Reliability (IOA) data for all treatment fidelity measures will be included in the presentation.

- **Improving Public Awareness and Increasing Accessibility to Services.** BETH GLASBERG, Peter Gerhardt, and Marlene Brown (Douglass Developmental Disabilities Center, Rutgers University)

  While applied behavior analysis has had tremendous impact on the lives of individuals with autism and related disorders, it has not gone far enough. Specifically, behavior analytic services are not yet accessible to all the individuals who could benefit from them. For many individuals, this inaccessibility stems from a failure on the part of behavior analysts to effectively disseminate information. Data were collected from 276 consumers via a statewide survey distributed in New Jersey (USA) and will be shared to demonstrate that many consumers are not made aware of ABA or its supporting research. For other individuals with autism or a related disorder, inaccessibility stems from an insufficient degree of information gathered by behavior analysts. First, adults with autism are rarely focused upon by behavior analytic researchers, with the exception of the study of challenging behaviors. Similarly, individuals with Asperger's Disorder have unique habilitative needs that have not been a major focus for behavior analysts. Strategies to better share known information with the public, as well as strategies to increase our behavior analytic knowledge base regarding these under-served populations will be presented.

#81 Paper Session

11/30/2001
11:00 AM - 11:50 AM
Barbantini Hall
CBM

Clinical, Family and Behavioral Medicine I
Chair: Raimo Lappalainen (University of Tampere, Finland)

- **Relaxation - Which Method is Best?.** BARBARA HEWSON-BOWER (Murdoch University)

  The relaxation response to five different kinds of relaxation was compared in 128 volunteer university students. Utilising a Latin Square design to control for order effects, each student experienced each form of relaxation for a standardised 20 minute period. They provided self report pre/post levels of physical, mental and overall relaxation as well as state anxiety. Blood pressure and heart rate were also monitored. Results indicated a significant relaxation response was obtained after

only one trial in each of the relaxation methods Progressive Muscle Relaxation (PMR), Autogenic Relaxation (AR), Paced Diaphragmatic Breathing (PDB), Mixed Relaxation (MR) and Non-directed Relaxation (NR). The Non-directed Relaxation was used as a control condition and simply asked participants to lie down and rest their head on a pillow for the standardised 20 minutes. It was hypothesised that PMR would result in the greatest relaxation response and this was tested by performing a 5x2 [techniques x time (pre/post)] repeated measures MANOVA (using depression as a covariate). This hypothesis was not supported. Analysis showed a significant effect for time [$F(7,121) = 111.24$, $p<.001$], as well as for relaxation method [$F(28,2002)=1.87$, $p<.01$]. However, a significant interaction between time and method was also found [$F(28,2002)=2.59$, $p<001$]. Whilst there was equivalence in the relaxation response to these different methods, differences were however noted in how much the students liked each

method and how useful they thought each method would be either utilised as a daily relaxant or in the face of stress. Oneway analysis of variance was used to compare each treatment to the control condition. PDB was the most significantly liked technique [$F(62,127) = 2.10$, $p<.01$], however the other three techniques were also significantly more liked than NR [PMR $F(62,127) = 1.57$, $p<.05$); AR $F(62,127) = 1.49$, $p<.05$; and, MR $F(62,127) = 1.50$, $p<.05$]. For use as a daily relaxant, students thought only AR would be more effective than simply lying down for 20 minutes [$F (65,127) = 2.24$ $p<.001$] and they predicted AR and MR would be significantly more effective in counteracting daily stress than PMR [AR $F(67,127) = 1.56$ $p<.05$; MR $F(67,127) = 1.57$ $p<.05$]. As a technique to use in the face of stress, only PDB was thought to be more effective than using a non-directed approach [$F(66,127) = 1.81$, $p<.01$]. The implications of these findings will be discussed in the presentation.

- **Functional Analysis of Anorexia Nervosa.** RAIMO LAPPALAINEN (University of Tampere, Finland), Martti Tuomisto (Tampere University Hospital, Finland)

  Anorexia nervosa is a difficult eating disorder with a prevalence of about one per cent of young women. According to recent studies, its prevalence may be increasing. Thus, its importance as a target for intervention is also increasing. Our aim is to present possibilities for clinical applications of functional behavioural analysis in anorexic clients. These applications produce many clinical applications based on behavioural principles and processes for a functional analysis of anorectic behaviour. These principles include respondent and operant behaviour, and rule-governed behaviour as well as behavioural processes categorised through aversion learning, discrimination learning, and complex schedules of reinforcement. Further, the behavioural analytic view helps us to understand problems with the actual eating behaviour and problems with the initiation of eating, as well as how physiological processes of the body may be included in the behavioural analysis. Understanding the functions of "anorectic" behaviour is a challenge, because it is a result of a complex interaction between inherited and learned behaviours affected by a cultural context.

#82 Paper Session

11/30/2001
11:00 AM - 11:50 AM
White Hall
EDC

Education I
Chair: James McEwan (University of Waikato)

- **Establishing Quality Behavioral Services in New Zealand Using a Trainer of Trainers Model.** GARY LAVIGNA (Institute for Applied Behavior Analysis)

  In response to increasing market demand for more accountability for service quality and service outcomes within the New Zealand education system, the Institute for Applied Behavior Analysis (IABA) was employed to develop and implement a trainer of trainers program. The goal was to develop an internal national training team capable of training staff to provide behavioral services that met a high standard of professional practice. The first group of professionals was trained by IABA staff to conduct comprehensive functional assessments and to design and implement multielement support plans. Several members of the group were then selected to be part of the national training team. The training team was supervised and monitored by IABA staff during the initial training replication. To determine whether the national training team was able to train staff to the same level of professional competence as the external IABA trainers pre- and post-training assessments and support plans written by first and second generation trainees were evaluated using the Assessment and Support Plan Evaluation Instrument. Results indicated that the content and quality of the assessments and support plans significantly improved as a result of the training provided. Moreover, no significant differences were found between groups, which indicated that the training team was as effective in producing these results as the IABA staff in the first round of training. Results of satisfaction surveys distributed after training indicated that trainees were satisfied with the program and there were no significant differences between the overall scores of first and second generation trainees. The results of social validity surveys completed by parents, teachers, and principals also indicated general satisfaction with the services received by the newly trained professionals. Finally, a quality assurance monitoring system, the Periodic Service Review, was implemented to insure that service standards would be maintained at a high level of quality. Recommendations for future research in the use of this training model will be discussed.

- **Promoting Performance and Task-Engagement in Teaching Interventions for Learning Disabled Children.** LISA A. OSBORNE, Norah Frederickson, and Phil Reed (University College London)

  It has been suggested that behaviour has its own momentum. Once a child emits behaviours, their subsequent performance and task-engagement can be improved. This effect is usually achieved by getting the child to perform tasks in which engagement is highly probable, prior to those tasks where there is a lower probability of engagement (i.e. high-p procedures). However, the use of this procedure may shift the child's focus from the task. Once behavioural momentum has been generated, it may lead the behaviour in directions not helpful to learning. As with any process that builds momentum, control over the behavioural direction can be reduced as the momentum increases. The present study investigates the degree to which teacher-structured or child- controlled high-p procedures limit this problem, and enhance the effectiveness of the learning session. Children are given tasks to perform as part of a teaching intervention. For some part of the session, the tasks are given in a set order determined by the teacher. For another part of the session, the child selects the order in which the tasks are to be performed. The extent to which teacher-structured, or child-controlled procedures promote performance and task-engagement is examined.

#83 Symposium

11/30/2001
11:00 AM - 11:50 AM
Little Theatre Hall
AUT

Obtaining ABA Services for People with Autism: A View from the Trenches
Chair: David L. Holmes (The Eden Institute, Inc.)
Discussant: Paul A. Potito (Center for Outreach and Services for the Autism Community, Inc.)

It has been the experience of many families who require intense behaviorally-based services for their child/adult with autism that such services are hard to convince government authorities of their importance and/or to defend their costs. This symposium will address a significant number of court cases that have been litigated by members of this symposium for children and adults with autism with significant cognizant and behavioral challenges. Representatives of the symposium have either litigated for appropriate services and/or offer appropriate services based upon an applied behavior analysis model of service delivery. Symposium members will describe specific cases where they have been successful in receiving appropriate day programming based upon discrete trial intervention strategies, residential services founded upon the principles of applied behavior analysis, and intensive initial diagnostic and treatment services designed to determine the causes of behavioral concerns and effective behavior intervention strategies to mitigate the effects of such behavior. Discussion will include the legal rights of individuals with autism and their families for effective service, and will also describe the full range of behavioral intervention strategies that have proven effective with individuals along the autism spectrum. Opportunity will be available for audience participation regarding how to prepare for litigating for appropriate services, how to develop effective intervention strategies for individuals with autism with significant behavioral and cognitive challenges, and how to maintain such services over time for as long as the individual with autism requires them.

- **Litigating for ABA Services for Children and Adults with Autism.** HERBERT HINKLE (Law Offices of Herbert Hinkle)

  Throughout the course of a country's history, laws are written to protect the rights of its citizenry. In addition, the United States also passed laws to specifically protect the rights of its citizens with disabilities. The IDEA (Individuals with Disabilities Education Act) protects the rights of children and the ADA (Americans with Disabilities Act) protects the rights of adults. These laws have resulted in the promulgation of regulations that are utilized by governmental agencies to more precisely define those rights.

  Although such laws and regulations have very precise conditions to protect the rights of children and adults with disabilities, these rights are occasionally abridged by governmental agencies for reasons of convenience, cost, and/or philosophical differences. When such actions occur, the matters may end up in court with attorneys arguing for a "lawful" interpretation on behalf of their respective clients; experts testifying on their view of appropriate treatment as I affects their respective clients; with judges and juries deliberating and determining a final verdict.

  When it comes to issues pertaining to children and adults with autism, the courts have proven to be a significant vehicle for access to programs and services utilizing applied behavior analysis as their foundation for delivery. In our presentation we will be describing a variety of cases that have resulted in affirming the rights of

children and adults with autism to receive ABA based programming at the infant and toddler level; school age day school services; respite services; summer day ad residential services; extended day program/ home programming; 40 hour discrete trial therapy; residential school services; adult employment services; adult residential services; and other associated behavioral therapies.

Actual testimony from national experts in the field of applied behavior analysis will be discussed, as well as specific details pertaining to the provisions of IDEA and ADA which reinforce the use of applied behavior analysis in service and program provision. The use of expert witnesses and how to prepare experts for testimony will also be discussed.

- **Offering ABA Based Services Day and Residentially for Children with Adults with Autism.** GEORGE W. NIEMANN (President, Bancroft NeuroHealth Services)

  Bancroft NeuroHealth Services offers international programming for children and adults with autism utilizing applied behavior analysis as its foundation for service delivery. Facing the tremendous challenges of applying the principles of applied behavior analysis 24 hours per day with individuals presenting significant cognitive and behavioral challenges, Bancroft has established a team that is internationally recognized, and services that meet the full spectrum of behavioral intensity, I.e., from discrete trial to generalization training, to incidental teaching.

  At our Lindens Program, we offer intensive behavioral analyses of life threatening behavior such as self-injury, assaultiveness, and lack of awareness of danger, and we utilize a significant behavior management model that includes representatives from a variety of disciplines such as education, psychology, neurology and psychiatry. This team of experts operationally defines the behaviors to be investigated; baselines are established; frequencies and durations of the behavior are charted; antecedent behaviors are identified; environmental conditions are measured; and behavioral intervention strategies are plotted, and their degrees of effectiveness measured, followed by a remedial action plan that is carried into the child or adult's day and residential programs.

  Throughout our array of services, teams of behavior analysts ensure consistency across programs and troubleshoot behavioral strategies that may appear to be less effective than desired. Throughout our presentation discussion will ensue around preparing faculty and staff for subpoenaed testimony, both through deposition and witness stand activity. There will also be discussion around dealing with governmental agencies which may have contracts with the service agency. Finally, issues off licensing and credentialing will also be addressed.

#84 Paper Session

11/30/2001
11:00 AM - 11:50 AM
Cloister of the Cypress Hall
EDC

Prompting and Stimulus Control with Children
Chair: Jose I. Navarro (University of Cadiz, Spain)

- **Improving Attention Deficits in School Children with a Stimulus Control Approach.** JOSE I. NAVARRO (University of Cadiz, Spain), Esperanza Marchena (University of Cadiz, Spain), Concha Alcalde (University of Cadiz, Spain), Gonzalo Ruiz (University of Cadiz, Spain), Immaculada Llorens (University of Cadiz, Spain)

Attention deficit disorder is considered one of the most important sources of low school performance. In order to increase attention during school time, software based on a stimulus control procedure was developed. Software consists on four multimedia computer games based on a visual stimuli discrimination task. 180 elementary school children from Cadiz-Spain School District were evaluated with two standard attention tests. Then, 10 training sessions, 25 minutes each, with the software "How to improve your mental skills" were administrated to the experimental group. Children from control group-1 played with a well known computer game during the same period of time. And children from control group-2 remained on the classroom with non-specific training. After experimental sessions, all children were again assessed with standard attention test. Result referred statistically significance attention test performance after the training sessions for experimental group, but not for control groups.

- **Using a Conversation Prompt Procedure to Shape Independent Play.** KEVIN CONALLEN (University College of London)

  The use of conversation cards to prompt typical language exchanges based on observation and comment, were shown to increase correct responding across preferred and unpreferred play programmes in children with communication and autism spectrum disorders. A multiple baseline-reversal experiment showed that when children engaged in "typical" post play conversation the rate of mastery for unpreferred tasks increased, with an observable increase in spontaneously emitted language. During the baseline of this experiment children engaged in sets of six play activities, identified as preferred or unpreferred by the children. In phase two, a conversation prompt procedure was introduced to cue typical exchanges, thereby shaping the conversational unit during the play activity. Phase three showed that the opportunity to engage in typical conversation at the end of a play period resulted in increased rates of correct responding during independent play. This study showed that the verbal behaviour associated with the conversational unit may function as a powerful reinforcer, leading to the mastery of independent play programmes, and an associated increase in spontaneously emitted language based on observation and comment.

#85 Symposium

11/30/2001
11:00 AM - 11:50 AM
Palladian Refectory Hall
EAB

Studies of Behavioral History
Chair: Kennon A. Lattal (West Virginia University)

Three investigators will present their recent findings concerning the effects of past experience on present responding. Each of the papers addresses a different aspect of the laboratory study of behavioral history: Okouchi addresses the relation between behavioral history and stimulus generalization; Reed considers how common intervening events between two different and more remote histories can influence current responding; and Lattal and his colleagues examine the relation between past experiences/contingencies and the reoccurrence of such Aold@ behavior under new environmental conditions.

- **Stimulus Generalization of Behavioral History.** HIROTO OKOUCHI (Osaka Kyoiku University)

Ten undergraduates were exposed to a variable-ratio 30 schedule when a 25-mm long horizontal black line was superimposed on a 55-mm diameter white circle on a display monitor, whereas they were exposed to a differential-reinforcement-of-low-rate 6-s schedule when a 13-mm long line was superimposed on the circle. Following this, a line-length continuum generalization test was administered under experimental extinction for half of subjects and under a fixed-interval 6-s schedule for others. Each of lines at 11 different length from 10 mm to 40 mm in 3-mm steps was presented 12 times. Generalization gradients were obtained for four of five subjects

tested under the extinction and all subjects tested under the fixed-interval schedule. For all subjects in both test conditions, responses were distributed away from stimuli previously correlated with the variable-ratio and differential-reinforcement-of-low-rate schedules, indicating area shift. Thus, stimulus generalization gradients tested under the fixed-interval schedule and those tested under the extinction shared their critical features. The present results raise questions concerning the differences between behavioral history effects and stimulus generalization.

- **Previous Schedule Behavior Emerges after Extinction.** PHIL REED (University of College, London)

  The influence of previous schedule history on subsequent performance during extinction was examined in two experiments using rat subjects. In Experiment 1, one group of rats received initial training on a variable ratio (VR) schedule, a second group received training on a variable interval schedule (VI), and a third group received no initial schedule training. All groups were then transferred to a fixed interval (FI) schedule. Following training on the FI schedule to the point where behaviour was indistinguishable in all three groups, all rats were placed in extinction. Rates of responding during extinction were higher in the group initially trained on the VR schedule than on the VI or FI schedule. In Experiment 2, rats were trained either on a differential reinforcement of high rate (DRH) or a differential reinforcement of low rate (DRL) schedule prior to training on an FI schedule. After performance was equated on the FI schedule, the groups received extinction training; rates became higher for the group previously trained on the DRH schedule than on the DRL schedule. These data suggest that the history of schedule training exerts an influence even after a number of intervening steps of training.

- **Resurgence as Behavioral History.** KENNON A. LATTAL (West Virginia University), Stephanie da Silva (West Virginia University), Megan Meginley (West Virginia University)

  We examined the effects of experiences once removed from the present conditions on present responding. In t two experiments, pigeons were trained to peck on two-key concurrent variable-interval variable interval schedules. Then responding was extinguished on both of the keys while now reinforcing responding on a VI schedule on another, third, response key located midway between the other two. In phase three, responding on the third key was extinguished and the recovery or resurgence of responding on either of the two side keys was examined. In Experiment 1, the side keys were correlated with a VI 60s or a VI 300s schedule in phase 1. In the third phase, responding recurred on both the left and right keys, but at a higher rate on the key correlated with the higher reinforcement rate. In Experiment 2, the reinforcement rates on the two keys in the first phase were unequal, as in Experiment 1, but response rates were kept equal by using a pacing

contingency. In the third phase, responding was reinstated on both side keys, but at a higher rate on the key correlated with the higher reinforcement rate, suggesting that reinforcement rate and not response rate determined the effect. The results are discussed in terms of the relation between behavioral history, response resurgence, and response strength theory.

#86 Paper Session

11/30/2001
11:00 AM - 11:50 AM
Council Hall
VRB

Verbal Behavior I
Chair: Dennis Rose (National Institute of Education)

- **Naming and Generalisation of Novel Behaviours.** J. CARL HUGHES (University of Wales, Bangor), C. Fergus Lowe (University of Wales, Bangor), Pauline J. Horne (University of Wales, Bangor)

  In a series of studies, 26 children (between 2 and 4 years) either underwent Common Tact or Common Listener training with three pairs of stimuli; each pair consisted of one zog and one vek. Following common tact training (i.e., say either "zog" or "vek"), a test for untrained listener relations was introduced. Following common listener training (i.e., select either zog or vek), a test for untrained speaker relations was introduced. Then, in both conditions, children were trained to emit a novel behaviour (e.g., clapping) to one zog and another behaviour (e.g., waving) to one vek. Generalisation Test 1 tested which of the remaining stimuli controlled similar behaviours. Generalisation Test 2 tested selection of the stimuli after seeing the experimenter model the novel behaviours. Categorisation Test 3 tested whether the child would select same class members from an array of all 6 stimuli. Of the 11 trained common speaker relations, all 11 showed naming and all demonstrated categorisation on Test 1 and 2; 4 children were given Test 3, and all passed. Of the 15 trained common listener relations, 11 showed naming and all 11 demonstrated categorisation on Test 1 or 2; 5 were also given Test 3, and 4 passed. The remaining 4 of these 15 did not show naming and neither did they demonstrate categorisation on any of the tests. Following common speaker training for three of these four, all three demonstrated categorisation on Test 1 and 2; 2 were also given Test 3, and both passed.

- **Mand-Tact Functional Independence and the Effects of Stimulus Preference.** OLIMPIA PINO (University of Parma, Italy), Renato Gentile (University of Parma, Italy)

  The present study aimed to evaluate the effects of mand and tact training on: a) the emergence of collateral responses in the functionally different condition, b) the effect of preferred stimuli. Data were collected via multielement across subjects' designs (ABA). Children with expressive language delay and normally developed children served as subjects, and were trained with mand or tact procedures. Preliminary data show that: a) both training methods similarly affected the acquisition of target responses, b) preferred stimuli functioned as establishing stimuli. Results are discussed in terms of functional independence of verbal operants, establishing operations (Eos), and stimulus preference. Limitation and consideration are proposed to the implications of Eos for a more systematic treatment and prevention of language

#87 Special Event

11/30/2001
12:00 PM - 1:00 PM
Outside Garden

Banquet Lunch

#88 Paper Session

11/30/2001
1:00 PM - 1:50 PM
Little Theatre Hall
AUT

Autism II
Chair: Christos Nikopoulos (University of Ulster at Coleraine, Ireland)

- **Promoting Social Initiation in Children with Autism Using Video Modeling.**
  CHRISTOS NIKOPOULOS and Mickey Keenan (University of Ulster at Coleraine, Ireland)

  A large number of studies have shown that children and youths with autism can improve their social skills when provided with appropriate and well planned treatment strategies. Here, a video modeling procedure was implemented with seven developmentally delayed children, using a multiple baseline across subjects design. Each child watched a videotape showing a model and the Experimenter engaged in a simple social interactive play in an adapted free play setting. Afterwards each child's behavior was assessed in this setting, while the Experimenter's behavior remained the same as that shown in the videotape. The video modeling training enhanced the social initiation skills of four children. It also facilitated appropriate play engagement, which generalized across settings, subjects and toys. These changes maintained after a 1- and 2- month follow-up period. In contrary, three children demonstrated insufficient outcomes. In conclusion the intervention was evaluated as a time-efficient teaching tool as well as a means of enhancing appropriate play skills. DESCRIPTORS: social initiation skills, video modeling, appropriate play, generalization.

  Data Summary
  Seven children in the range of age from 9 to 15 years old and diagnosed with autism participated in the study. From those seven children four managed to succeed in all the research objectives. The data concerning the main objectives of this research are summarized below:

  Social Initiation: Steven attended 43 video modeling sessions generally and he emitted a social initiation in the 20 (46.5%) of them. John William attended 46 video modeling sessions generally, and he emitted a social initiation in the 32 (69.5%) of them. Donald attended 59 video modeling sessions generally and he met the criterion in the 27 (45.7%) of them. Ellen attended 40 video modeling sessions generally and she emitted a social initiation in the 21 (52.5%) of them. Appropriate Play: In total, the mean of appropriate play for Steven increased from 0sec during the baseline to 63.3secs (range, 0sec to 290secs) per session during the video modeling conditions. Similarly, the mean of appropriate play for John William increased from 0sec during the baseline to 54.3secs (range, 0sec to 240secs) per session during the intervention. Donald's mean of appropriate play increased from

0sec during the baseline to 42.9secs (range, 0sec to 220secs). Finally, Ellen's mean of appropriate play increased from 14.4secs during the baseline to 140.5secs (range, 0sec to 300secs) per session during the video modeling sessions.

Generalization - Maintenance: The above four children's behavior changes generalized across settings, subjects and toys. Additional advantages of the video modeling procedure included the maintenance of social initiation skills and appropriate play at 1-and 2-month follow-up assessments.

INTEROBSERVER AGREEMENT

Interobserver agreement was assessed on 31% of all observations and at least one reliability session was conducted for each participant during each condition. The Interobserver was naïve to the experimental conditions. Average reliability was 95% (range 89% to 100%) across children and it was calculated using the interval-by-interval method by dividing the shorter latency by the longer and multiplying by 100 for the (a) measurement and by dividing the number of agreement intervals by the number of agreement plus disagreement intervals and then multiplying the result by 100 for the (b), (c), (d) and (e) measurements. The percent agreement across each dependent measurement respectively was: a) Latency to Social Initiation 100%; b) Appropriate play 97% (92% - 99%); c) Object engagement 95% (90% - 97%); d) Disruptive behaviors 94% (89% - 98%) and e) Other behaviors 94% (91% - 96%).

- **Training and Supervision of Teaching Assistants in Intensive Early Behavioral Intervention Home Programs.** JACK SCOTT (Florida Atlantic University)

  Home-based intensive early behavioral intervention (EIBI) programs for children with autism typically rely on teaching assistants (TAs). Quality programs will have regular supervision and training provided by a competent behavior analyst who is experienced in autism and in establishing an intervention team. In order to provide sufficient program intensity-hours, it is common for two or three TA s to work with one child. A survey was developed to determine recruitment practices, the nature and extent of training, and factors relevant to the satisfaction of TA s. This survey was sent to 1,080 families operating home programs in the United States, Canada, and England. Three companion forms of a survey were sent, with forms for the supervising behavior analyst, TA and parent(s). Of special concern was the proportion of training focused on a) principles and procedures in applied behavior analysis, b) autism and c) issues unique to home-based intervention. Results are discussed in three ways. First, the areas of highest agreement and disagreement among assistants, supervising professionals and parents are presented. Secondly, suggestions for efficiently recruiting, training, supervising, and compensating TA s are presented. Finally, common and divergent factors across individuals in the counties studied are analyzed within the context of, national funding policy and professional supports.

#89 Paper Session

11/30/2001
1:00 PM - 1:50 PM
Cloister of the Cypress Hall
EDC

Behavior Analysis and Education
Chair: Philip N. Chase (West Virginia University)

- **Behavioral Variability and Education.** PHILIP N. CHASE, Kristin Hazlett Mayfield, Finnur Oddsson, and David Wier Ellenwood (West Virginia University)

  Behavior analysts have made many contributions to education. These contributions typically involve procedures for determining what needs to be taught, diagnosing what the student can do related to what needs to be taught, sequencing instruction, and providing contingencies that select and maintain the behavior. Often teachers are faced with teaching students how to behave in new ways in the of presence of new environments, i.e., problem solving. Though behavior analysts have repeatedly studied problem solving, behavior analytic practices are often criticized for not preparing students for problem solving. This paper will address basic concepts that have emerged from studies of behavioral variation and how they have been applied to a few well defined educational problems

- **Meeting Current "Educationeese": Conceptual and Data-Based Appeal of Behavior Analysis for "Performance-Based" Education Reform.** TOM SHARPE and Hosung So (University of Nevada, Las Vegas), and Monica Lounsbery (Utah State University)

  The term "performance-based education" provides the dominant focus of contemporary mainstream K-12 education reform initiatives in the United States. By definition, such reform first recommends focus on the immediate and daily teacher and student practices that are known to contribute to student learning when evaluating the relative effectiveness of a particular educational setting. Second, quantitative measures of student learning are recommended in providing uniform standards to judge student progress in a variety of subject-matter skills. A third recommendation involves the role of scientific inquiry in furthering our understanding of the correlates among daily teacher and student practices and long term student subject-matter performance. This address first outlines the commonalities among applied behavior analysis (ABA) designed for education settings, and contemporary "competency-" and "performance-based" education reforms. An ABA-mainstream education compatibility thesis is next presented, and designed to provide arguments for use in successfully moving behavior analysis methods toward greater mainstream acceptance and visibility in teacher preparation and K-12 teaching settings. Last, a selection of data-based examples (Sharpe, Lounsbery, & So, in press) of behavior analysis educational treatments in one postsecondary teacher training program are presented to illustrate the appeal of contemporary ABA methods in the successful education and generalization of known effective teacher practices in relation to positive changes in student behavior and student

#90 Symposium

11/30/2001
1:00 PM - 1:50 PM
Photographs Hall
AUT

Empirical Development of an Intensive Incidental Teaching Approach to Early Autism Intervention
Chair: Sharon T. Hynes (Emory University School of Medicine)

This symposium will provide an overview of the empirical development of an incidental teaching approach to early intervention for children with autism. There will be an emphasis on the roots of incidental teaching in applied behavior analysis. The first paper will present the incidental teaching curriculum in place at the Walden Early Childhood Programs at Emory University, and the discussion will highlight both logistics of service delivery and primary intervention goals. The second paper will provide an overview of various intervention studies, in which single subject designs were used to evaluate the effectiveness of what became curriculum components. The third paper will report the methodology and outcome data for children with autism who entered intervention at Walden at earlier (i.e., Toddler) versus later (i.e., Preschool) ages. All data to be presented have met publishable standards of interobserver agreement (i.e., exceeding 80% reliability), with reliability calculated as total number of agreements divided by total number of agreements plus disagreement. Reliability data was collected for all subjects in each reported intervention condition, and both percentage agreement and kappa coefficients have been computed for the most recent studies. This combination of papers will inform the clinical audience of specific intervention strategies for practical application, while providing researchers an example of the evolution of a data-based intervention program.

- **Incidental Teaching Curriculum at the Walden Early Childhood Programs.** SHARON T. HYNES (Emory University School of

  This paper will provide an overview of the logistics of providing incidental teaching interventions at a level of intensity that will impact the social and language growth of young children with autism, as well as a review of specific intervention targets. Thus, there will be a brief description of the allocation of hours to various intervention settings (home versus school and community), number of children with and without autism, staffing, and mechanisms for ensuring the earliest possible referrals. Next, an overview of the major intervention goals addressed across a three-year intervention period will be presented, with discussion of relative priorities across time in treatment. The process of selecting goals will be buttressed with descriptive data on the differences between children with autism and same-aged typical children, which have been used to empirically establish benchmarks of intervention goals. For example, published data is available on levels of reciprocal peer interaction, levels of autistic behaviors, levels of engagement (toy and social), proximity to peers, and other social indices. Where applicable, the descriptive data will be presented in a format that emphasizes the need for intervention to begin at the earliest possible time, when the gap between the behavior of children with autism and their typical peers is smallest.

- **Component Analysis of an Incidental Teaching Curriculum.** MICHAEL J. MORRIER (Emory University School of Medicine)

  Incidental teaching has evolved from a set of procedures designed to expand the language of nondisabled children to use as an intensive multifaceted intervention for children with autism. Early extensions of incidental teaching to children with autism will be briefly reviewed, with an emphasis on documented generalization benefits. Next, a series of studies on the topic of reinforcer potency will be examined, because the frequency and effectiveness of incidental teaching episodes turned out to be directly related to the efficiency with which teachers select and distribute reinforcers. Applications of incidental teaching to the promotion of social goals will also be reported, including discussions of peer tutoring, conversational skills, and cooperative free-play behavior. The majority of studies that will be highlighted have been evaluated with multiple baseline designs, with the

exception of a few studies that employed reversal designs. This presentation will conclude with a brief discussion of issues involved in the packaging, and especially the personnel preparation, of a series of interventions that have been combined into a comprehensive curriculum.

- **The Relationship of Age of Intervention Onset and Intervention Outcome.** GAIL G. MCGEE (Emory University School of Medicine)

  This paper will provide data that compares the social and language of children with autism who began early intervention as toddlers to the behavior of children who began intervention at approximately 4 years old, as well as to same-aged typical peers. Using a cross sequential design, the first major point of comparison was when children were 4 years old (i.e., Did intervention for toddlers result in higher levels of social and language skills than that displayed by children who received no systematic intervention at younger ages?). The second point of comparison was when children in both groups received intensive early intervention for one year (i.e., as a control for duration of intervention, children with autism were assessed independent of their chronological ages). Finally, the bottom line comparison reported will be the social and language outcomes for children with autism in both younger and older groups immediately prior to their entry to kindergarten (i.e., Did age of entry into intervention significantly impact the levels of social and language skills that children with autism can acquire prior to entry to kindergarten?). The emphasis will be on social and language measures obtained from direct and reliable observational systems, which tracked children's generalized behavior in a preschool classroom. Results will be discussed in terms of the relationship of hours of intervention to social and language outcomes, followed by a brief review of efforts to replicate the Walden incidental teaching curriculum in other programs.

#91 Paper Session

11/30/2001
1:00 PM - 1:50 PM
White Hall
EDC

International Behavior Analysis and the Internet
Chair: Joseph J. Plaud (Cambridge Center for Behavioral Studies)

- **Promoting International Behavior Analysis: The Cambridge Center's Behavioral Virtual Community and the World Wide Web.** JOSEPH J. PLAUD, Betsy J. Constantine, and Amy M. Haggas (Cambridge Center for Behavioral Studies)

  The international community of behavior analysts has the opportunity to come together through the communication network designed by the Cambridge Center for Behavioral Studies in their Behavioral Virtual Community. One of the most effective and cost efficient ways to accomplish the goal of disseminating relevant and timely behavioral data among behavior analysts as well as to the public is via the Internet and World Wide Web. Over the past three years, the Behavioral Virtual Community has linked over 2,000 people from over 40 countries in the advancement of behavior analysis around the world. The Cambridge Center web site is at http://www.behavior.org. Discussion will be given, with interaction from the audience, on the goals and mission of supporting behavioral scientists by hosting the Behavioral Virtual Community, and discussing the significance of

having an interactive meeting place for sharing resources, views, and findings. This address will focus on several unique features of our website, and illustrate its wide ranging applicability to serving the public interest. Utilizing user behavioral data and usage statistics, discussion will be given to how the Cambridge Center is utilizing the Internet to disseminate behavior analysis to the public across the globe.

- **Life on the Internet: A New Field for Experimental and Applied Behavior Analysis?** GIOV AMBATTISTA PRESTI and Paolo Moderato (Universitá di Parma, Italy)

  If we look at the history of the Internet, and of the Web in particular, we see how it evolved from an instrument, basically created to exchange data o for data mining, into a structure for digitally interconnected social networks, which it was not created for. A consequence of the direction of this evolution, taken in these last 5 to 10 years, is the substantial absence of human centered software specifically designed for human interaction and the rareness of empirical data from an experimental and applied analysis of this interaction (Presti, 1997; Wallace, 1999). 50 years ago Skinner (1948) wrote in his book Walden Two that "…the discrepancy between man's technical power and the wisdom with which he uses it has grown conspicuously wider year by year…" (p. 273). This analysis is sadly true today. The expansion of the digital society is not supported by empirically based decisions, and matters such as effective on-line communication, on-line training, on-line studies, interfaces, net-surfing technology, on line education, just to cite a few, are mostly neglected by psychologists and left to computer scientists. Human interaction is the basis of the Internet environment, thus it enters within the domain of Psychology. Computer scientists may not have the psychological knowledge to deal effectively with questions that arise from many computer or Internet applications. Better results might come when the power of the technology is combined with the result of an empirical science of human behavior to drive the development of an effective and efficacious electronic communication system. Research on on-line behavior in digitally created environments (cyberspace), and on the effects of computer mediated human interactions is still rare and mostly neglected outside our field. There are, though an unlimited number of concerns that could be studied by psychologists, for example distance education, hypertext, communication in cyberspace, just to name a few. These are rare times because we are in a position as to guide the construction the communication medium and the society can build around it. We think that the growing necessity for high tech solutions should be informed by psychological knowledge. The goal of a Science is prediction and control. The goal of a technology derived from such a science is to improve our way of living. Improving the way in which the Internet might be useful to human communication and relationship requires knowledge that might be best derived from behavioral science. Is there a need for a new special area in Behavior Analysis? Can we accommodate new phenomena within the already known areas of our field? Although many universities and colleges in the USA are introducing classes on the Psychology of the Internet (on the content of which the debate is open), many countries in the western world still neglect this as a possible development for our Science. Our paper is a sort of "call for research". Many of the areas of research in behavior analysis are interconnected with issues risen by "life on the Internet" in the past 5 to 10 years in such a way that contributions in one field might contribute in the other. The e-Society will likely benefit from contributions based on a strong scientific support.

#92 Paper Session

11/30/2001
1:00 PM - 1:50 PM
Council Hall
VRB

Meaning and Verbal Functioning
Chair: Eric V. Larsson (FEAT of Minnesota)

- **Pierce and Skinner on Meaning.** ROY A. MOXLEY (West Virginia University)

  This address will present the complementary approaches of Skinner and Peirce toward meaning or a behavioristic semantics (Quine's term). Both Skinner and Peirce had strong backgrounds in experimental science, were strongly influenced by Darwin's natural selection, and employed three-term contingencies in an analysis of verbal behavior that emphasized selection by consequences. However, Skinner was primarily interested in meaning for the speaker. This meaning was contained in the contingencies for what the speaker said. Skinner had less to say on meaning for the listener. In contrast, Peirce was primarily interested in meaning for the listener and for a community of listeners in the long run. Peirce's emphasis on consequences in his approach was basic to his pragmatism. Skinner was aware of Peirce's basic position on pragmatism and found it similar to his own views on operant behavior. This raises an interesting question on the extent to which Skinner's views on meaning may have been influenced by his readings of Peirce and his discussions on verbal behavior with those who were familiar with Peirce's work. Some speculative suggestions will be presented. Together, the views of Skinner and Peirce provide a comprehensive behavioristic semantics.

- **On the Nature and Provenance of Verbal Function-Altering Operations.** HANK SCHLINGER (California State University, Northridge)

  In this paper I present a descriptive conceptual framework for basic conditioning processes and their analogous verbal operations and then speculate about the provenance of the latter. First I conceptualize the processes of classical and operant conditioning (described respectively as the correlation of a CS with a US and of an operant and its corresponding establishing operation and discriminative stimuli with a reinforcer), as altering evocative relationships involving antecedent events -- CSs in classical conditioning and EOs and SDs in operant conditioning. I then describe certain verbal operations, variously called autoclitic frames, contingency-specifying stimuli, relational frames, rules, instructions, etc., that are analogous to the basic conditioning processes because they also alter the evocative relationships by endowing antecedent events with CS-like, EO-like, and SD-like evocative functions. Finally, I speculate on the experiences that might contribute to the emergence of verbal function-altering effects. By classifying these verbal operations as analogs to basic conditioning processes, behavior analysts can begin to provide ultimate explanations of them, thereby bringing into the behavior-analytic purview a group of complex verbal relationships and countering the claim by cognitive psychologists that behaviorists cannot account for these or, indeed, any complex verbal phenomena.

#93 Paper Session

11/30/2001
1:00 PM - 1:50 PM
Palladian Refectory Hall
EAB

Stimulus Equivalence and Perceptual Effects
Chair: James McEwan (University of Waikato, New Zealand)

- **The Emergence of Creative Free-Operant Behaviours through a Stimulus Equivalence.** BRIAN MCVEIGH and Mickey Keenan (University of Ulster at Coleraine, Northern Ireland)

  The purpose of this experiment was to examine the development of creative free-operant behaviours through the use of a stimulus equivalence framework. Subjects were first trained to establish two five-member classes through a linear series matching-to-sample format (A1-B1-C1-D1-E1 and A2-B2-C2-D2-E2). Free-operant functions were attached to each of three stimuli within one group of subjects by requiring each subject to draw separate components of a stickman at each of A1, C1 and E1. In the presence of A1 drawing the 'bust' of a stickman was reinforced; in the presence of C1 drawing the 'torso and arms' of a stickman was reinforced; in the presence of E1 drawing the 'legs' of a stickman was reinforced. Subsequent tests revealed a number of unusual findings. For some subjects the drawing of a completed stickman appeared at B1 and D1 but this response also occurred in the presence of A1, C1 and E1 at various times. The completed stickman did not appear at all of the stimuli for any of the subjects. In addition responding took the form of a wide variety of novel drawings that for some subjects included a drawing of A1,B1,C1,D1,E1 and A2,B2,C2,D2,E2. These results raised issues in relation to multiple functions in equivalence classes.

- **Perceptual Effects in Human Operant Research.** JAMES MCEWAN (University of Waikato, New Zealand)

  This paper notes that while the experimental analysis of animal behaviour has been highly successful, the experimental analysis of human behaviour 'human operant' has been less so. This has lead to the suggestion that Skinner's original experimental preparation is not ideal for research with human participants. A short review of the major difficulties observed in human operant research is given and some of the resulting procedural variations are also outlined. It is then argued that the perceptual effects of behaviour have been inadvertently neglected in the typical human operant experiment and that greater attention needs be paid to arranging perceptual effects if we are to develop an effective experimental preparation for humans. Support for this view is drawn from the success of operant procedures with infants and the 10 billion dollar computer game industry. Data are then presented from recent research that address the argument made.

#94 Symposium

11/30/2001
1:00 PM - 1:50 PM
Barbantini Hall
CBM

Troubleshooting Behavioral Protocols: What to Do when the Tried and True Fail
Chair: William Warzak (University of Nebraska Medical Center)

Applied behavior analysts have developed strategies to address a wide variety of clinical problems. In so doing, many behavioral approaches have become systematized, promulgated through the professional literature and disseminated through graduate training programs. Although these interventions may be tailored to the meet the needs of the individual, protocol driven interventions may be insufficient to overcome the challenges of any one patient or group of patients. These exceptions to protocol driven intervention may require analytic skills or special content knowledge not commonly available to the community clinician. This symposium addresses issues associated with troubleshooting commonly prescribed behavioral interventions that have failed. We provide examples of clinical problem solving strategies developed to overcome unusual obstacles in the assessment and treatment of children with ADHD, nocturnal enuresis, and brain injury. Each presenter will provide information related to the assessment and treatment of a selected population where standard protocols initially failed to resolve the presenting problem. Clinical procedures and specific content issues will be addressed in an effort to provide symposium participants of with clinical problem solving skills and methods we have found to be useful when dealing with refractory behavioral problems.

- **Overcoming Obstacles to Behavioral Intervention with Brain Injured Children.** WILLIAM WARZAK (University of Nebraska Medical Center)

  Children with brain injuries comprise a unique subset of children who often present with an assortment of behavioral and cognitive deficits that stymie family members and perplex school staff. The behavior of these children may be highly variable due to conditions surrounding their injuries and illnesses. Ongoing child development of behavioral and cognitive competencies further complicates identification of variables that shape and maintain behavioral excesses and deficiencies. For example, the simple verbal delivery of requests or commands may no longer be sufficient if the child's ability to respond to auditory stimuli, understand spoken language or retain commands over time has deteriorated. Similarly, stimuli, events, or conditions that previously served to reinforce or punish behavior may no longer be effective because of changes in cognitive abilities (i.e., changes in perceptual, sensory, or motor functioning). The functional consequences of these changes in cognitive status may not be entirely clear by virtue of behavioral assessment alone. Similarly, neuropsychological assessment may shed light upon an individual's cognitive abilities, yet not capture the depth of functional impairment suggested by structured behavioral assessment. A combination of procedures may provide the information necessary to monitor improvement, such as might result from closed head injuries, as well as deterioration, such as that seen in many neuroregressive diseases. This presentation will provide case examples of strategies for the behavioral assessment and treatment of these children that encompass both behavioral and neuropsychological data to capture target behaviors of interest and facilitate ongoing rehabilitation and treatment.

- **Trials and Tribulations in Parent Training: Uncovering Hidden Obstacles to Effective Intervention.** GRETCHEN GIMPEL, Hollie Bergloff, Angie Ehrlick, Marietta Veeder, Tobin Jones, and Casey Johnson (Utah State University)

  Parent training is a commonly used intervention for children with disruptive behavior disorders including Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, and Conduct Disorder. Standard parent training programs follow a basic two part model in which parents are first taught to use positive attending skills to shape adaptive behavior and then taught to implement

discipline skills to reduce inappropriate behavior. Problems experienced during parent training are often due to difficulties parents have in implementing procedures correctly and consistently (e.g., not practicing skills, not attending appointments). Occasionally, though, children react in an unforeseen manner to the procedures their parents are implementing. This presentation will provide case examples of situations in which children reacted poorly to the first portion of parent training (positive attending) and the solutions developed to overcome these problems. We provide examples of situations in which children were not responsive to correctly implemented procedures as demonstrated in session. Among the case examples to be presented are a child who continually reported that he did not believe what his mother said and a child who wanted to use positive attending skills with his mother but did not want his mother to use these skills with him. Issues related to the comprehensive assessment and therapy of pediatric behavior problems will be discussed.

- **Nocturnal Enuresis and Moisture Alarms: Troubleshooting Potential Pitfalls.** POLAHA JODI (University of Nebraska Medical Center)

  There is a large body of empirical literature that supports the enuresis alarm as the treatment of choice for nocturnal enuresis. In some cases, however, the standard alarm protocol may be inadequate for a number of reasons ranging from the medical (e.g., bladder instability, bladder wall thickening, etc) to the behavioral (e.g., difficulty with arousal). The current paper examines the various components of a comprehensive protocol for nocturnal enuresis and the problems that may arise in conjunction with each component. Case material will be presented to illustrate potential pitfalls in this alarm procedure including complications that may arise from an inadequate assessment. In particular, this paper addresses the practical difficulties attendant to working with children who present with problems of arousal. Children who are "deep sleepers" frequently frustrate the both parents and providers alike who attempt to implement alarm procedures. Case material will highlight an intervention to facilitate arousal that uses a combination of behavioral procedures including shaping, stimulus control, and, reinforcement. Implications for the general assessment and . treatment of nocturnal enuresis will be presented.

#95 Special Event

11/30/2001
2:00 PM - 2:50 PM
Tapestry Hall
OBM

Behind the Scenes: Applied Behavior Analysis in Work Settings. JUDITH L. KOMAKI (Baruch College, CUNY)

In 1972, the world of business and industry was proclaimed "practically virgin territory" for the operant conditioning field (Goodall, 1972). Since then, the applied behavior analysis (ABA) approach has been successfully applied in a variety of work settings. Researchers and consultants have:

* Used the principle of positive reinforcement to solve work motivation problems, resulting in the improvement of occupational safety in manufacturing organizations, preventive maintenance of heavy equipment in the military, and quality of service provided in department stores, restaurants, and banks.

* Developed operant-based ways of appraising performance, incorporating such well-established practices as direct and frequent sampling and tests of inter observer agreement. These alternatives to traditional performance appraisal methods (e.g., the trait-based rating scale) have been used to ensure more fair and accurate evaluations. Implications exist for preventing employment discrimination.

* Attempted to identify effective leadership skills to serve as the core for the selection and promotion of supervisory personnel and for training programs in management development. In this tutorial, I will discuss in detail three cases, one about motivation, another dealing with leaders and followers, and the last about performance appraisal. All occur in the workplace -- "unquestionably the major civil rights battleground of the 21st century" (Roberts, 1998, back cover). The cases are drawn from my published and ongoing research. Cutting-edge applications and field-enhancing research directions will be identified. To maximize our time together, participants will be asked to read material ahead of time. An extensive list will be provided.

#96 Paper Session

11/30/2001
2:00 PM - 2:50 PM
White Hall
EAB

Behavioral Economics and Water as Reinforcers
Chair: Carlos A. Bruner (National University of Mexico)

- **The Acquisition and Maintenance of Leverpressing with Water Reinforcement by Non-Thirsty Rats.** CARLOS A. BRUNER and Raul Avila (National University of Mexico)

  The spaced delivery of response-independent food elicits drinking in rats that have not been deprived of water. The present study was conducted to determine whether water reinforcement could be used for the acquisition and subsequent maintenance of leverpressing by non-thirsty rats. Three rats were deprived of food but not of water and directly exposed to a random time 60-s food schedule. From the onset of the experiment a lever in the chamber produced a drop of water on a given fixed interval schedule of immediate reinforcement. On both FI 7 and 15 s, the three rats leverpressed for water with a scalloped pattern. On FI 30 s one rat stopped leverpressing and on FI 60 s only one rat leverpressed for water. These results showed that operant responding can be established and maintained in the absence of the proverbial magazine training, response shaping and even deprivation of the response-produced reinforcer. In addition these results questioned the need of a functional definition of the reinforcing event given that at least in the case of water, such reinforcing function was predicted from the knowledge of a situational parameter; i.e., the concurrent availability of free food.

- **Behavioral Economics: Measures of Demand in Assessing Animal Needs.** T. MARY FOSTER, William Temple, and Catherine E. Sumpter (University of Waikato, New Zealand)

  Measures of demand, derived from consumer demand theory, have been suggested as measures of animal needs. Demand curves can be generated by increasing the work required to gain access to something, and plotting the amount consumed against the work required (or analogue of price). Inelastic demand curves, in which consumption falls slowly with price increases, may indicate a degree of need for the

event or activity. Elastic curves may indicate lesser or no need. Demand curves generated for something as fundamental as access to food can vary in shape and degree of elasticity according to the experimental parameters employed. Increasing session length can change the elasticity of the curves found. Increasing the work by increasing the force rather than the number of responses required produces curved, rather than linear, demand functions. This paper presents demand functions derived from hens working for food under various session lengths, response requirements (key-pecking and door-pushing) and with work increases as either number or force requirement changes. It suggests that defining an event as needed, or not, from a single determination of a demand curve may be inappropriate and that comparisons between demand curves should be made only when experimental parameters are consonant between the determinations.

#97 Paper Session

11/30/2001
2:00 PM - 2:50 PM
Barbantini Hall
CSE/CBM

Diagnosis and Treatment
Chair: Esther Contreras

- **The Analysis of Processes to Standardize the Luria-Christensen Neuropsychological Test Battery to Brazilian People.** TATIANA IZABELE JAWORSKI (Paraná Federal University)

  The purpose of this research is to adapt and standardize the Luria-Christensen neuropsychological tests battery to Brazilian reality. this battery is composed of ten tests each one assessing one specific area of the cerebral function system, through an assessment of the perceptive, cognitive and motor skills. this work started previously adapting the tests (phase 1) when the kind of stimulus chosen visual, verbal and kinesthesical with the final presentation and revision works. the tests were applied to two different groups, one without any history of neural diseases, the control group, and the other with documented neural records, the experimental group. a prior analysis of the practical results lead to a deeper scientific and statistical approach of the answers we could get from the tests, having choice of analysis, revision and new adjustments criteria (phase 2). the third phase was a repetition and standardization work reaching a more formal state of knowledge and going beyond the prior criterion of excellence. if a higher pattern of standard derivation was detected the need of phase 4. at the present moment these are the following results: 6 tests in the phase 2, 3 in the phase 3, 1 in the phase 4. at the end of the research the results will be reliable as neurological assessment and as qualitative mapping of the cerebral areas, adjust to the local reality.

- **Teaching Matching to Sample to Totally Paralyzed Patients by Translating Their Brainwaves into Cursor Movement on a Monitor.** IVER H. IVERSEN (University of North Florida), and Niels Birbaumer, N. Ghanayim, T. Hinterberger, J. Kaiser, B. Kotchoubey, A. Kuebler, and N. Neumann (University of Tuebingen, Germany)

  The purpose of the research is to enable totally paralyzed patients with amyotrophic lateral sclerosis (ALS) to communicate by means other than muscular activity. We used a computerized on-line task that translates signals from the

encephalogram (EEG) into visual feedback. The patient faces a monitor that shows a ball-shaped cursor and two targets located at the top and bottom of the monitor. The vertical movement of the ball gives visual feedback of the EEG to the patient. The patient has to learn to self-regulate the EEG to make the cursor hit the correct target, which varies in location from trial to trial. We used operant conditioning methods to train two adult patients to generate the voluntary EEG response. In one task, the monitor presents two targets, and the patient is instructed verbally at session start to move the ball to one particular target; for example, the screen may present a noun and a verb, and the instruction is to move the cursor to the noun on all trials. In another task, the instruction varies from trial to trial and consists of a model (sample) presented on the screen. The subject has to move the cursor to the correct target (comparison), as in regular matching-to-sample. We used symbols, letters, and words as stimuli and established both identity and symbolic matching. In one patient, we also established three 3-member equivalence classes. The presentation will illustrate how brainwaves can be translated into cursor movement, how the patients were trained, and how results from such experiments can be used to assess "cognitive" skills in totally paralyzed patients.

#98 Paper Session

11/30/2001
2:00 PM - 2:50 PM
Palladian Refectory Hall
EAB

Increasing Prosocial Behavior and Name-Picture Relations
Chair: Sang Bok Lee (Taegu University, South Korea)

- **Effects of Peer-Mediated Cognitive Behavioral Therapy to Increase Prosocial Behaviors for Children with ADHD.** JEONGIL KIM (Taegu University, South Korea)

  The investigation examined the effects of peer-mediated cognitive behavioral therapy to increase prosocial behaviors for children with ADHD and its effects on self-esteem. A time- lagged ABC design across subjects was used. Three children, two with ADHD and one as a peer mediator, participated in the study. Two children with ADHD were involved in receiving the cognitive behavioral intervention program of the study. One peer was trained how to mediate in the intervention program with four cooperative tasks . The data was collected by two observers. The observers measured the frequency of occurrence of the children's prosocial behaviors and their inappropriate behaviors (disruptive, impulsive, or aggressive behaviors) were also measured. In a 30-minute observation session, once per day, the two observers collected the data using an event recording system by watching the children's cooperative work through a video camera installed in the designated area of the experimental setting. To assess reliability of the data, interobserver agreement was calculated, and they were 92% and 96% for occurrence/nonoccurrence of the prosocial behaviors and inappropriate behaviors, respectively. The children's self-esteem was also measured in two conditions, before introducing the intervention to the children and after the intervention. The results of this study revealed the following. First, the intervention increased the children's prosocial behaviors such as appreciating behavior and decreased their inappropriate behaviors such as hitting others with a fist. Second, there was a slight change in the self-esteem rating scores of the children undergoing the intervention.

Third, two children maintained the increased frequency of prosocial behaviors and the decreased frequency of inappropriate behaviors in a non-intervention condition when the intervention was withdrawn for a month. This work was supported by the Brain Korea 21 Project in 2001.

- **Effects of Topography-Based and Stimulus-Selection-Based Verbal Behavior Training on the Emergence of Name-Picture and Picture-Name Relations in Children.** SONIA MARIA MELLO NEVES, Lucilene P. Silva, Sirlene G. Xavier, Timoteo M. Viera, Georgia F. T., and Marcelino de Paula Lopes (Universidade Catolica de Goias, Brazil)

  The effects of training picture-name relations (tacting unfamiliar pictures with unfamiliar names) on the emergence of name-picture relations (pointing at a picture when hearing THE name) and vice versa, were investigated in four thirty-three to thirty-eight month old children. First picture-name relations were trained (i.e. tacting) and name-picture relations were tested (i.e. selection-based verbal behavior). In the second phase name-picture relations were trained and picture-name relations were tested. Results showed that when tacting was trained, three of the four subjects reached 100 % correct performance easily. Having learned the picture-name relations, they went on to score well on the name-picture test. But when the name-picture relation was trained (without the subjects learning to tact) the selection-based verbal behavior was only acquired, even after substantially longer training, by one out of four subjects. Subsequent tests of picture-name relations were not successful. These data are discussed in the light of Michael's account that considers the difference between selection-based verbal behavior, which involves conditional discrimination and requires an effective stimulus-scanning repertoire, and topography-based verbal behavior (tacting), which requires simple discriminative control and no comparable scanning repertoire.

#99 Symposium

11/30/2001
2:00 PM - 2:50 PM
Cloister of the Cypress Hall
EDC

School-Based Self-Management Programs: Principles and Generalized Outcomes
Chair: K. Richard Young (Brigham Young University)

- **Guiding Principles for School-Based Self-Management Programs.** RICHARD P. WEST (Utah State University) and Sharon O. West (Behavioral and Educational Training Associates)

  There are several important principles and concepts that form the basis for our successful school-based self-management programs. Participants will be introduced to a behavior change model, based on these principles, that can be applied by both external agents (e.g., teachers, school psychologist) or by an individual his or her self. We have conducted several self-management studies with different school populations, indifferent settings, and with different problems. Each of these studies has been based on the same principles and concepts. This presentation will discuss the foundation of all of these programs. Our format begins with establishing performance standards for the particular behavior and individual for whom the program is designed. A self-monitoring process is established and taught followed by self-evaluation. A key to self-evaluation and to reinforcement (another

important principle) is the matching process. These principles will be discussed, examples presented, and applications shared.

- **Adapting Self-Management Programs for Classwide Use: Acceptability, Feasibility, and Effectiveness.** KATHERINE J. MITCHEM, Timothy L. Mitchem, and Julieann Benyo (West Virginia University)

  The time-saving features of self-management as well as its demonstrated effectiveness at improving behavior make it an appealing strategy to promote inclusion of students with disabilities. This paper reports the results of a two-part study. We first reviewed the literature on acceptability and feasibility studies of programs to improve behavior to identify variables related to adoption and sustained use. Seven studies using self-management procedures on a class wide basis were reviewed and used to develop a class wide peer-assisted self-management program (CWPASM). We then report data on the implementation and evaluation of CWPASM based on its feasibility, acceptability, and effects on classroom behavior. Present findings indicate that: (a) after training, the teacher and students were able to implement the procedures with a high degree of accuracy; (b) the teacher and students found it acceptable and effective at improving behavior; and © the teacher continued to use CWPASM procedures in subsequent school years. In addition, we report data on the time and resources required to train and implement CWPASM and the CWPASM effects on whole group and targeted students' on-task behavior are compared to those in a non-treatment classroom. Implications of these findings for practitioners and researchers will be discussed.

- **School Applications of Self-Management: Training and Generalization.** K. RICHARD YOUNG (Brigham Young University) and Janet F. Young (Center for Improvement of Teacher Education and Schooling)

  This presentation will discuss studies that have used self-management strategies to improve both social and academic behavior. One of the studies used self-management with student with emotional and behavioral disorders. Training was conducted in a Special Education class and then generalized to regular classes. All six students in the study were successful in generalizing appropriate behavior to the non-training settings. A similar study was conducted with at-risk adolescents with the similar results. Self-management procedures were also used to improve homework and the generalized use of social skills. Data will be presented on these applications only with information on experimental designs, interobserver agreement data, and social validity results. Adaptations of the procedures to other populations and settings will be discussed.

#100 Symposium

11/30/2001
2:00 PM - 2:50 PM
Photographs Hall
AUT

The Comprehensive Application of Behavior Analysis to Schooling (CABAS): Educating Young Children with Autism Diagnoses
Chair: R. Douglas Greer (Columbia University)

An analysis of the components of CABAS will be provided along with an overview of how the schools provide a delivery system and research base for applying the basic and applied science of behavior to schooling. The research shows four to seven times more learning

under CABAS than in pre CABAS baselines. All instruction is continuously measured at the levels of students, teachers, parents and supervisors. The epistemology and the application of the basic and applied science of behavior to all components of schooling will be presented.

Data from one CABAS school in Cork, Ireland will be discussed along with a number of studies carried out to increase behaviors in young children with autism.

- **The Development of Expertise in Teaching as Applied Behavior Analysts and the effects on students.** OLIVE HEALY (CABAS Ireland)

  A complete and extensive curriculum for training teachers and parents is implemented by CABAS. The research has shown that student's progress is functionally tied to teacher expertise. An outline of teacher progress within the CABAS curriculum will be provided. A functional relationship will be shown between teachers' use of scientific rules and student learning. The progression of student performance will be summarised using the school wide and individual data.

- **CABAS Curricular Repertoires and Education Standards.** DOLLEEN-DAY KEOHANE (Columbia University) and Jennifer O' Connor (CABAS Ireland)

  A detailed description of the assessment tool (Preschool Inventory of Repertoires for Kindergarten) within CABAS will be given. The development of a curriculum to teach young children with autism within a mainstream setting will be described. Baseline data along with post CABAS-teaching of four students from the Cork CABAS School will be presented.

#101 Symposium

11/30/2001
2:00 PM - 2:50 PM
Little Theatre Hall
AUT

Using Naturalistic Teaching Strategies (NaTS) to Teach Speech to Children with Autism
Chair: Marjorie H. Charlop-Christy (Claremont McKenna College)

The present symposium reviews three promising procedures for teaching speech to children with autism: Natural Language Paradigm, Speech/Play Enhancement for Autistic Kids, and Time Delay. These training procedures are called Naturalistic Teaching Strategies (NaTS) because the incorporate components and strategies known to facilitate acquisition, generalization, and maintenance of new behaviors. These components include motivation, functional relationships, and facilitators of generalization and are briefly defined and discussed in relation to the four teaching procedures. All of the procedures and findings are data-based and can be used in a variety of settings, such as classroom, playground, home, and community settings. The symposium begins with a historical perspective of behavioral speech/language training and the need for NaTS followed by the specific NaTS procedures, and concludes with a discussion of the merits of NaTS and their importance in the treatment of children with autism.

- **Historical Perspective, Development, and Current Practice of Naturalistic Teaching Strategies.** MARJORIE H. CHARLOP-CHRISTY (Claremont McKenna College)

Naturalistic teaching strategies emerged out of the need to facilitate speech acquisition and promote generalization in natural environments such as in the home, school, and the community (Halle, 1984; Halle, Baer, & Spradlin, 1981). Naturalistic teaching strategies incorporate three vital elements: 1) motivation enhancing techniques, 2) functional relationships, and 3) variables that facilitate generalization. Motivation enhancing techniques include varied reinforcers, child choice, and repeated preference assessments with preferred and novel stimuli (DeLeon & Iwata, 1996; Egel, 1981). Second, functional relationships are established between spoken words and access to reinforcing events, thus maximizing the motivational effects of existing establishing operations, and establishing mands as a response class (Michael, 1993). Finally, naturalistic teaching strategies include variables that facilitate generalization such as less structured teaching settings, incorporation and natural teaching environments, the use of parents, teachers, and others who co-occupy the natural environment, and use of natural reinforcers and intermittent contingencies (e.f. Stokes & Baef, 1977). The present speech will consist of a brief discussion of the previous literature on the three components of naturalistic teaching strategies. Also included is a presentation of several naturalistic teaching strategies developed in the past decade. The presentation concludes with the program evaluation data of such teaching strategies.

- **The Natural Language Paradigm (NLP) and Speech and Play Enhancement for Autistic Kids (SPEAK).** CHRIS A. LABELLE, Susan Kelso, and Andrea Valdez (Claremont Graduate University), and Marjorie H. Charlop-Christy (Claremont McKenna College)

  The Natural Language Paradigm (NLP) and Speech/Play Enhancement for Autistic Kids (SPEAK) are both naturalistic teaching strategies used to teach speech to children with autism. Koegel et. Al. (1982) developed NLP as a method of teaching language because it was similar to the development of typical children's language, was motivating, and promoted generalization. The steps of NLP as well as the advantages of using NLP to teach speech to children with autism will be discussed. Data will be presented (Laski, Charlop, & Schreibman, 1987) suggesting that NLP is a procedure easily used by parents who have reported enjoying the teaching sessions. SPEAK is a unique type of naturalistic teaching strategy which simultaneously targets speech and play. SPEAK incorporates motivation and generalization enhancing variables typical of naturalistic teaching strategies (Charlop-Christy & Valdex, 1997). The steps of SPEAK and the advantages of using SPEAK to teach speech and play to children with autism will be discussed. Data will be presented (Kelso & Charlop-Christy, 1998) displaying increases in speech and play in children with autism following sibling implemented SPEAK training. Finally, generalization to parents and across settings supports the literature suggesting that training in the natural environment promotes generalization (Stokes & Bear, 1977).

- **Time Delay Procedures.** JONES CATHY (Claremont Graduate University) and Marjorie H. Charlop-Christy (Claremont McKenna College)

  Time delay was introduced as an experimental method for analyzing the moment of transfer of stimulus control (Touchette, 1971). It has since evolved into a treatment procedure that entails inserting a delay of 10 seconds or less between the presentation of the target stimulus and the presentation of the prompted response. Through time delay procedures, stimulus control transfers from a physical or verbal

referent to general environmental cues, thereby increasing the spontaneity of the response. Time delay procedures have been successful in increasing spontaneous speech in children with autism (e.g., Risley & Wofl, 1967; Charlop, Schreibman & Tibodeau, 1991). This has been a major break through in that teaching speech, in general, and especially spontaneous speech, has been a challenge to treatment provided for decades (Charlop, et. Al., 1991). With time delay, spontaneous speech is not only acquired, but stimulus control transfers to the natural environment, thus promoting generalization of the spontaneous speech (e.g., Charlop & Trasowech, 1991). A series of 4 empirical studies using time delay to teach spontaneous speech to children with autism will be presented. Discussion of acquisition, generalization, and maintenance data will also be provided as well as the ease of implementation of the successful treatment procedure.

#102 Paper Session

11/30/2001
3:00 PM - 3:50 PM
Little Theatre Hall
AUT

Autism III
Chair: Vanessa Jensen (The Cleveland Clinic Foundation)

- **Beyond the Educational Model: Collaboration with Science, Psychology, and Pediatrics.** VANESSA JENSEN (The Cleveland Clinic Foundation)

  Despite well-discussed shortcomings of individual studies, the composite published data to date support that behavioral intervention, particularly applied behavior analysis (ABA), is effective in improving functioning in children with autism. Nevertheless, such services remain largely inaccessible for many, due to a lack of trained professionals, limited funding, and/or poor acceptance of the intervention. As has been discussed by Jacobson (2000) intervention for autism, whether empirically based or the latest fad, has largely been driven by consumers, outside of the realm of science and the health care arena. Behaviorists have been less than ideally effective in disseminating information regarding the efficacy of behavioral autism treatment to the broader professional communities, particularly psychology and pediatrics, and creating allies and advocates within these groups through collaboration.

  An alternative model for provision of services exists outside of the traditional educational system. This paper discusses the creation of specialized autism services within a tertiary medical facility, utilizing existing resources, such as rehabilitative services, pediatric specialists, and research and fund-raising experts. Such joint efforts can offer greater educational opportunities for a range of professionals, support ongoing research regarding etiology and treatment, encourage collaboration with scientists at all levels, and link efforts in biological treatments with those occurring in the behavioral world. Strategies, difficulties, and benefits of this model of collaborative practice will be discussed.

- **Overselectivity: An Attentional or Memory Effect?** EVELYN GIBSON and Phil Reed (University College, London)

  Stimulus overselectivity can be induced in normally developed adult humans if they carry out tasks with a large memory load concurrently with discrimination-training involving complex cues. Subjects were first trained to discriminate between four,

two-component compound stimuli. Two of these stimuli were always reinforced. The subjects were then tested on the components of the compound stimuli, prior to extinction of responses to those components on which they showed overselectivity. The subjects were then retested on all the components as described above. Memory- and attentional- based explanations make different predictions regarding the amount of overselectivity that will be shown following this retraining. If overselectivity decreases as a result of the manipulation, then this would suggest that memory-load is an important factor in the development of stimulus overselectivity. Extinguishing the preferred stimulus shifts preference to the initially nonpreferred stimulus. If the manipulation does effect overselectivity, then it shows that all the components of the complex stimuli initially were attended to by the subject, and this suggests that overselectivity is produced by constraints on memory. In contrast, if the manipulation does not effect overselectivity, then the subject may initially have only attended to certain aspects of the complex cue.

#103 Paper Session

11/30/2001
3:00 PM - 3:50 PM
Cloister of the Cypress Hall
EDC

Education II
Chair: Philip N. Chase (West Virginia University)

- **Are There Critical Frequencies for Achieving "Fluency" in Phoneme Recognition?** DAVID LEACH (Murdoch University)

  The acronym RESAA is a mnemonic for learning outcomes that are predicted when behavior becomes 'fluent'. It stands for 'retention', 'endurance', 'stability', 'application' and 'adduction'. But what frequencies are critical in achieving RESAA criteria when practicing the components of basic academic skills such as reading ? Are there critical thresholds and how wide are they? This study systematically built see/say phonemes by fifteen grade 1 children to increasing, step-wise frequency aims. RESAA measures were taken at successive intervals. The results were surprisingly mixed and raised important practical and theoretical questions about using RESAA criteria for determining 'fluency' outcomes as they are currently defined.

- **Altering Student Choice by Altering Relative Discrete Task Completion Rates while Working on Academic Assignments.** CHRISTOPHER SKINNER (University of Tennessee)

  My students and I have published several experiments where we exposed students to two or more academic assignments and then asked them to choose which assignment they would prefer for homework. Separate experiments have shown that interspersing additional briefer problems increased both problem completion rates and the proportion of students choosing the assignment with these additional problems. In the current study, data on relative problem completion rates (RPCR) and choice are combined across experiments (i.e., 5 experiments with different subjects including college students, high school students, and middle school students) to reveal a linear relationship between RPCR and choice. This relationship would be predicted by Herrnstien's matching law, provided that discrete task completion (e.g., problem completion) is a reinforcing event.

Discussion will focus on several theoretical issues. A process where discrete task completion should become a conditioned reinforcer will be presented. Generality of the theory that discrete task completion is reinforcing event will be discussed as a plausible causal explanation for previous experimental findings (e.g., timing and pacing procedures, breaking large tasks down to smaller tasks to increase persistence). Two other experiments that demonstrate the applied value of the interspersal procedure will be briefly discussed. One study shows how this procedure can be used to increase persistence or on-task behavior of an elementary student within general education setting. The other study shows how this procedure can be used to increase the probability of students selecting assignments that require much more time and effort (e.g., 40% more) to complete.

#104 Paper Session

11/30/2001
3:00 PM - 3:50 PM
White Hall
EAB

Shaping
Chair: Michael B. Ehlert (University of Guam)

- **Automated Shaping of Leverpress Duration in Rats: Differentiation Based on Single Responses and Response Samples.** JAMES KOPP (University of Texas at Arlington)

  Three groups of rats were differentially reinforced for emitting leverpress responses that were successive approximations to a duration band of between 600 and 700 ms. For the animals in Groups 1 and 2 each response was reinforced if it fell within an interim band auromatically set by adding the running mean to the average deviation of the previous 10 responses. For the Group 3 animals each response was reinforced if it was greater than the previous response. The animals in all three groups emitted responses whose durations closely approximated the criterion band with median durations close to 600 ms. For Groups 1 and 2, however, the area of the distribution of response durations that included the 600 to 700 ms band (and thus controlled the percent of reinforced responses) was well below 50%. The area of the distribution for Group 3 narrowed to 600-700 ms along with the increase in reinforcement density to 50%, then widened again with no loss of reinforcers.

- **Shaping of Animal Behavior by Visual Imaging Technologies.** LINDA HAYES, Nelson Publicover, and Kenneth Hunter (University of Nevada, Reno)

  Two shaping protocols, implemented using visual imaging technologies, were compared as to their relative effectiveness in bringing about a target locomotor performance in 6 mice. The first of these was a standard fixed-step protocol, the second was a percentile shaping schedule. The data are presented as time required to accomplish individual steps, or their equivalents, as well as the final target performance. The numbers and types of errors are also shown. All data were collected by the computer.

#105 Symposium

11/30/2001
3:00 PM - 3:50 PM
Palladian Refectory Hall
EAB

The Next Generation of Equivalence Research
Chair: Lanny Fields (Queens College)

In the last five years, research spawned from the study of equivalence classes has begun to extend its scope in two directions. Some studies have begun to explore how equivalence classes can be formed when training is conducted with procedures other than matching to sample. These studies provide explicit linkages between the study of equivalence classes and the processes that influence classical conditioning. Other studies have begun to study the formation of complex perceptual categories and have linked them to the study of equivalence classes, and the traditional domains of concept formation and categorization. These experimental results illustrate how emergent performances are accounted for from three different explanatory perspectives: a relational frames, stimulus control topographies, and environmental parameter spaces. Finally, the papers in this symposium illustrate how the study complex human behavior from a behavioral analytic perspective can make meaningful contact with other traditional areas of psychological inquiry such as associative learning and cognition.

- **Three Determinants of a Generalized Ability to Categorize New Information.** LANNY FIELDS, James Belanich, Priya Wadhwa, and Antonios Varelas (Queens College)

  Five groups of college students were exposed to different experimental conditions, each of which influenced the emergence of a generalized repertoire of categorizing stimuli in novel stimulus domains with no direct training. 102 stimuli were divided into 6 pairs. Each stimulus in a pair was used as an endpoint of one of 6 synthetic stimulus continua: A, B, C, D, E, and F. Intermediate stimuli in each continuum were produced using morphing software. In Group 1, subjects received identity conditional discrimination training with the endpoint stimuli in Domain A. In group 2, training involved the presentation of many stimuli in domain as samples and the endpoint stimuli as comparisons. In group 3, training involved the presentation of many stimuli in domain as samples and the endpoint stimuli as comparisons. Training was conducted with stimuli in Domains A and B. In group 4, training involved the presentation of many stimuli in domain as samples and many stimuli from the same domain as comparisons. As with Group 3, training was conducted with stimuli in Domains A and B. After training, generalization tests were conducted with all of the stimuli in all six domains. These generalization tests were conducted in the absence of any reinforcement. The generalization tests involved the presentation of many variants of any reinforcement. The generalization tests involved the presentation of many variants of stimuli in a given domain as the sample with the endpoint stimuli in the same domain as comparisons. Spontaneous categorization was demonstrated by the selection of one endpoint stimulus in the presence of many contiguous stimuli from the same end of the domain would constitute categorization, for the domains that were not used in training. Thus, two categories could be formed for each domain. Performances indicative of the formation of 10 categories (2 each from domains B-F) could emerge after training in Groups 1 and 2. Performances indicative of the formation 8 categories (2 each from domains C-F) could emerge after training in Groups 3 and 4. 17, 37, 72 and 95 of the possible untrained categories emerged after training in groups 1-4, respectively. A between group analysis then can be used to identify three independent variables responsible for the inducing a generalized ability to categorize information arrayed in novel stimulus domains: (a) multiple exemplar training with exemplars as samples, (b) multiple exemplar training with variants as

samples and comparisons, and multiple domain training. The identification of independent variables of which the emergent behaviors are a function provides an account that is an alternative to a relational frame

- **Stimulus Equivalence Methodology in Modeling Categories: The Case of Hierarchically-Organized Categories.** KRISTA M. WILKINSON and William J. McIlvane (Eunice Kennedy Shriver Center for Mental Retardation)

  Although Sidman's stimulus equivalence paradigm has been widely discussed as a potentially useful model of categorization, no one thus far has developed procedures that model the complexity of true, hierarchically based categories. To this end, we will describe a novel research methodology that marries elements of equivalence research with the widely known psycholinguistic methodology of sentence verification. Subjects are trained in a matching-to-sample format in which they match at two levels: (1) lexigram labels (B) with novel exemplars © and, (2) higher-order category labels (A) with the lower-order lexigram labels (B). In conventional stimulus equivalence research, teaching relations AB and BC would be expected to yield emergent relations BA, CB, AC, and CA. To model hierarchically organized categories, however, it is necessary to constrain the emergence of certain relations. Specifically, it is necessary to demonstrate an asymmetrical relation between A and B and between A and C, while maintaining the symmetrical relation between B and C. Sentence verification tasks allow us to asses directly the symmetricality of such relations. Results with normally developing adults indicate successful hierarchical category learning with the combination of equivalence training and sentence verification tests. The approach provides an alternative stimulus control analysis of performances typically attributed to "relational frames".

- **The Respondent-Type Training Procedure: Some Recent Developments.** GERALDINE LEADER (University of Ulster at Jordanstown, Ireland)

  Over the past number of years we have developed a training procedure that does not involve matching-to-sample, but reliably generates emergent or derived matching performances in both adults and children. The basic procedure simply involved presenting subjects with a multiple random series of stimulus pairs with a within-pair-delay of 0.5 seconds and a between-pair delay of 0.3 seconds. This procedure has been seen to be more effective than the traditional matching-to-sample training and has been used in the educational setting to teach fraction-decimal equivalence to five-year-old children. The most recent experimental manipulations using this procedure will be outlined in this paper. The results of this experiment will be related to contemporary relative-time analyses of Pavlovian conditioning.

#106 Special Event

11/30/2001
4:00 PM - 05:00 PM
Tapestry Hall

Closing Event