

BEHAVIOR ANALYSIS DIGEST

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Childhood Environments: The Roots of Thinking

New York, NY - When young children talk to themselves, are they in the roles of both speaker and listener? And does such activity represent the roots of thinking? B. F. Skinner first suggested this idea in his book *Verbal Behavior* in 1957. Recently, Columbia University researchers Seema Lodhi and R. Douglas Greer have, to some extent, experimentally affirmed Skinner's proposal. They discovered that when five-year-old children played with toys having humanlike characteristics (dolls, stuffed animals) the children functioned in both speaker and listener roles. However, when the same children played with puzzles, coloring books, and other non-humanlike toys, they talked less and never acted in the roles of speaker and listener.

The children were videotaped playing alone, with and without humanlike toys. Each child's self-talk was then evaluated to determine whether the child functioned as speaker and listener. In a typical example the child, pointing and making space for another doll on her lap, said, "Okay, you sit here, right in here." Then the child, as if it were a doll, asked itself, "Why are we sitting in your lap?" Then, as herself, "So you could see."

This careful analysis of the children's conversational units seems to affirm Skinner's assumption that verbal behavior, including thinking (which Skinner conceptualized as verbal behavior observable only to the thinker) is under the control of environmental events to a much larger degree than linguistic theorists imagined. Skinner suggested that children stop talking aloud as they grow older because of the consequences in the children's environments. By adulthood thinking might involve silent conversations with oneself in which one acts as both speaker and listener, much as children do aloud. - WJW

Lodhi, S., and Greer, R.D. (1989) The speaker as listener. *Journal of the Experimental Analysis of Behavior*, 51, 353-359.

Problem Behavior Tells Researchers How to Motivate Students

Albany, NY - Assessing situations in which developmentally disabled children and adults show tantrums, aggression, or self-injury can suggest what motivates them to misbehave. This information can then be used in teaching them, as researchers V. Mark Durand, Daniel B. Crimmins, Marie Caulfield, and Jill Taylor recently demonstrated.

The researchers asked teachers of autistic and developmentally delayed students to rate the likelihood of problem behavior in each of several situations. It was found that when the students were either seeking attention or attempting to escape from a difficult task the misbehaviors increased.

For students identified as motivated by attention, performance was indeed best when enthusiastic praise was given for each correct response. Performance worsened when the consequence was changed to time off from the task (an escape).

For the students identified as motivated by escape from difficult tasks, performance was best on sessions when correct work was followed by time off. Their performance declined rapidly when they were praised for correct responses. Several of them even showed large increases in problem behavior when they were being praised for correct work.

Durand and his colleagues suggest that teachers must select reinforcers individually and not simply assume that praise will serve as a reinforcer. They also point out that students whose performance is reinforced by escape from tasks will fail to benefit from many learning environments and may need retraining designed to change what motivates them. - Robert P. Hawkins and Jody Kashden

Durand may be contacted at the Department of Psychology, State University of New York at Albany, Albany, NY 12222.

Behavior Change Strategies Increase Automobile Safety Belt Usage

Blacksburg VA - Strategies employing both antecedent and consequent control have been shown to increase buckling up for safety, according to Dr. E. Scott Geller, Professor at Virginia Polytechnic Institute and State University.

Geller reviewed many years of research, conducted by him and his students, examining the effects of prompts, incentives and disincentives, and rewards and punishers. All strategies increased safety belt use on a large scale, but none produced 100% compliance.

Among the prompts examined were buckle-up reminder stickers placed on dashboards. Twenty-four graduate students agreed to record seat belt usage of passengers in their cars during periods with no sticker present and when the stickers were present. Safety belt use rates increased nearly 40% when the stickers were present. Other prompts included safety belt reminder systems such as lights, buzzers and voices and "Please buckle up - I care" flash cards

Continued on page 2 "Safety Belt"

Psychology's Role in the AIDS Crisis

Jackson, MS - Behaviorally oriented psychologists have important roles to play in preventing the spread of AIDS, and in assisting individuals who already have it, according to Jeffrey A. Kelly and Janet S. St. Lawrence, of the University of Mississippi Medical Center and Jackson State University.

Although researchers are working on a vaccine for the AIDS virus, experts agree that a vaccine will not be available for many years. However, the spread of AIDS can be stopped if individuals can be encouraged to change risky behaviors (see *Behavior Analysis Digest*, Vol. 1, No. 1).

Health education messages in the the media are most effective if they provide specific advice on how to change high risk

Continued on page 2 "AIDS Crisis"

Safety Belt

(Continued from page 1)

presented to drivers of adjacent vehicles.

It was found that "pledgers," those individuals agreeing to sign a card committing to wear their safety belts, already had a higher pre-pledge rate of safety belt usage than "non-pledgers." A lottery for "pledgers" substantially increased the already relatively high usage rates. In the lottery, the faculty, staff, and students who signed a pledge card were randomly selected to win pizzas donated by local merchants.

In another study comparing a reward approach to a punishment approach, announcement of impending punishment for not wearing a safety belt was found to be more effective than announcement of impending reward for wearing a safety belt, but only when an enforcement officer was present.

While seat belt laws have been passed across the United States making safety belt use the social norm, actual behavior change has been limited. Geller's cost-effective approaches hold promise in the development of a comprehensive safety belt promotion program. - MMB

Geller, E.S. (1988) A behavioral science approach to transportation safety. *Bulletin of the New York Academy of Medicine*, 65(7), 632-661.

AIDS Crisis

(Continued from Page 1)

behavior, explain the rationale for recommended changes, and have an encouraging tone. Kelly and St. Lawrence say that messages must be repeated frequently, should use a variety of different media, should be presented by sources perceived as credible, and ought to include reminders of specific behaviors that reduce risk.

Behavior change training groups for individuals at risk for AIDS exposure can help. Group participants are taught self-management strategies aimed at avoiding situations that tend to lead to high risk behavior, such as alcohol intoxication, as well as assertiveness skills that help in resisting pressure from others to engage in risky behaviors.

Kelly and St. Lawrence also suggest ways to be of service to individuals already infected with the virus. Coping with the stigma of HIV infection, disrupted relationships with family members and friends, uncertainty regarding future health status, and emotional reactions such as guilt, anger, anxiety, and depression, are all important areas for instruction. - RAB

Kelly, J. A., & St. Lawrence, J. S. (1988). AIDS prevention and treatment: Psychology's Role in the Health Crisis. *Clinical Psychology Review*, 8, 255-284.

Sexism Seen as a Behavior Change Problem

Miami, OH - Behavior analysts have been called to the challenge of using their skills to tackle sexism. In a presentation at the 1989 ABA convention, Patricia M. Daly of Miami University said that sexist language and practices persist in our culture and that a research agenda should be developed by behavior analysts to address the problem.

Daly's careful analysis of textbooks suggested that sexist behavior is learned vicariously through school books. Teacher behavior plays a role as well.

While the ratio of male to female main characters in basal readers had improved in the 1980's, females were more likely to be in the "damsel in distress" role than in the helper role. According to Daly, math book publishers seemed to sidestep the issue of portraying females in non-traditional roles by using gender-free labels. The number of females in non-traditional roles had increased in math books in the 1970's but dropped in the 1980's.

Daly found that teachers are more likely to complete tasks for girls, but they explain to boys how to complete tasks themselves. They are also more likely to criticize and provide more academic assistance to boys. The outcome? While females initially out-perform males on achievement tests, males surpass females over time.

Successful efforts to change behavior in the 1970's have not persisted in the 1980's. "Behavior analysts are experts in the process of changing behaviors," says Daly. It is her contention that this expertise should be used to explore the contingencies that are necessary for changing gender-related behavior. - MMB

Is There a Behavior Analyst in the House?

(From Reader's Digest)

Our young daughter had adopted a stray cat. To my distress, he began to use the back of our new sofa as a scratching post. "Don't worry," my husband reassured me. "I'll have him trained in no time."

I watched for several days as my husband patiently "trained" our new pet. Whenever the cat scratched, my husband deposited him outdoors to teach him a lesson.

The cat learned quickly. For the next 16 years, whenever he wanted to go outside, he scratched the back of the sofa.

Praise Plus Water Mist Reduces Self-Induced Vomiting

Belchertown, MA - A profoundly retarded 27-year-old man's self-induced vomiting was substantially decreased after being treated with a combination of positive reinforcement and a mild aversive stimulus. In a procedure developed by Jane E. Mullen and Jeanmarie Faulkins of Belchertown State School, the man received encouraging praise and a brief rub on the back whenever he appropriately swallowed his food. Whenever he self-induced vomiting, he was sprayed with room temperature water from a mister.

Within a few days his vomiting was reduced substantially. Appropriate swallowing of food increased steadily over several months. Gagging was reduced more gradually, but also declined significantly within a few months. Initially, the water mist was used about 20 times each day. This gradually declined until it was only required once or twice per day.

Self-induced vomiting is a serious problem in both normal and retarded individuals. It can lead to weight loss, malnutrition, and even death. According to Mullen and Faulkins, their patient suffered from ulcers, was chronically underweight, and had a long history of expelling food from his mouth instead of swallowing it. Reducing his vomiting and increasing his body weight were critical needs.

Previous research has sometimes used much more aversive stimuli, such as electric shock, to get rid of self-induced vomiting. Although the water mister did not work as quickly as electric shock often does, its effects, when combined with positive reinforcement, were sufficient to allay fears about the man's body weight and long term health. The results were presented at the 1989 meeting of the Association for Behavior Analysis, Milwaukee. - RAB

Behavior Analysis and Social Marketing: Can They Save the Environment?

Blacksburg, VA - Saving the environment may be too large a job for behavior analysts alone says Scott Geller, Professor of Psychology at Virginia Tech. In Geller's opinion, behavior analysts have been content to demonstrate their results in small-scale experiments but have neglected to use social marketing strategies to get their findings to a much larger audience.

Social marketing attempts to influence the acceptability of social ideas and to promote socially beneficial practices.

(Continued next page)

Successful programs such as "Use your safety belt!" and "Don't drink and drive!" follow a four-step process: Marketing analysis, market segmentation, marketing strategy, and evaluation.

Geller feels behavior analysts can learn from this approach and add their own unique touch. By focusing on *behavior* rather than "attitude" they can determine the most effective way to change it. Behavior analysts seek to determine what antecedent stimuli set the occasion for a problem behavior (such as littering) as well as considering the consequences that might maintain a more appropriate behavior (rewards for picking up litter). Geller contends that social marketers would benefit from behavior analytic technology, such as its emphasis on direct observation of behavior rather than self-report for evaluation of programs.

Behavior analysts concerned with environmental degradation, pollution and resource depletion can learn a great deal about how to have an impact from social marketing.

Reprints of relevant studies may be obtained from E. Scott Geller, Department of Psychology, Virginia Tech, Blacksburg, VA 24061-0436. - JSB

Improved Public Relations Possible for Behavior Analysts

Milwaukee, WI - Behavior analysis has no public relations problem. Rather it is behavior analysts who have the problem, according to Paul Chance. Chance is a frequent contributor to *Psychology Today* who made his remarks at the 1989 meeting of the Association for Behavior Analysis in Milwaukee.

The Orwellian language of control, the use of aversives when positives would do, and the failure to find behavior analytic solutions to public relations problems are major roadblocks, Chance said.

Solutions are fairly obvious: Establish friendly relations with the press; be available as free consultants to media people who might want to do a story on addiction, autism, mental retardation, or some other topic; learn how to speak about behavioral principals in everyday language; offer prizes analogous to APA's National Media Awards for articles on behavior analysis; give awards to teachers, judges, parents and others who make bold or creative use of positive reinforcement to solve behavioral problems; and recognize that scientific terms, such as "control," have effects on most people not intended by the behavior analysts who use them. - WJW

Can Chimps Count?

Atlanta, GA - Recently, Duane M. Rumbaugh of Georgia State University and colleagues taught a chimpanzee to "count" to 1, 2, or 3. When shown a numeral in one portion of a computer screen, the chimp, Lana, used a joystick to remove the corresponding number of geometric figures from an array of up to 8 items.

Lana's skill was gradually shaped through a series of reinforcement-based training steps. At each step, correct responses earned a food reinforcer. Both reinforcement and the specific training steps contributed to Lana's progress, although Rumbaugh and his colleagues argued in a 1987 report that chimps may possess certain "pre-counting" capabilities that could facilitate this type of training.

The authors acknowledge that counting may be defined in several ways, so that there is no simple criterion by which to judge Lana's performance. However, a variety of control procedures suggested that Lana's "counting" was not the result of extraneous cues in the training procedure.

Historically, behavioral scientists and laypersons alike have held that "higher mental processes" were found only in humans. Behavior analysts are one group, however, who rejected that view, believing instead, that mentalistic explanations of thinking, concept formation and the like should be replaced by environmental accounts of their causes. The new study seems to add support to the latter view.

A videotape of the training, "Lana chimpanzee (*pan troglodytes*) counts by Numath," is distributed by Psychological Cinema Register, Audio-Visual Services, Special Services Building, The Pennsylvania State University, University Park, PA 16802. - TSC

Rumbaugh, D.M., et. al. (1989). *Psychological Record*, 39, 459-470.

Performance Management Improves Seafood Quality at Red Lobster

Tallahassee, FL - "Waiter, there's a fly in my gumbo." Such comments from customers prompted two Tallahassee researchers to use Performance Management methods to improve food quality.

Noting that his customers were primarily concerned with the quality of the seafood rather than the service, Rick Patton, a 3-year veteran of Red Lobster restaurant asked Jon Bailey of Florida State University to help him carry out a pilot project.

Focusing on one frequently ordered seafood platter, Bailey made independent quality ratings using a 10-point

scale. Baselines of hundreds of platters over a one week span showed ratings routinely in the 4-5 range. Lower ratings resulted when the seafood was the wrong size, inadequately seasoned or not the necessary thickness to assure proper cooking.

Patton then implemented a training feedback and supervisor reinforcement plan that included posting ratings of the targeted seafood platter. Ratings increased almost 100% in quality to routine 9's.

Most behavior analysts' research has focused on improving service quantity (*Behavior Analysis Digest*, Vol.1 #1) but this study shows food quality is an equally important target. Behavior analysis can contribute significantly to the operation of any restaurant by determining where performance feedback is necessary to improve and maintain quality. - JSB

For further information write Jon S. Bailey, Department of Psychology, Florida State University, Tallahassee, FL 32306.

Redirection Reduces Assaultive and Self-injurious Behavior

Rochester, NY - Three profoundly retarded residents have dramatically decreased their assaultive and self-injurious behaviors through redirection technology. Redirection, the systematic changing of an individual's attention from a negative activity to a positive one, allowed staff numerous opportunities to reinforce improved behavior, according to project head, Richard J. Neubauer.

Results were remarkable. After a 28 day baseline during which nearly 1400 maladaptive behaviors occurred, staff were trained in redirection. In the 28 days that followed, the three residents totaled less than 300 unacceptable acts. Additional benefits were that staff engaged in higher rates of verbal approval, and time out was eliminated from the behavior plans of all three residents.

The project will be presented in detail at the 1990 conference of the American Association on Mental Retardation.

Neubauer may be contacted at Monroe DDSO, Behavior Therapy Unit, 620 Westfield Rd., Rochester, NY, 14620.

U. S. Students Fare Poorly, Feel Better About Themselves, Study Shows

American 13-year-olds performed worst on a standardized math test given to the same aged students in six countries last year. As part of the test, students were shown the statement, "I am good at mathematics." In this assessment of mathematical self-esteem Americans were No. 1, with an impressive 68% in agreement. Korean students were last in self-esteem, although they did best in math achievement.

Writing in *Time*, Charles Krauthammer suggests that the American education establishment's infatuation with self-esteem must end if we are to remain competitive.

It is not just educators who are convinced that feeling good about oneself is the key to success, according to Krauthammer. The Governor of Maryland recently created a task force on self-esteem. The 23 member panel was created on the theory that drug abuse, teen pregnancy, failure in school, and many other social ills can be reduced by making people feel good about themselves, according to the *Baltimore Sun*.

Citing the mathematics study, Krauthammer concluded, "The pursuit of good feeling in education is a dead end. The way to true self-esteem is through real achievement and real learning." Behavior analysts have long believed that feelings deserve no special causal status, relative to overt behavior. - WJW

Krauthammer, C. (1990) Education: Doing bad and feeling good. *Time*, Feb. 5, 1990, 78.

"I'm Going to the Principal's Office - Great!"

Kinzers, PA - At Pequea Valley High School students and faculty have responded favorably to a concerted effort aimed at improving good citizenship and self-esteem.

When faculty observe students spontaneously picking up trash, helping others carry books, or other commendable activities, they write down the student's name and send it to the office. The previously aversive "office visit" turns out to be an opportunity for the student to select free athletic event tickets, free food coupons at local McDonald's and Burger King, and other reinforcers. Outstanding academic achievements are reinforced as well. The system uses principals of classical conditioning, pairing, "going to the office," with, "something good." The reinforcement is on a variable ratio schedule (most

resistant to extinction) because students never really know which behaviors will be reinforced. The project was reported in the *Valley News Leader*, Lancaster, Pennsylvania, January 24, 1990. - Bob Stein

Views on Coercion Aired

Boston, MA - Both laboratory findings and everyday observation confirm the devastating consequences of coercive behavior control, according to Northeastern University Professor Emeritus Murray Sidman. In a new book, *Coercion and Its Fallout*. Sidman voices his concerns about the prevalence of negative forms of control in education, training, therapy, family relationships, law enforcement, and diplomacy.

Any attempt to answer questions about the desirability of aversion therapy for the retarded and autistic, punishment in schools, and others, must take into account the coercive nature of society generally, contends Sidman. The book is available from Authors Cooperative, PO Box 53, Boston, MA, 02199.

Extrinsic Reinforcement: Natural or Unnatural?

Atlanta - Not all agree that contrived reinforcement and social reinforcers are "unnatural." Georgia State University's Samuel M. Deitz advises examination of the issue in part because such distinctions may hinder the general acceptance of behavior analysis.

Deitz cites philosopher John Dewey who wrote that it is natural for the child to be showered with encouragement, or rebuke, by those around him. Such consequences are as natural as, "... what the fire does to us when we plunge our hands into it," wrote Dewey.

Deitz, S.M. (1989) What is unnatural about "extrinsic reinforcement?" *The Behavior Analyst* 12, 255.

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Stress Related Prescription Drugs Costly

Eight of the top ten retail prescription drugs, based on 1988 sales, are used for disorders that are often amenable to behavioral treatment. According to Pharmaceutical Data Services, Zantac and Tagamet accounted for over a billion dollars in sales in 1988. Zantac topped the list at \$655 million, while Tagamet sold a "mere" \$402 million that year. Both are commonly used to treat ulcers, often a stress-related disorder.

High blood pressure medicines were visible in the pharmaceutical industry's list of money maximizers. Cardizem, Capoten, Tenormin, Procardia, and Vasotec totaled over \$1.3 billion in sales.

The highly addictive Xanax, used in treatment of anxiety, was fifth at \$273 million in sales in the same year.

It is unknown just what percentage of these costs could be avoided via stress management training, but estimates are that savings could be substantial. Only two non-stress related drugs made the top ten in sales, Naprosyn, used in treatment of arthritis, and the antibiotic Ceclor.

Not all people treated with the eight drugs would benefit from stress reduction techniques. However, even a ten percent reduction would save consumers \$272 million per year.

Time, January 8, 1990, 58. - WJW

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