

THE INTERBEHAVIORIST

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THE INTERBEHAVIORIST

A Newsletter of
Interbehavioral Psychology
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THE INTERBEHAVIORIST publishes news, information, discussion, journal and book notes, book reviews, comments, and brief articles pertaining to interbehavioral psychology – a contextualistic, integrated-field approach to the natural science of behavior.

The newsletter also publishes professional communications that fall between informal correspondence and colloquia, and formal archival publication. As such, the newsletter supplements contemporary journals dedicated to basic and applied research, to the history and philosophy of the behavioral sciences, and to professional issues in the field. The newsletter strongly encourages submission of notes about current professional activities of its subscribers, news and observations about interbehavioral psychology and related perspectives, comments on journal articles and books of interest, more extended book reviews, and brief articles. All submissions should be sent in duplicate hard copy and a single computer disk copy (any major word processor; any Mac or IBM disk format) to the editor and should conform to the style described in the Publication Manual of the American Psychological Association (3rd edition).

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THE INTERBEHAVIORIST is published as a public service by CONTEXT PRESS, Box 50172, Reno, NV 89513. CONTEXT PRESS publishes books of interest to contextualists and interactionists. Write for brochures on the books available.

J. R. Kantor's Publications

With the recent death of Helene J. Kantor the inventory of Principia books authored by J. R. Kantor has been moved to the University of Akron archives. For now, you may call John A. Popplestone [(216) 972-7285] at the University of Akron, if you would like to order any of J. R. Kantor's books.

<i>Principles of Psychology</i> (2 vols.)	\$20.00
<i>Psychology and Logic</i> (2 vols.)	\$25.00
<i>Interbehavioral Psychology</i>	\$15.00
<i>The Logic of Modern Science</i>	\$15.00
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<i>The Scientific Evolution of Psychology</i> (2 vols)	\$40.00
<i>The Science of Psychology: An Interbehavioral Survey</i>	\$20.00
<i>Psychological Linguistics</i>	\$15.00
<i>The Aim and Progress of Psychology and Other Sciences</i>	\$20.00
<i>Interbehavioral Philosophy</i>	\$27.50
<i>Cultural Psychology</i>	\$16.00
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<i>Selected Writings, 1929-1983</i>	\$20.00
<i>Psychological Comments and Queries</i>	\$20.00

New Books from Context Press

Ethics and Developmental Disabilities, Linda J. Hayes, Gregory J. Hayes, Stephen C. Moore, & Patrick M. Ghezzi (Eds.),
Analysis of Social Behavior, Bernard Guerin

Call for News

THE INTERBEHAVIORIST publishes news about subscribers' activities and information about others' activities that may be of interest to readers. If you have published an article, chapter, or book with an interbehavioral orientation, or have read one published by someone else, particularly if the source is obscure, please let us know about it.

The Agora

Interbehaviorists in ABA Special Interest Group Meeting

Time:

11-11:50 AM, Friday, May 27, 1994

Place:

Thomas Jefferson Room, Atlanta Hilton & Towers

Purpose:

To function as an opportunity for interbehaviorists to discuss issues of common interest as well as to help one another solve problems peculiar to the interbehavioral perspective in psychology and philosophy.

Agenda:

Election of officers, convention program report, *The Interbehaviorist* report, student issues, interbehavioral news and intellectual discussion.

ABA Expo and Social Hour

Time:

9-11:00 PM, Friday, May 27, 1994

Place:

Grand Salon, Atlanta Hilton & Towers.

Posters:

Interbehaviorists in ABA

Members of the staff of **THE INTERBEHAVIORIST** along with other interbehaviorists will be present throughout the Expo and Social Hour. Please drop by and join us.

University of Nevada-Reno: Graduate Programs in Behavior Analysis and Clinical Psychology

This is an excellent opportunity for students, especially those with interbehavioral interests, to meet with faculty and students from the University of Nevada, Reno.

Interbehavioral Presentations at ABA

We came up with the following selection of talks by subscribers to **The Interbehaviorist** that seemed likely to represent the interbehavioral point of view. We apologize for any misrepresentations, and for any omissions.

Friday

Stimulus Equivalence I

Address (#122)

Chair: Jacqueline Henry (University of North Carolina-Greensboro, NC)

Inapparent Events in the Generation of Derived Stimulus Relations. MICHAEL C. CLAYTON, Linda J. Hayes, Tom Brundige (University of Nevada-Reno, NV)

Mutual Exclusivity and Exclusion: Converging Evidence from Two Contrasting Traditions. KENNETH R. HUNTLEY, Patrick M. Ghezzi (University of Nevada-Reno, NV)

The Effects of Punishment on Trained and Untrained Stimulus Equivalence Relations. MARILYN K. BONEM Patricia Tracey, Karsten Beckemeier (Eastern Michigan University-Ypsilanti, MI)

Whatever Happened to Research On...

Symposium (#123)

Chair: Patrick M. Ghezzi (University of Nevada-

Reno, NV)

Discussant: BEN A. WILLIAMS (University of California, San Diego)

Schedules of Reinforcement. ELLIOT BONEM (Eastern Michigan University-Ypsilanti, MI)

Avoidance. CARL D. CHENEY (Utah State University-Logan, UT)

Conditioned Suppression. PATRICK M. GHEZZI (University of Nevada-Reno, NV)

Multiple-Response Repertoires. CHARLES A. LYONS (Eastern Oregon State College)

Preparing for War or Preparing for Peace: Behavioral Contributions Toward Understanding and Influencing the Choice

Symposium (#134)

Chair and Discussant: Anthony J.M. Marcattilio (St. Cloud State University)

Peace, War, and Military Strength. JOHN A. NEVIN (University of New Hampshire-Durham, NH)

Ethnic Conflict and International Security: A Case History of an Effort to Breach the Wall that Separates Behavior Analysis from Policy Analysis. SHERMAN D. ROBERTS (Cambridge Center for Behavioral Studies)

Marshalling Popular Support for War: A Behavioral

Analysis of Media Manipulation. RICHARD F. RAKOS (Cleveland State University)

Organizational Consultation: Isolating the Organizational Unit and Evaluating the Consultational Effort

Symposium (#157)

Chair: Linda J. Hayes (University of Nevada-Reno, NV)

Discussant: JONE E. KRAPFL (COBA, Inc.-Chicago, IL)

Identifying Organizational Culture. MARK A. ADAMS, Linda J. Hayes (University of Nevada)

A Study of Change in Organizational Culture. TINA M. CLAYTON, Linda J. Hayes (University of Nevada)

An Empirical Evaluation of Organizational Consultation. RAMONA HOUMANFAR, David M. Sayrs, Linda J. Hayes (University of Nevada)

Consultation Process Analysis. MARK A. SWAIN, Linda J. Hayes (University of Nevada)

Interbehavioral Technology Revisited: Research and Evaluation Applications in Education

Symposium (#159)

Chair: Tom Sharpe (University of Nebraska-Lincoln, NE)

Discussant: JOHN O. COOPER (Ohio State University-Columbus, OH)

Interbehavioral Methodology: A Technological Illustration. TOM SHARPE, Dave Wood (University of Nebraska-Lincoln, NE), Andrew Hawkins (West Virginia University-Morgantown, WV)

Behavioral Systems Based Multimedia/Virtual-Reality Laboratory Modules for Undergraduate Teaching. ROGER RAY, Suzanne Jarrett (Rollins College)

Field Systems Analysis of Disparate Learning Environments in a Parent-Child Preschool Movement Education Program. ANDRE HAWKINS (West Virginia University), Wallace Neel (Bethany College), Tom Sharpe (University of Nebraska-Lincoln)

Assessing the Impact of Contextual Factors on the Behavior Problems of Preschool-Aged Children. JAMES FOX, Maureen Conroy (East Tennessee State)

Seeing Order. DARYL SIEDENTOP (Ohio State University)

Saturday

Theoretical, Philosophical, and Conceptual Issues

Address (#228)

Chair: Carmenne Chiasson (University of New Mexico-Albuquerque, NM)

Observing Private Events. LINDA J. HAYES (University of Nevada-Reno, NV)

Some Thoughts about "Selection by Consequences". JAY MOORE (University of Wisconsin-Milwaukee, WI)

Further Evaluations of Functional Communication Training

Symposium (#218)

Chair: David P. Wacker (The University of Iowa-Iowa City, IA)

Discussant: GLEN DUNLAP (University of South Florida)

Maintenance and Generalization of Functional Communication Training with Voice Output Devices V. MARK DURAND (State University of New York at Albany)

Teaching Alternative Communication Responses for Challenging Behaviors Serving Multiple Functions. ROBERT O'NEILL, H. Michael Day, Robert Horner (The University of Oregon-Eugene, OR)

Long-Term Generalization and Maintenance Using Functional Communication Training with Preschoolers in Home Settings. K. MARK DERBY, David P. Wacker, Wendy K. Berg, Jay Harding, Jennifer Asmus, Sonya Ulrich, Anne-Marie Prouty (The University of Iowa-Iowa City, IA)

Establishing the Conditional Use of Socially Acceptable Communicative Alternatives to Escape Motivated Challenging Behavior. JOE REICHLE (University of Minnesota)

Extending the Stimulus Control Operative in Children's Discriminating the Common Features of Stimuli

Symposium (#256)

Chair and Discussant: JESUS ROSALES (University of Kansas-Lawrence, KS)

What Do These Pictures Have in Common? CORY ROYER, Jesus Rosales, Donald Baer (University of Kansas-Lawrence, KS)

Point to the Picture with Red in Common. JORGE GARCIA, Jesus Rosales, Irene Grote, Donald

Baer (University of Kansas-Lawrence, KS)
 Put Here the Pictures with Triangles in Common, and the Others There. RICHARD THOMSON, Jesus Rosales, Irene Grote, Donald Baer (University of Kansas-Lawrence, KS)
 Put Here What These Pictures Have in Common, and the Others There. IRENE GROTE, Jesus Rosales, Donald Baer (University of Kansas-Lawrence, KS)

Speaking of Using, and Some Origins of Reification

Address (#269)

PHILIP N. HINELINE (Temple University-Philadelphia, PA)

Educational Methods and Small Groups

Address (#271)

Chair: Wayne Piersel (University of Nebraska-Lincoln, NE)

A Cooperative Learning Strategy in a College Level PSI Class. JOHN H. HUMMEL (Valdosta State University-Valdosta, GA)

Peers as Teachers of Generalized Social Interaction Among High School Students with Developmental Disabilities. OLYN HUGHES (Vanderbilt University-Nashville, TN)

Conversation Topic Identification and Topic Component Identification Training for Individuals with Mental Retardation and the Effects of the Training on Conversations in Natural Settings. HARRY MATTIE (University of Nevada-Reno)

Sunday

Theoretical, Philosophical, and Conceptual Issues

Address (#313)

Chair Jay Moore (University of Wisconsin-Milwaukee-Milwaukee, WI)

Translating Pragmatism into Psychology: The Functions of Language and the Limits of Social Knowledge. BERNARD GUERIN (University of Waikato-New Zealand)

Conceptual Analysis as the Empirical Study of Linguistic Convention: Some Implications for Behavior Analysis. ULLIN T. PLACE (University of Wales, Bangor)

Conceptual and Historical Analysis

Address (#317)

Chair: Francis Leyner (Eastern Michigan University-Ypsilanti, MI)

Title of Proposed Presentation: B'Chirah Chofshis and Dignity: Judaic and Humanistic Views of Free Will. BOBBY NEWMAN, Devorah Rosen (City University of New York-Flushing, NY)
 An Empirical Science of Propaganda. RICHARD EDWARD LAITINEN (University of Washington-Seattle, WA)

Behavioral Approaches to Development

Symposium (#323)

Chair: Martha Pelaez (University of Miami School of Medicine)

Discussant: HAYNE REESE (West Virginia University-Morgantown, WV)

Developmental Cusps: A Relevant Concept for Behavior Analysis. DONALD M. BAER, Jesus Rosales (University of Kansas-Lawrence, KS)

Does a Quantitative Analytic Developmental State Theory Enhance Behavior Analysis? MICHAEL COMMONS (Harvard Medical School-Boston, MA)

Some Reflections on the Concept of Development in Behavior Analysis. VICENTE GARCIA (Universidad Nacional Autonoma de Mexico)

On Doing What's Right: Issues in Prosocial Behavior

Symposium (#332)

Chair: Elizabeth V. Gifford (University of Nevada-Reno, NV)

Discussant: RICHARD RAKOS (Cleveland State University-Cleveland, OH)

Taste of the Fish Head. DOSHEEN TOARMINO (University of Nevada-Reno, NV)

Verbal Behavior in Ethical Contexts: Toward a Functional Analysis of Virtuous Activity. ELIZABETH V. GIFFORD, Linda J. Hayes (University of Nevada-Reno, NV)

The Role of Verbal Behavior in the Development of Children's Ethical Behavior. RUTH ANNE REHFELDT, Linda J. Hayes, Elizabeth V. Gifford (University of Nevada-Reno, NV)

A Psychological Analysis of the Behavior of Institutional Review Boards. GREGORY J. HAYES, Steven C. Hayes (University of Nevada-Reno, NV)

On Quine and Skinner

Address (#349)

Chair: Edward K. Morris (University of Kansas-Lawrence, KS)

STEVEN M. JAMES, Edward K. Morris, Anne E.

Cudd (University of Kansas-Lawrence, KS)

Developmental Disabilities

Address (#355)

Chair: Dana Toth (Eastern Michigan University-Ypsilanti, MI)

Behavioral Momentum: An Evaluative Review of Treatment Applications and Directions for Future Research. KIM KILLU (Ohio State University-Columbus, OH)

Observations of Choice Situations in the Daily Interactions of Developmentally Disabled Individuals. RICHARD J. THOMSON (University of Kansas-Lawrence, KS)

The Stereotypy Analysis: An Instrument for Examining Variables Associated with Differential Rates of Stereotypic Behavior. DAVID A. M. PYLES (Howe Developmental Center-Tinley Park, IL), Mary M. Riordan (Behavior Management Consultants, Inc.), Jon S. Bailey (Florida State University)

Investigations and Reconceptualizations of Rule Governance

Symposium (#363)

Chairs: Duane C. Lord, Linda J. Hayes (University of Nevada-Reno, NV)

Discussants: W. SCOTT WOOD (Drake University) & MARGARET E. VAUGHN (Salem State College)

Rule Governed Behavior: Another Contingency Shaped Operant. DAVID G. STROFFE, Linda J. Hayes (University of Nevada-Reno, NV)

Skinner's Level of Analysis for Rule Governed Behavior: Molar, Molecular or Mixed? DUANE C. LORD, Linda J. Hayes (University of Nevada-Reno, NV)

Social Labels as Rules. TRICIA COULTER, Linda J. Hayes (University of Nevada-Reno, NV)

Pain Perception as a Verbal Construction. SCOTT N. COMPTON, J. M. Serafin, Linda J. Hayes (University of Nevada-Reno, NV)

Verbal Substitution in Children's Choice Making. RUTH ANNE REHFELDT, Linda J. Hayes (University of Nevada-Reno, NV)

Effect of Atmosphere, Culture, and Selection on Moral Behavior and Development

Symposium (#370)

Chair: ANN B. PRATT (Capital University)

Discussants: SIDNEY W. BIJOU (University of Ne-

vada-Reno, NV), ANN B. PRATT (Capital University)

Atmosphere and Behavioral Moral Stage of Development in the Workplace. MICHAEL L. COMMONS (Harvard Medical School-Boston, MA), Sharon R Krause, Eric A. Goodheart (Harvard University-Boston, MA), Maryellen Meaney (Yale University Law School)

Organizational Cultures, Ethical Climates, and Moral Development JESUS FRANCISCO GALAZ-FONTES, Irene Sierra-Morales, Michael Commons (Harvard Medical School-Boston, MA)

Kurtz, Neilson, Lamont, Skinner and Malott: The Selectionist View of Morality. BOBBY NEWMAN (City University of New York)

Community and Corrections

Address (#374)

Chair: Michelle Thompson (Eastern Michigan University-Ypsilanti, MI)

Health Psychology, Health Care Reform, and Culture. DEBRA W. FREDERICKS, Linda J. Hayes (University of Nevada-Reno, NV)

The Goals of Behavior Analysis: From Prediction and Control to Understanding

Symposium (#377)

Chair and Discussant: JOHN C. MALONE (University of Tennessee-Knoxville, TN)

Background: Science, Psychology, and Behaviorism. JAMES T. TODD (Eastern Michigan University-Ypsilanti, MI)

B.F. Skinner's Other Goals. BRYAN D. MIDGLEY (University Kansas-Lawrence, KS)

Understanding the Behavior of Organisms: Theirs and Ours. EDWARD K MORRIS (University of Kansas-Lawrence, KS)

Monday

Taking Development Seriously: Research and Theory on Developmental Systems

Symposium (#409)

Chairs: Bryan D. Midgley, Edward K. Morris (University of Kansas)

Discussants: JOHN W. DONAHOE (University of Massachusetts), PATRICIA M. MEINHOLD (Western Michigan University)

Developmental Systems: Developmental and Evolutionary Formation. SUSAN OYAMA John Jay College, City University of New York)

The Development of "Instinctive" Behavior: Alarm Call Responsivity of Mallard Ducklings. DAVID B. MILLER (University of Connecticut)

On the Prenatal Experiential Origin of "Inate" Behavior in Infants. GILBERT GOTTLIEB (University of North Carolina at Greensboro)

Relating Animal Research on Choice to Choice-Making in Humans

Symposium (#412)

Chair: Linda J. Hayes (University of Nevada-Reno, NV)

Discussant: HOWARD RACHLIN (SUNY-Stony Brook)

Choice From an Event Standpoint. LINDA J. HAYES (University of Nevada)

Experimental Analyses of Choice. MARKA. ADAMS, Linda J. Hayes (University of Nevada)

Problematic Applications of Choice Procedures. KRISTI L. RYDEEN, David M. Sayrs, Linda J. Hayes (University of Nevada)

Replications and Revelations. MICHAEL C. CLAYTON, Mark A. Swain, Linda J. Hayes (University of Nevada)

Reinforcement Reconsidered from the perspective of Behavioral Momentum

Invited Address (#421)

JOHN A. NEVIN (University of New Hampshire-Durham, NH)

Chair: Mike Perone (West Virginia University-Morgantown, WV)

Theoretical, Philosophical and Conceptual Issues

Address (#424)

Chair: Jay Moore (University of Wisconsin-Milwaukee)

From Chaos to Chaos: The Quest for Sources of Behavioral Variability. GIOVAMBATTISTA PRESTI, Renato Gentile (Università di Palermo-Palermo, Italy), Simona Ravera (Associazione Apprendimento e Recupero-Milano, Italy)

Are Neural Nets a Snare for Behavior Analysis? JAMES S. McEWAN, B. Guerin, T. M. Foster (University of Waikato-Hamilton, New Zealand)

Integrating Buckminster Fuller's Synergetics with Behavior Analysis. JOHN W. ESHLEMAN (Pre-

cision Learning Systems, Inc.-Tucker, GA)
Non-Metaphysic Field Contextualism is Radical Behaviorism by a Different Name. NATHAN STEMMER (Bar-Ilan University-Ramat Gan, Israel)

Uncertain About Heisenberg: Indeterminacy or Undeterminacy? STEVEN M. JAMES, Edward K. Morris, Ann E. Cudd (University of Kansas-Lawrence, KS)

Positive Strategies for Effective Education in American Urban Schools-Number Two

Panel Discussion (#426)

Chair: Corrine R Donley (University of Wisconsin Oshkosh-Oshkosh, WI)

SAM DEITZ (Georgia State University)

CLAUDIA McDADE (Jacksonville State University)

BETH SULZER-AZAROFF (University of Massachusetts)

JULIE VARGAS (West Virginia University)

PAUL WEISBERG (University of Alabama)

Guest Panelists:

DEBRA CAMPBELL (Education for Atlanta Project)

ELIZABETH LYONS (C.W. Hill Elementary School)

NEIL SHORTHOUSE (Georgia Cities in Schools)

GLENDIA SURRENCY (C.W. Hill Elementary School)

MYRTICE TAYLOR (Atlanta School System)

Applications of Behavioral Momentum

Symposium (#433)

Chairs: Rarnona Houmanfar, Linda J. Hayes (University of Nevada-Reno, NV)

Discussant CLOYD HYTEN (University of North Texas-Denton,

What are Cultural Practices and How are They Selected? MICHAEL C. CLAYTON, Linda J. Hayes (University of Nevada-Reno, NV)

Cultural Evolution and the Survival of Cultural Practices. JACQUELINE E. COLLINS, Linda J. Hayes (University of Nevada-Reno, NV)

Cultural Stability and Survival. RAMONA HOUMANFAR, Linda J. Hayes (University of Nevada-Reno, NV)

Identifying a Useful Unit of Analysis at the Cultural Level. CYNTHIA A. REINBOLD, Linda J. Hayes (University of Nevada-Reno, NV)

Skinner's World. RUTH L. STEINAGLE, Linda J. Hayes (University of Nevada-Reno, NV)

Article

JACOB ROBERT KANTOR (1888-1984)

John A. Mills

University of Saskatchewan

Introduction

Even though Kantor continued publishing until 1984 and even though the school he founded (interbehavioral psychology) has many living adherents, I have decided to include an account of his theory in the present chapter. Like the other psychological behaviorists who first published in the 1920s, Kantor did not develop a research-oriented theory. So, he stood apart from the neo-behaviorists. Besides refusing to create a research-oriented theory, Kantor rejected operationalism and did not accept the reality of the concept *learning*. As we will see in Chapter 6, the engine driving neo-behaviorism was the conjunction of learning theory, operationalism, and research designs derived from the analysis of variance. Kantor's theory was very similar to Skinner's. However, although Skinner repudiated conventional psychological experimental designs his theory became increasingly research driven. Moreover, as we will see in Chapters 9 and 10, Skinner believed that psychology's role was to create technologies of behavior rather than theories of behavior.

Kantor completed his Ph. D. at Chicago under Angell in 1914, thereafter spending two years as an instructor in philosophy and psychology at the University of Minnesota.¹ Following the formal award of his doctorate in 1917, Kantor was an instructor in psychology at Chicago, taking up his only full-time academic post in the Department of Psychology at the University of Indiana in 1920. He retired from Indiana in 1959. He was a Visiting Professor at New York University and the University of Maryland in 1962-3 and 1963-4 respectively, ending his post-retirement career as a Research Associate at the University of Chicago.

Kantor's first intellectual affiliations were with functionalism. His doctoral thesis ("The Functional Nature of the Philosophical Categories") was a survey of psychological themes within philosophy from Anaximander to the pragmatists and attempted to demonstrate that philosophers, by concerning themselves almost exclusively with fictional categories

(such as "mind"), had systematically misled their readers. Kantor remained determinedly a theorist throughout his career. He produced only one graduate student, Paul T. Mountjoy, and it seems that he did only one piece of empirical work in his entire career.² However, Kantor encouraged others to engage in both scholarship and research. He started the journal *The Psychological Record* in 1937. Until the founding of the *Journal for the Experimental Analysis of Behavior* and the *Journal for the Applied Analysis of Behavior*, *The Psychological Record* was the only outlet for the publication of strictly behavioral empirical studies.³ In 1931, Kantor and others founded the Principia Press. It was intended to be a non-profit organization that would act as the official press for the University of Indiana. However, the university established its own press on a commercial basis. From 1954 onwards Principia Press published only Kantor's books.

Throughout Kantor's pre-retirement career Indiana was one of the centers for behaviorism in the United States. Between 1945 and 1947 Kantor raised its profile by bringing Skinner in as department head. During that time, representatives of three schools of behaviorism (interbehaviorism, radical behaviorism, and Hullian behaviorism) co-existed in what seems to have been a state of friendly rivalry.⁴ Skinner and Kantor, for example, co-taught a graduate seminar called "Theory Construction in Psychology."

Kantor's Theory

Kantor created his mature theory very early in his career. He resembled his behaviorist confreres in that its inspiration was negative rather than positive. He was an anti-mentalist, argued against both body: mind and brain: body dualism, and believed that instincts played merely a fleeting role in the psychological economy.⁵ He also resembled the other behaviorists in his acceptance of Watson's aspirations to create an over-arching theory of behavior but could not accept Watson's means of realizing them. In particular, by taking an anti-mechanist stance Kantor rapidly distanced himself from Watson.

Kantor was also distinctive in rejecting some of the constitutive tenets of the behaviorist school. He did not believe that physics was the master or model science, instead espousing a scientific pluralism, a pluralism that he applied to both psychology as a whole (he claimed that certain concepts and data-gathering techniques were unique to psychology) and within psychology (claiming that the various areas within psychology had fundamentally distinct features). He did not believe that psychologists could make predictions and he did not believe that standard models of causation applied within psychology. As he wrote, criticizing classical behaviorism:

With its abstruse and arbitrary explanations, it stands in marked contrast to the inter-behavioral view, which deals with actual behavioral adjustments of all types. Interbehavioral constructs are authentically descriptive as well as interpretive.⁶

Like the other behaviorists, once again, there were powerful positive elements in Kantor's thought. Of all the behaviorists, it was he who gave ontogeny pride of place in a theory. In his very first writings, Kantor recognized that developing adequate explanations for smoothly and unthinkingly generated human adaptive actions was a crucial problem for any psychological theory.⁷ He believed passionately, like all the other behaviorists, that explanations appealing to mind, consciousness, or instinct were not explanations at all. Following Watson, he believed that the explanations for adaptive actions lay in a close study of their ontogenesis. His anti-mechanism and his distrust of the possibility of prediction led him to develop the concept of the interbehavioral field. Verplanck describes the interbehavioral field as follows:

Behavior is the interaction of parts of the activities of the individual ("responses"), with parts of the activities of the environment — the events surrounding that part. No event in Psychology can be specified without equal reference to both the individual and to the individual's environment. Psychological events — interactions — lie in between.⁸

The components of any given interbehavioral field were the organism, the stimulus, the media (or medium of contact), the setting factor, and the reactional biography.⁹

Kantor's treatment of the organism did not differ from that of the other behaviorists (that is, he saw the organism has a set of dispositions).¹⁰ He treated the

stimulus, however, very differently from all other behaviorists. For him, stimuli were simply occasions for reaction and were fluently created out of past actions. For example, presenting a blue flower to human beings elicited an infinite range of reactions, all of which were controlled both by past experience of flowers and cultural expectations regarding them.¹¹ Thus, past experience with flowers (some of which was collective, that is, symbolically mediated), constituted the stimulus. Stimuli, then, could not be physical; physical objects and events were mere occasions or settings for actions; they could not cause actions.

Kantor used the concept of medium of contact to emphasize the distance between his and all other psychological theories. He wrote that a medium of contact: "... is certainly not a stimulus in the sense of energy 'mediating mental qualities by its effect on the brain'."¹² Media of contact, such as light or sound, then, were necessary but not sufficient conditions for psychological events. Because he was not a dualist, Kantor did not believe that physical events were registered by either the brain or the mind and those registrations were then interpreted.¹³ Kantor's treatment of media of contact allows us to understand his theory of meaning. Both dualists and materialists would say that events can be meaningful in themselves. For example, a red patch is meaningful merely by being perceived and thereby incorporated into the perceiver's experience. Kantor, however, saw the matter quite differently. First, for him meaning arose from the domain circumbient to an event (such as the impingement of light rays onto a living retina). Second, he believed it was wrong to say that an event could be endowed with a meaning from outside its ontological domain (so that a physical event could not derive its meaning from a mental or neurological one).¹⁴

Setting factors were Kantor's version of intervening variables. His treatment of them demonstrates how, as in the case of reinforcement, he relegated that which was central to neo-behaviorism to the periphery of his theory.¹⁵ Morris discusses setting factors as follows:

Setting factors or setting events are the contextual conditions in which organism-environment interactions occur. They are not the stimuli with which an organism interacts directly, but are the contexts of those interactions. These factors or events may exist as internal organismic or biological conditions

... and as external environmental conditions, both physical-chemical ... and socio-cultural ... The critical aspects of setting events is that they influence the functional properties of interacting stimuli and responses.¹⁶

Kantor's treatment of responses was very similar to his treatment of stimuli. That is, like Skinner, he did not believe that responses could be characterized solely or even largely by their physical form. Instead, a response was the expression of a complex concatenation of circumstances. It was also the avenue down which psychologists had to travel in order to understand behavior. For example, weeping could have complex origins (anger, sorrow, frustration, etc.) There were also individual differences in the threshold for weeping. Even the various types of weeping showed complex differences (for example, bouts of sorrowful weeping might have various sub-components such as love, misery, lost opportunities, etc.; in the same person, some sorrows provoked weeping, others did not).

The reactional biography comprised constituent events distant in both time and space from any given action. Furthermore, the components of the field reacted with one another in highly complex ways. To explicate the interbehavioral field, I will take the example of the contrasting effects of malnourishment and adequate nourishment in infancy on intellectual development. If malnourishment is sufficiently severe, brain growth is retarded, with a consequent effect on intellectual growth (that is, we apply a linear causal model in deriving our explanation). Kantor would then ask us to consider the effects of normal nourishment. We cannot say, he claimed, that normal nourishment results in normal brain growth and that the simple consequence of having a normal brain is an adequate level of intellectual functioning. Instead, the well nourished child makes contact with its environment on a very broad front. Those contacts are not merely passively recorded. Instead, they form the basis for further reactions, which themselves constitute a basis for differing reactions.

So, even if we take a reaction as simple as sneezing, the sneeze of an infant is quite different from that of a forty-year old adult. The infant's sneeze is a simple reflex response and has no further consequences; the adult's might be the portent of an annual spring allergy attack and will result in a visit to the drug store, besides eliciting gloomy thoughts about future red, sore eyes, lassitude, etc. Furthermore, the reac-

tional biography included cultural components. A middle-class English sneeze might elicit scornful looks, whereas a German sneeze elicits a good-natured, "Gesundheit."

Kantor's Influence.

Because Kantor did not believe that his theory could find expression in research or have practical applications he concerned himself, almost exclusively, with metatheoretical issues, that is, he tried to establish a secure framework within which to develop a comprehensive behaviorist psychology.¹⁷ An additional problem for those not already convinced of interbehaviorism's value is Kantor's diffuse writing style.¹⁸ To make his difficulties worse, Kantor consistently took on the role of a critic rather than that of an expositor of some distinctive theory, exacerbating his difficulties in this respect by criticizing behaviorism as freely as he criticized other theories.¹⁹

So, although Kantor did create a school of psychology and did inspire a surprisingly large group of followers, he could not, given his theory's form, inspire a group of research-oriented acolytes.²⁰ Skinner was far more successful in that respect. Because Skinner's and Kantor's theories were so similar, Kantor, if he lives on at all, lives in Skinner's shadow.²¹ From Chapter 6 onwards we will see that the neo-behaviorist theories of the 1930s and 1940s contained explicit research-oriented components, so that adherents were given clear guidelines that allowed them to generate findings consistent with their chosen theory.

I can illustrate my point by contrasting Skinner's and Kantor's treatment of reinforcement. For Skinner, reinforcement referred to a class of events designed to control the rate of emission of responses. By specifying the means of measuring and controlling the rates of emission of responses and of correlating those rates with the rate of delivery of reinforcement, Skinner could show his followers how to generate an infinite set of research techniques. Kantor almost dismissed reinforcement, treating it as a conceptual device that permitted the neo-behaviorists to generate distinctive theories.²²

Finally, I think that we can say that Kantor developed his theory at a time when it would be seen merely as a recondite variant of a psychological doctrine, competing in an ideological war both with its fellow within the behaviorist camp and with enemy theories outside. The key development in behavioral science was the creation of new research technologies in the 1930s. The conjunction of learning theory, operation-

alism, and research designs based on factor analysis, combined with an enunciation of the relevant principles in the language of logical positivism, ensured research productivity for generations of graduate students. Theories outside the charmed circle, Kantor's among them, withered on the vine.

Final Note

I would like to consult you all about the nature of Kantor's influence. It seems that he engendered a great deal of respect and loyalty for reasons that are not at all clear to me. I can dimly see that he offered a refuge to those of an intellectual bent (the neo-behaviorists, with some exceptions, were a rough lot). I think I can also see that not all psychological intellectuals would be attracted by neo-behaviorism's major rivals (Gestalt, psychoanalysis, and, from the mid-fifties onwards, humanism. But all that gets me to thinking that American psychology was much more variegated than the history books aver or as it appears to an outsider like me.

Notes

1. My biographical information comes from Paul T. Mountjoy and Jay D. Hansor, "Jacob Robert Kantor (1888-1984)," *American Psychologist*, 41 (1986): 1296-7, Edward K. Morris, "Some Relationships between Interbehavioral Psychology and Radical Behaviorism," *Behaviorism*, 10 (1982), pp. 188-90, Morris, "Interbehavioral Psychology and Radical Behaviorism," *The Behavior Analyst*, 7 (1984), pp. 197-9, and Morris, Stephen T. Higgins, and Warren K. Bickel, "The Influence of Kantor's Interbehavioral Psychology on Behavior Analysis," *Ibid.*, 5 (1982), pp. 160-3.
2. Dr. Paul Mountjoy wrote: "To my knowledge Kantor did only one piece of empirical work himself. He was the hypnotist for a study published by R. C. Davis, his colleague for many years at IU." Letter to the author, February 16, 1993.
3. Skinner was among the behaviorists who availed themselves of the opportunity to publish. He authored or co-authored eight studies in *The Psychological Record*. The journal was published from the University of Indiana until 1945, when it suspended publication. It re-started from the University of Wichita in 1956. In the first number of the re-issue, the editor stated that the journal would be devoted to furthering the cause of interbehavioral psychology. In the next issue, the editorial statement gave the journal a broader scope. *The Psychological Record* is still being published (from Kenyon College). There are several interbehaviorists on the editorial board. Kantor published numerous items in the journal under the pseudonym "Observer." (Most of this information comes from James H. Capshaw and Eliot Hearst, "Psychology at Indiana: From Bryan to Skinner," *The Psychological Record*, 30 [1980]: 319-42.)
4. William S. Verplanck has a vivid description of the social and intellectual atmosphere in the department in the 1940s. See his introduction to *Reassessment in Psychology: The Interbehavioral Alternative*, ed. by Noel W. Smith, Paul T. Mountjoy, and Douglas H. Ruben (Washington, DC: University Press of America, 1983).
5. Skinner commented that Kantor was an even more extreme environmentalist than he was, writing: We differed quite clearly on one point. Robert seemed to be the pure environmentalist. When a pair of robins nested outside his study window and hatched and raised their young, he told me with great satisfaction that they drove the young from the nest, not by 'instinct', but quite obviously because the nest was becoming crowded. (*The Shaping of a Behaviorist* [New York: Knopf, 1979], p. 326)
6. Kantor, *Interbehavioral Psychology: A Sample of Scientific System Construction* (Bloomington, ID: Principia Press, 1959), p. 14.
7. See, for example, his, "A Functional Interpretation of Human Instincts," *Psychological Review*, 27 (1920): 50-72.
8. Verplanck, "Introduction," p. xx.
9. For accounts of the interbehavioral field see Kantor and Morris, "Some Relationships between Interbehavioral Psychology and Radical Behaviorism," pp. 197 ff
10. Kantor and Morris, *Ibid.*, pp. 198-9.
11. Kantor enunciated his concept of the stimulus very early in his career. See his, "Suggestions Toward a Scientific Interpretation of Perception," *Psychological Review* 27 (1920): 191-216.
12. *Interbehavioral Psychology*, p. 16.
13. Of media, Morris writes: Kantor's concept of the media of stimulation refers to the means by which contact is made between an organism and a stimulus. The medium is not a property of a stimulus object, but is an enabling event or condition (though not a stimulus) through which contact be-

tween organisms and stimulus objects is made. Changes in the medium of stimulation change the presenting form of a stimulus object, and hence, the interaction of the organism with the object. The media are factors to be taken into account in the analysis of any organism-environment interaction because they affect the interaction among the other aspects of the interbehavioral field. (Ibid., p. 205)

14. We have to bear in mind that Kantor treated "the brain" as a construct.

15. Kantor discussed setting factors as follows:

Such setting factors as the hungry or satiated condition of the organism, its age, hygienic or toxic condition, as well as the presence or absence of certain environing objects clearly influence the occurrence or non-occurrence of interbehavior or facilitate the occurrence of the activities in question in varying degrees.

Because at least some setting factors have been interpreted as intervening variables, their character as actual features of behavior segments may be clarified by contrasting them with conventional intervening variables. An early and widespread notion of intervening variables presents them as factors occurring between stimulation and response. There are three outstanding objections to this idea. First, it definitely reverts to the old way of thinking according which psychological events consist of internal powers causing the organism to act; behaviorists, of course, translate the old psychic powers into neural powers. Secondly, the construct of intervention reduces the response to motions or other simple actions or processes, so that some other features of it are made into factors intervening between the simple movements and the stimulating conditions. Thirdly, the construct of intervention serves to break up the complex dynamic psychological event. (*Interbehavioral Psychology*, p. 95)

16. Ibid., pp. 205-6.

17. On this issue, see William S. Verplanck, who wrote: "The most that can be expected from laboratory research are statements about what happened in specific laboratories at specific times using specific methodologies with particular kinds of subjects. These are data incapable of supporting

applicable generalizations." (Preface to *Reassessment in Psychology*, p. xxii)

Verplanck continued:

It is no accident that Robert Kantor has not done experimental research. It is no accident that those who understand the viewpoint and apply it successfully both in doing research and in communicating with one another (if not to the classical hard-core pseudophysicists of the experimental psychologists) keep their methodology simple, and carry out their work elsewhere than the lab.

In sum, the experimental literature does not reward close study. The most productive experimental research has been that using the simplest of operations, most free of theory, and most close to the straightforward interactions of individuals in natural (uncontrived) environments. (Ibid., p. xxii).

18. To quote Verplanck again: "A contributing factor [to Kantor's obscurity] ... is the difficulty of Kantor's prose, both in sentence structure and vocabulary, and in his frequent stylistic use of allusion rather than direct statement in developing his arguments. He places demands on his reader, that the reader too often cannot meet. (Ibid., p. xxv).

19. Morris commented: "... Kantor's criticisms of both behavioral and nonbehavioral psychology have been severe, unyielding and negative. In addition, those criticisms rarely offered clear, tangible means or methods for change; they were, for the most part, rather general conceptual suggestions." ("Some Relationships between Interbehavioral Psychology and Radical Behaviorism," p. 196).

20. I am not saying that Kantor was a pure theorist. Kantor wrote:

Interbehavioral psychology is presented both as a model for specific research and as a formulated system to provide basic orientation concerning a specialized scientific domain. Indeed we take the position that there are no uncrossable barriers between enterprise and system.

As a system, interbehavioral psychology embodies the results of isolating those factors and conditions which have proved serviceable in psychological research. It is proposed as a means of studying psychological events with the least possible interference by cultural tra-

ditions. Banished are all constructs, such as mind, body, ego, sensation, which lack correspondence with events. (Interbehavioral Psychology, p. 19)

In that passage, Kantor seemed to be advancing an unfettered empiricism (he invited psychologists to throw away their intellectual blinkers and examine the world of pure fact). Skinner was an equally extreme empiricist. However, he provided his followers with distinct paradigms (the manipulation of the various schedules of reinforcement). I suspect that Kantor would have treated schedules of reinforcement as intellectual blinkers. Regrettably for Kantor, pure concepts are not enough. In order to gain ascendancy, a scientific theory (even in the behavioral sciences) must contain the means to actualize its concepts.

21. Morris clearly feels that, as a theorist, Kantor should be in the sunlight. However, by stressing the similarities between the two I do not feel that he does Kantor a service.

22. Kantor compared the concept of reinforcement to atomism in physics. From the time of Dalton onwards, chemists and physicists progressively refined the concept of the atom (which started life a conceptual device allowing chemists to explain the constant weight ratios characteristic of any given chemical reaction). In the same way, said Kantor, reinforcement began as observations regarding the constant time relations between conditioned stimuli and unconditioned stimuli or between responses and certain fixed consequences of those responses. He then hinted that the neo-behaviorist theories of learning merely represented conceptual elaborations and hypothetical causes of those time relations. (See *Interbehavioral Psychology*, pp. 151-2)

Author Note

"JACOB ROBERT KANTOR (1888-1984)" is a chapter from an as yet untitled manuscript on the history of American psychology. Please direct correspondence to John A. Mills, Department of Psychology, University of Saskatchewan, Saskatoon, Canada S7N0W0.

Can anyone doubt the claims of the history of psychology to be a valuable aid in the development of the science itself? When the history of psychology is pursued as the origin and development of a discipline, much can be learned about the results of observing things and events along with established presuppositions which condition the processes which support the conclusions or become blocks in the way of proper descriptions and interpretations.

J.R. Kantor writing as Observer, (1975). The Psychological Record, 25, 583-589.



J.R. Kantor in 1979
Photo courtesy of Linda J. Hayes

Article

A Reply to Professor Mills¹

Bryan D. Midgley
University of Kansas

Dear Professor Mills,

Enclosed are some comments on your manuscript, "JACOB ROBERT KANTOR (1888-1984)," arranged roughly in the order in which you address specific topics and issues. I have taken this opportunity to respond not because what you say is way off the mark, but because, in many ways, it comes close to the mark, in my opinion. For instance, toward the end of your manuscript, you note that, "He [Kantor] concerned himself, almost exclusively, with metatheoretical issues, that is, he tried to establish a secure framework within which to develop a comprehensive behaviorist psychology." I agree with this assessment, but it is not what I understood from reading your manuscript, which prompts the following comments.

Introduction

(a) You write, "Kantor rejected operationalism." I would modify this statement to read, "Kantor rejected *the traditional handling of operationalism*" (see Kantor, 1922, 1938, 1939); (b) you assert that Kantor "did not accept the reality of the concept *learning*," but I am not sure of your rationale (see, e.g., Kantor & Smith, 1975, pp. 264-282); (c) for material on Skinner and theory, see Skinner (1947, 1950); (d) for further biographical material on Kantor, see Kantor (1976), Parrott (1984), and Wolf (1984); and (e) you write that, "Kantor's first intellectual affiliations were with functionalism," but if you mean to imply that Kantor was a functionalist, this is not accurate (Parrott, 1984).

Kantor's Theory

"School" and "Theory"

Depending on how literally you apply the terms "school" and "theory" to Kantor's system, they may or may not be appropriate (I will argue for not). As for "school," Mountjoy and Hansor (1986) stated: Robert [Kantor]...founded no school of psychology. Instead he proposed a broad group of scientific hypotheses based on minimal assumptions regarding the data of psychology. (p. 1296) As for "theory," Verplanck (1983) confessed that writing his chapter on B. F.

Skinner for the book *Modern Learning Theory* (1954) brought about a "revelation":

At the same time I understood and also grasped that interbehaviorism is *also* not a theory, but as Parker [Lichtenstein] had told me over and over, a systematic view, a different way of looking at all matters behavioral. (p. xvii)

The important point of these two passages is that interbehavioral psychology is a scientific system (Kantor, 1953, 1959), that is, "a collection of formal assumptions or postulates" (Parrott, 1986, p. 42). But the matter goes beyond that. Kantor's efforts at systemization were complex, involving a system and a metasystem of interbehavioral psychology, into which postulates, protopostulates, and other elements (e.g., criteria, definitions) were integrated (e.g., Kantor, 1953 p. 28). Here, you might want to examine Kantor (1953, 1959), Kantor and Smith (1975, pp. 407-417), Lichtenstein (1983), and Parrott (1986).²

Interbehavioral psychology, then, is not a school of psychology or a theory of behavior. In one sense, interbehavioral psychology is more than these; in another sense, it is less. Kantor made some apparently grandiose claims, as when he asserted that, "To identify psychology as a natural science I most frequently use the term 'Interbehavioral Psychology'" (1971, p. viii). His enterprise, however, was also more humble than most people recognize. Interbehavioral psychology was Kantor's attempt to provide a foundation for all domains of psychology (e.g., abnormal, developmental, physiological). To the extent that interbehavioral psychology applies to all of psychology, then it is grandiose; to the extent that it is but a foundation, then it is humble. Hence, I believe, part of Kantor's contribution to psychology goes largely unnoticed or misunderstood. For an extension of the interbehavioral orientation to domains other than psychology per se, see, for example, Kantor (1981).

Causation

Kantor's treatment of causality is fundamental to

his handling of psychological processes and events. For him, the psychological event consists of, among other things, a relation between response function and stimulus function. Response function and stimulus function are interdependent, not one dependent and the other independent, except from a methodological (e.g., experimental) point of view (Delprato, in press; Kantor, 1959, pp. 98, 105-106, 213-214). If we want a metaphor for causality, psychological events might be seen as analogous to, for example, chemical reactions. As Midgley and Morris (1988) described it:

From this [integrated-field] perspective, the R and S are not sequential, but rather, what is sequential are the R - S units. For example, in describing the intricate interactions between sodium and chlorine that produce table salt, only the most rudimentary descriptions would posit that sodium, given the presence of chlorine, is an antecedent cause to the formation of table salt. This does not imply, however, that the two substances do not progress through a sequential series of interactions by which salt emerges. (p. 491)

(Only later did Ed Morris and I discover that Kantor himself had used a similar example; see, e.g., Kantor, 1950, pp. 156-158.) As an aside, can you support the statement that, "He [Kantor] did not believe that psychologists could make predictions"?

Ontogeny

Strictly speaking, "ontogeny" refers to biological (e.g., embryological) development. For analytic purposes, Kantor (1959) distinguished among four types of evolutionary or developmental (descriptive) stages, of which ontogeny or "ontogenetic evolution" is one (pp. 42-48). You are correct in pointing out that Kantor's overall perspective is developmental (e.g., Delprato, 1980). In discussing the subsystem of developmental psychology, Kantor (1959) noted that, "It is a basic postulate of interbehavioral psychology that all psychological events are developed or evolved in the lifetime of specific individuals (Chapter 8, Postulate 4)" (p. 165). Psychology itself is inherently developmental.

The Interbehavioral Field, Integrated Field, and Behavior Segment

If you feel that you "have missed something crucial about Kantor" (cover letter from J. A. Mills to E. K. Morris), the significance of the interbehavioral

field construct may be one component. The field is possibly one of Kantor's most important contributions (e.g., Delprato, in press). The field pervades Kantor's work. Some topics to which it is related are causality, the essence of psychological events (i.e., behavior or interbehavior), the relation of psychology to other sciences, and the evolution of psychology from the ancient Greeks to the present.

Components of the Field

You note that, "The components of any given interbehavioral field were the organism, the stimulus, the media (or medium of contact), the setting factor, and the reactional biography." First, it is probably more correct to speak not of "the organism," but of "the response" or, even better, of "the response function." Second, "setting factor" probably should be plural. Third, at some point, Kantor started speaking of the "interbehavioral history," of which the "reactional biography" and the "stimulus evolution" are components, analytically speaking (see Kantor, 1942).³

You then write, "For him [Kantor], stimuli were simply occasions for reaction." This sounds very much like the Skinnerian way of saying that a discriminative stimulus sets the occasion for an operant response. It does not seem to describe the interrelation between response function and stimulus function that is the essence of Kantor's interbehavioral field. Shortly after this, you write: "Thus, past experience with flowers...constituted the stimulus. Stimuli, then, could not be physical; physical objects and events were mere occasions or settings for actions; they could not cause actions." I believe Kantor would have said that past experiences with flowers are part of an interbehavioral history. A flower, as a psychological stimulus, functions as it does (and a psychological response functions as it does) because of an interbehavioral history, setting factors, and a medium of contact. A stimulus (as an object) becomes a psychological stimulus when it acquires (a) function(s).

As for the medium of contact and the meaning of events, I do not see the relations you propose. You write, "First, for him [Kantor] meaning arose from the domain circumambient to an event (such as the impingement of light rays onto a living retina)." Maybe the problem I have is with the parenthetical example. As I have pointed out, for Kantor, meaning or function is the result of previous interactions (interbehavioral history) and current conditions (setting factors, medium of contact). A contact medium could affect the

function or meaning of a stimulus (and therefore, of its coordinated response), as when a teddy bear looks like a scary monster in a child's dimly lit bedroom, but this seems different from what you are proposing. (Is it?) You go on to write, "Second, he believed it was wrong to say that an event could be endowed with a meaning from outside its ontological domain (so that a physical event could not derive its meaning from a mental or neurological one)." ("Endowed" is a tricky word.) For Kantor, setting factors can be, for instance, biological (e.g., hormonal imbalance, physical injury). If you mean that something like hormonal imbalance or physical injury cannot serve as setting factors in an interdependent relation between response function and stimulus function, Kantor would not agree. If you mean to deny explanatory reductionism (e.g., reducing psychological events to nothing more than neurological ones), Kantor would agree.

Related to this matter of behavioral and biological events and processes is Kantor's distinction between biological causation and biological participation (see, e.g., Kantor, 1947, 1982, Chapter 3, esp. pp. 71-74). An understanding of this, along with Kantor's emphasis on individual developmental history, demonstrates that he was not a "pure environmentalist," Skinner's (1979, p. 326) uninformed comments notwithstanding.

Also relatedly, why do you write that, "Kantor treated 'the brain' as a construct"? The distinction to be made is between the brain as a biological vs. a psychological organ. As Smith (1993) has pointed out:

Brain as an intervening variable is a mere surrogate for the intangible mind or soul. Historically, this special power was attributed to it as a means of objectifying the mind or soul. Thus, a biological organ became also a psychological organ and assumed the role of container, initiator, director, and interpreter. This doctrine is, perhaps, the worst hang-up in modern psychology. As a derivative of medieval theology, it is used to reduce complex field events to neuronal activity.

- Interbehaviorism puts that brain in its biological place as a participant in interbehavior along with all the other biological organs and processes. (p. 158; see Delprato, 1979; Kantor, 1947)

You argue that, "Setting factors were Kantor's version of intervening variables." After rereading this

statement and the passage by Kantor (1959, p. 95), the operative terms seem to be "Kantor's version." My reading of the Kantor passage suggests that if individuals were going to refer to setting factors as intervening variables, then he was going to at least make sure that the former were not confused with the *typically understood* (Kantor said "conventional") meaning of the latter (e.g., MacCorquodale & Meehl, 1948). This is implicit in your manuscript, but perhaps should be made explicit. To avoid confusion, I would not even mention intervening variables (see Smith, 1993, p. 133, footnote 1).

You write that Kantor "did not believe that responses could be characterized solely or even largely by their physical form. Instead, a response was the expression of a complex concatenation of circumstances." This sounds good, but it may be illustrative of sometimes subtle difficulties. Here, the main problem is with the referents to "complex concatenation of circumstances." Kantor observed that, "Psychological events are at the same time biological events" (Kantor & Smith, 1975, p. 453; Observer, 1984, p. 158), which implies that *responses* are both psychological and biological events (Kantor & Smith, 1975, p. 65). They also are both physical and chemical events (Kantor & Smith, 1975, p. 65).⁴ Hence, Kantor would agree that "a response [is]...the expression of a complex concatenation of circumstances" if, by "circumstances," you mean psychological, biological, physical, and chemical factors. However, by noting that Kantor "did not believe that responses could be characterized solely or even largely by their physical form," I assume that you are referring to something different – to a response as a distinctly psychological event, that is, to a response function. If so, Kantor would again agree with your "complex concatenation of circumstances" statement if, by "circumstances," you mean an interbehavioral history, setting factors, and a medium of contact. Depending on the intended meaning of your passage, though, the interpretation is different.

On the interbehavioral field and its constituent components, see, for example, Bentley (1935, pp. 89-99), Delprato (in press), Hayes (1988; contra Smith, 1989), Kantor (1924, 1946, 1969, pp. 369-382, 1980), Kantor and Smith (1975), Midgley and Morris (1988), Mountjoy (1976), Pronko (1988), Pronko and Herman (1982), and Smith (1973, 1984).

Kantor's Influence

You write, "...Kantor did not believe that his

theory could find expression in research or have practical applications...." From Kantor's perspective and that of many others, I am tempted to say that this is not so (see, e.g., Kantor, 1987), but not everyone may entirely agree with me. Part of the problem, as already noted, is that Kantor did not develop *atheory*. In a note attached to a then unpublished manuscript by Delprato (in press), he (i.e., Delprato) had this to say, in part:

It is my personal opinion that the interbehavioral literature is perhaps not best thought of as designed to directly generate research questions and clinical procedures but that it represents a point of departure of great value to all who aspire to doing "psychology as a science."

The manuscript's opening paragraph read, in part, as follows:

Above all else, interbehavioral psychology aims to provide a coherent and systematic science and practice of psychology "from the ground up." The interbehavioral perspective suggests that essential for psychological practice that is authentically based on science is a completely naturalistic approach to both science itself and psychology in general.

I was thinking about Delprato's comments at about the same time that I was reading Kantor's (1953) *The Logic of Modern Science* this (last) summer. Taken together, they gave me a perspective on Kantor's work somewhat different from how I had previously seen it (see my comments on "School" and "Theory").

Reinforcement

Relevant commentary on reinforcement may be found in Kantor (1970). As for Kantor's "theory" lying "outside the charmed circle," see Schoenfeld (1969).

Closing Remarks

I have come to my views on Kantor through contacts with individuals who are more informed than I and through studying his work. Where I have been influenced by others, I hope that I have not misrepresented their views. On those few occasions where I have come to my own conclusions, I hope that they are representative of Kantor's work. But for now, I hope that the foregoing "diatribe" may be of some use to you.

Sincerely,
Bryan D. Midgley, M.A.
NICHD Trainee

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Footnotes

1. This article originally was an informal response to a manuscript by Professor John A. Mills (University of Saskatchewan). Although slightly edited for the purpose of publication, the current version has retained the original's informal style.
2. In addition to systems and metasytems, Kantor discussed "cultural institutions" and "the level of philosophy" (e.g., Kantor & Smith, 1975, pp. 409-410). Although uncertain, I have detected what appear to be some incongruities in Kantor's discussions of these four levels. For example, are protopostulates elements of the metasytem (Kan-

tor, 1953, p. 28) or of "the level of philosophy" (Kantor & Smith, 1975, p. 410)?

3. The point about analytic abstraction has been particularly noted by Pronko and Herman (1982, pp. 250, 253).
4. Similarly, stimuli may be "analyzed as having a physio-chemical makeup" (Smith, 1993, p. 135).

Author Note

My thanks to Edward K. Morris and Kenda Morrison for their comments, queries, and editorial suggestions on earlier versions of this paper. Correspondence should be addressed to Bryan D. Midgley, Department of Human Development and Family Life, University of Kansas, Lawrence, KS, 66045-2133

Conference Announcements

International Conference on Advances in Management

The Second Biennial International Conference on *Advances in Management* will be held at Marlborough Inn, 1316-33 Street Northeast, Calgary, Alberta T2A 6B6, CANADA (Phone: 403-248-8888; Fax: 403-248-0749) on June 17-20, 1994. Requests for further information should be addressed to the Conference President Dr. Afzal Rahim, 3109 Copperfield Ct., Bowling Green, KY 42104, USA; Phone/Fax 502-782-2601.

Second Congress on Interbehaviorism

There will be an Interbehavioral conference as part of the activities of the J. R. Kantor Institute of Madrid. This conference will be held in Madrid, Spain. The dates are July 13-16, 1994. If you would like more information on this conference please contact:

Eduardo Sanchez Gatell
 Instituto Kantor
 De Psicologia Interconductual
 Avenida Pio XII, 97.7 F. 28036
 Madrid, Espana

International Congress on Behaviorism and the Sciences of Behavior

The Second International Congress on Behaviorism and the Sciences of Behavior will be held in Palermo, Italy. The dates are October 6-9, 1994. Information about organization and accomodations can be obtained from:

S.G. Studio
 Via Enrico Albanese, 114
 90139 Palermo
 Telephone: 39-91-328179
 Fax: 39-91-582090

Cheiron Conference

The International Society for the History of the Behavioral Sciences will be holding its 26th Annual Conference in meeting in Montreal, Quebec, Canada. The dates are June 2-5, 1994. For information contact:

Dr. Harry A. Whitaker
 Department de Psychologie
 Université du Quebec à Montréal
 Case postale 8888, Succursale Centre-ville
 Montreal, Quebec, Canada H3C 3P8

Article

Kantor's Interbehaviorism versus Skinner's Behaviorism: Comparison and Contrast

Carmenne Chiasson
University of New Mexico

Although Kantor's interbehavioral psychology is probably closer to Skinner's behaviorism than it is any other psychological perspective, interbehavioral psychology differs from behavioral psychology on a number of fundamental issues. Perhaps the main difference of the two perspectives is in their underlying philosophies: Kantor and Skinner aspire to achieve different goals. Kantor's main concern is with the accurate and scientific description and explanation of the theory which underlies the science of psychology and the unit of the psychological field event. Skinner's focus is on psychology as a science concerned with the prediction and control of behavior.

This paper begins with a discussion of some similarities between behaviorism and interbehaviorism, then addresses the differences between the two theories on the issues of: 1) the method of selection of their subject matter, 2) the nature of the psychological event, 3) the role of cause and 4) the goal of each perspective. Finally, contributions, criticisms and relative adequacies of interbehavioral and behavioral theories are discussed.

Similarities of Behaviorism and Interbehaviorism

As an illustration of the similarities between interbehaviorism and behaviorism, Kantor (1969, p. 376) actually describes the field of interbehaviorism as a culmination of and an improvement on behavioral theory. Both behaviorism and interbehaviorism have their origins in the 1920's. The major similarity between the two viewpoints is their inclusion of the organism and the environment in their analysis of the psychological event. This distinguishes their perspectives from other views which analyze the mind or other mental constructs.

Another similarity between the two perspectives is that both Kantor and Skinner agree that all psychological behavior is culture-bound (Skinner, 1974 p. 20; Kantor, 1969 Vol. I, p. 12). Kantor (1968, p. 376) proposes that both behaviorism and interbehaviorism maintain that extraspatial and unobservable mental

processes are not part of the subject matter of psychology. However, Kantor qualifies this point by saying that both perspectives hold this belief for different reasons. This point brings me to a discussion of the differences between behavioral and interbehavioral psychology.

Differences in the Analysis of Psychological Events

Subject Matter

Kantor (1945, p. 150) states that "For a naturalistic psychology, it is no paradox to say that the "body" of the mind-body construction exists no more than the "mind" ...". Kantor (1969) purports that the behavioral treatment of the subject matter of psychology (as confined to events that are observable in space and time) is not a denial of the dualism per se, rather it is a position which "maintains the physical aspects of dualism while rejecting the psychical side of organisms and their behavior." Thus, the behaviorists have rid themselves of the mind part of the mind-body construction yet maintained the body part. In this treatment of the 'dualistic turned into monistic' subject matter of behaviorism, Kantor proposes that the dualistic tradition must be left behind entirely, not just in part. A science that focuses on half of a dualistic position by eradicating the other half in order to make the position monistic will necessarily encounter difficulties in analysis. The same old parasites of the dualistic view of psychology (namely psychical interpretation and the allocation of powers to unobservable structures within the organism) continue to thrive on the half which the behaviorists retain. Kantor argues that behavioral monism not only introduces unnecessary fabrication but also detracts from the possibility of leaving the dualistic tradition behind once and for all (for example by referring to behaviors that occur "inside the skin", e.g. Skinner, 1971). In contrast to the behavioral position, the interbehavioral perspective does not maintain the traditional dualistic constructions of either the mind or the body as part of its

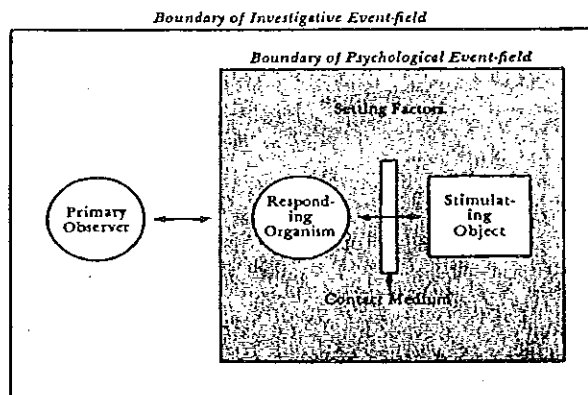
subject matter. Kantor (1969, Vol. II, p. 376) explains that interbehaviorists presuppose "...a complete homogeneity of the data and the investigation of all the sciences". Following this line, psychological events differ only in detail from nonpsychological events, in the same way that nonpsychological events differ among themselves.

Kantor feels that the interbehavioral psychologist has two main responsibilities. The first is to formulate an accurate description of observed psychological events and the second is to "guard against the cultural traditions which in the past have set psychology apart from other sciences" (Kantor 1969, Vol. II, p. 376). It is my opinion that goals such as these are both appropriate and necessary for the scientific analysis of psychological events. Complete and accurate description of an event field is necessary in any science (e.g. a chemist could not leave out half of a formula).

Also, it is of particular importance to guard against the re-entry of the mentalistic tradition into psychology because mentalism has historically led (and presently is still leading) psychology away from naturalistic science. In keeping with a natural and scientific approach to psychology, Kantor (1969, p. 377) defines the central hypothesis of interbehaviorism: "...psychological events consist of symmetric fields in which the acts of organisms and the acts of stimulus objects are the simultaneously occurring poles." He points out that other sciences such as physics and chemistry have prospered by recognizing the use of the field in analyzing the mutually reciprocal action involved in an event.

The nature of the Psychological Event

The following is a diagram of a unit interbehavioral event field (Kantor, 1963).



The field boundary is arbitrarily defined by a

particular observer for a particular purpose. The psychological event is an interaction of an organism with its environment, $S \leftrightarrow R$, or similarly $R \leftrightarrow S$. As there is no causal role nor any conception of time, these two representations are interchangeable. Kantor's model represents simultaneous interaction of the stimulus and the response with respect to each other.

In a Skinnerian analysis, there is a stimulus which elicits a response, time is involved linearly and there is a causal connection between the stimulus and the response, $S \rightarrow R$. Skinner's left to right arrow represents the passage of time. Since it is the stimulus that evokes the response and not vice versa, and since time proceeds linearly from left to right, it would not be appropriate to represent Skinner's formulation in the opposite manner ($R \rightarrow S$).

Kantor's (1963) interbehavioral analysis of psychology postulates the psychological event as operating in an event field. The assumptions of interbehavioral psychology which lead to this field analysis of psychology are as follows:

- No science is concerned with a reality outside the bounds of time and space, thus psychology cannot admit any entity presumed to exist outside of these boundaries (events that are not natural).
- Psychology is a basic science like other basic sciences (e.g. chemistry, biology). There is nothing about chemistry or biology that is more basic than psychology. All sciences isolate particular events out of the same universe. Psychology is concerned with isolating and describing the interaction of an organism with respect to its environment.
- Psychology is not reducible to the subject matter of any other science. The subject matter of psychology cannot be reduced to biology nor that of biology to psychology. In his analysis of complex psychological events, Kantor assumes that the event, (e.g. thinking), does not involve only the organism – it is (as are all psychological events) an interaction between the organism and the environment.

Thinking is not an activity that is going on 'within' the organism (e.g. inside the brain). Kantor sees the brain as a coordinating and integrating organ.

When distinguishing between Kantorian and Skinnerian perspectives, it is important to note the distinction between Skinner's analysis where a stimulus evokes a response ($S \rightarrow R$)

and Kantor's ($S \leftrightarrow R$) conceptualization of stimulus and response simultaneously acting with respect to each other.

Kantor holds that the brain is not where the mind is found. Skinner holds that there are behaviors that occur 'inside the skin' and behaviors that occur 'outside the skin'. Under Kantor's formulation, if complex psychological behavior such as thinking is not occurring 'inside the skin', then one would ask the question "where is this behavior occurring?"

From a Kantorian perspective, there is no where. Behavior is of necessity an interaction between an organism and an environment within a context of certain setting factors and within a particular medium of contact. This analysis also incorporates the ontogenic (within the organism's lifetime) history of the organism.

- d) Psychological events involve the whole organism - not its parts considered separately - e. g. it is not the legs that walk, nor the eyes that see, nor the brain that thinks.
- e) Psychological events are ontogenic: defined as taking place during the lifetime of the organism; it does not refer to innate or genetic traits. The psychological event is the interaction of the whole organism (including the organism's interbehavioral history) with the environment in an interbehavioral field.
- f) There are functional properties to both the response and the stimulus in Kantor's model. What one does with respect to a stimulus object are the stimulus functions of the object. For example, how one behaves with respect to a comb, such as comb one's hair, put it into one's pocket, etc. What one does with respect to a stimulus object is the response function of the organism. Stimulus functions are reciprocal with the response functions of organisms. Skinner's behaviorism does not share this reciprocal functional conceptualization with Kantor's interbehaviorism. Skinner's model constitutes an observer with the purpose of describing psychological events as repeatable. For Skinner, stimuli are independent of responding.

The Contrasting Goals of Behavioral and Interbehavioral Psychology

Skinner's goal is the prediction and control of

behavior. Skinner has developed a causal model of psychology in which time is linear. The focus of his approach is a stimulus evoking a response model. In his treatment of complex human behaviors such as thinking and remembering, Skinner postulates that there are some behaviors that occur within the skin and some outside of the skin. Perhaps what he means by this is that some behaviors are more directly observable than others - the distinction that Kantor makes when he says that some behaviors are more subtle than others (such as thinking and remembering).

In contrast to Skinner's position, Kantor's goal is the accurate description and explanation of events. Kantor's model is neither causal nor linear with respect to time.

Causal Versus Non-Causal Model

Skinner (1974) discusses the causes of behavior and the layman's interpretation of behavior as causally related to the physical and/or affective state directly preceding it or concurrent to it. He (1974, p. 10) describes this formulation of a causal model of behavior as having derived from the ancient principle of post hoc, ergo, propter hoc (after this, therefore because of this). An everyday example of this interpretation is that of seeing affective behavior as being caused by bodily changes. Thus, when one is asked "Why did you yell?" one may reply "Because I was angry." Skinner (1974) explains this focus on bodily conditions as the cause of behavior and indicates the historical quality of this belief as follows: "Feelings occur at just the right time to serve as causes of behavior, and they have been cited as such for centuries" (1974, p. 11). The question then arises as to how mental states can give rise to physical events and vice versa. One historical approach to this problem was to assume that there is a physical basis to the mind. For the most part, Skinner feels that this puzzling aspect of behavior has been largely ignored. Thus he attempts to deal with causation from a behavioral perspective through the experimental manipulations of prediction and control.

Kantor maintains an unusual position in psychology -- a non-causal approach. With the possible exception of Guthrie, Kantor is the only person historically to hold this position; all others agreed to some variation of a causal model. Because Kantor does not include cause in his approach, it does not mean that behavior is free or capricious. Freedom of that sort is only possible when one also believes in the concepts of duality, and Kantor has no duality in his approach.

Within Kantor's interbehavioral psychology, there is no place for a causal role. Psychological events occur in a continuous evolution -- an organism is responding with respect to his stimulating environment. The stimulating and responding represent one thing -- a relation. A psychological field is determined by the isolation of some features out of the evolving universe in order to study them. A psychological event is a relation in a context. In Kantor's analysis there is no past and similarly no future -- there is only the present. However, for the purposes of isolation of an event, time is constructed. Skinner's view of time is more conventional; he believes that there is a past and that there is a future, but not an effective future.

Contributions of Behaviorism

Much of psychology today centers around the contributions of B. F. Skinner and the Radical Behaviorism approach to psychology which he developed. Skinner has made vast contributions to applied psychology. At the present time, behavior therapies are recognized as the leading and possibly only effective treatment for such problems as phobias and anxiety disorders.

As well, Skinner's approach to verbal behavior (Skinner, 1957) is one of the major systematic treatments of the complex subject of language.

Perhaps Behaviorism can be compared to a small minority party in a democratic government -- e. g. the New Democratic Party in Canada. The minority party has never won and is not likely in the near future to win a federal election or even to be the major opposition to the winning party. However, this minority party, like Behaviorism within psychology, usually comes up with the best ideas and these ideas are used by the majority government or by the other psychological disciplines - simply because it's what is best for the population.

Criticisms of Behaviorism

Kantor (1969) describes several criticisms of Behaviorism. His first criticism is that behaviorism is limited in its achievement due to a neglect of certain types of events such as thinking and language. Perhaps Kantor's criticism would be more accurate if he claimed that behavioral theory lacks the ability to scientifically describe complex psychological events, as there have been some attempts to deal with these complex issues, e. g. Skinner's Verbal Behavior (1957).

Secondly, Kantor points out the problem of

analogism in which "the urge to develop descriptions of concrete observable events has led to a proliferation of mechanical and electrical models of the human and infra-human organism" (Kantor, 1969, p. 367).

A third criticism which Kantor has of behaviorism is an interpretation of the behavioral theory as reductive. Fourthly, Kantor criticizes organocentrism -- the position that the data of psychology is exclusively concentrated in the organism. Kantor argues that this attitude usually leads to the belief that there are internal powers in the organism.

A last criticism of behaviorism from an interbehavioral perspective is based on Skinner's assertion that some behaviors occur 'inside the skin' and some occur 'outside the skin' (Skinner, 1957, p. 130; 1974, p. 242). These mentalistic assumptions may stem from the adoption in behaviorism of certain aspects of the historical dualistic tradition.

Benefits of Interbehaviorism

Kantor (1969) also describes the benefits of interbehavioral theory. He includes in this explanation benefits with respect to data, with respect to investigations and with respect to interpretation. With respect to data, the use of interbehavioral fields "facilitates sharp and sound distinction between data" (p. 378). Secondly, the use of responses and fields helps to express the developmental character of interbehavioral fields and makes it clear that psychological events are not merely "... responses, movements, or acts of organisms either elicited by some external conditions or extruded by some hidden internal power" (p. 378). Thirdly, stimulus functions help to illustrate that the stimulus does not impel acts or conditions. Rather, the stimulus function has a reciprocal relationship with the response function of an organism.

A fourth benefit of the interbehavioral approach is that the evolutionary quality of interbehavioral fields is readily evident. Fifthly, the inclusion of medium and setting factors in the interbehavioral field lends a completeness to the analysis of the interaction because it emphasizes the importance of context in a psychological event.

One benefit of interbehavioral theory with respect to investigations is the avoidance of the organocentric (centered on the organism) attitude. The field hypothesis of interbehaviorism rejects the conventional behavioral formula of $R=f(S)$ and supports the use of the interbehavioral field model.

A benefit of interbehavioral psychology with re-

spect to interpretation is that interbehavioral theory holds that all behavior changes, whether gains or losses, are changes in total fields and similarly psychological evolution or devolution is not just a change in an organism, it is a change of an entire field event. Also, it is important in science for the scientist to be as close to the event field as possible and an interbehavioral approach assures this proximity.

Contributions of Interbehaviorism

The main contribution of Kantor's interbehavioral psychology is the presentation of a naturalistic scientific approach to psychology. Although relatively few studies have been done to date involving interbehavioral theory, there has been some applied research in the area of interbehaviorism (e. g. Bijou, Chao, Ghezzi and Umbreit, 1986, 1987; Williamson and Lyons, 1986; Chiasson and Hayes, in press) and others. The main applied work in interbehaviorism that has been accomplished is based on Kantor's *Psychological Linguistics* (1977). In this book, Kantor introduces a systematic naturalistic approach to the analysis of language.

Criticisms of Interbehaviorism

To a certain extent, Interbehaviorism has been criticized for inappropriately being considered a group within Behaviorism (Skinner, 1988). As there is a Special Interest Group for Interbehaviorism within the Association for Behavior Analysis and since most Interbehaviorists are also, in many ways, practicing Behavior Analysts, it seems that Interbehaviorists can be described at least in some ways as being closely associated with Behaviorism. Rather than viewing Interbehaviorism as entirely distinct from behaviorism, it may be better to view interbehaviorism as a division within the party of behaviorists and one which allows for a challenging of some of the ideas of behaviorism. This challenging of ideas is mutual between these two approaches to psychology and it is the challenging of the old and the fruit of the ensuing discussion and defense of positions which provides the fertilizer from which new ideas grow. The main criticism of interbehaviorism is the distinct lack of applied research that has been generated by the field. This deficiency becomes especially obvious when the few applications of interbehavioral psychology are compared to the vast contributions that behaviorism has made to applied psychology. In response to this criticism, Kantor would argue that his goal as a theo-

retical scientist is the accurate description and explanation of psychological events. Kantor's goal in psychology is explanation and description, not application. It is necessary to understand and to know the underlying postulates of a theory before applying the theory to research. Kantor's interbehavioral psychology is in its beginning stages. Now that the groundwork has been established, applications of the theory will proceed.

Kantor's writings on interbehavioral theory have also received criticisms because of the difficulty in understanding Kantor's unique style of writing. Intellectually, this is not a valid criticism because it is not a remark on either the quality of Kantor's work or on his enormous contribution to a scientific approach to psychology.

From a practical viewpoint, however, this criticism makes a valid point because writings, no matter how important they are, are not useful unless they can be understood. Also, it is possible that Kantor's works may be put aside by students in favor of material provided by writers who are easier to comprehend. One solution to this practical problem of the interpretability of Kantor's works is to rewrite his main works in a more comprehensible style. It would be a terrible mistake to neglect Kantor's contribution to psychology due to difficulties in understanding his style of prose.

Adequacies of Behaviorism and Interbehaviorism

In terms of the applied contributions of these two theories, it is not appropriate to compare the adequacy of behaviorism versus the adequacy of interbehaviorism because the two theories serve different functions. This is illustrated by the different goals of each theory: Kantor's goal of accurate description and explanation and Skinner's goal of prediction and control. Both theories are important and valuable contributions to psychology.

Conclusion

In conclusion, I will summarize the main differences between the Kantorian and the Skinnerian perspectives. In terms of a natural, scientific approach to the analysis of psychological events, Kantor's position, in contrast to Skinner's, satisfies certain elements of a natural science.

However, whereas Skinner's psychology has generated a vast amount of applied research, Kantorian psychology has just begun to generate applied re-

search.

A third major difference between Kantorian and Skinnerian psychology is the use of the concept of causation; the concept of cause is absent from Kantor's perspective and is thoroughly embedded in Skinner's. For Skinner, this concept has pragmatic value as it is useful for the prediction and control of behavior. From the Kantorian perspective, the causal model is neither useful nor helpful because his goal is the accurate description and explanation of events.

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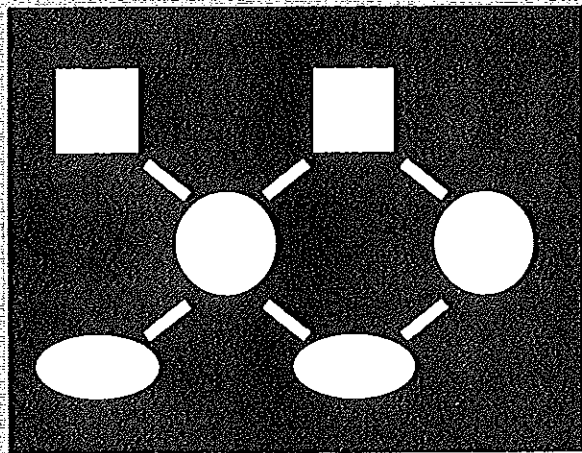
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Article

An Interbehaviorial Approach To Teaching And Problem Solving In Education

Charles Baxter

Ithaca Public Schools, Ithaca, New York

Presently, our schools attempt to function on the basis of western psychologies that are dualistic in nature and based on myth or on relatively unsophisticated behaviorial psychologies. Consequently, some educators, under the tutelage of these psychologies, assert that a stimulating environment enriches intelligence and a deprived one detracts. Other educators under the same tutelage argue that no force or forces can push a person over an innate upper limit. Both factions are dreamers, because palatable, tangible, intelligence has never been seen, felt, heard or in any way sensed. It has always been a hypothetical construct and one whose reality base has been confined merely to human belief.

On a realistic basis, intelligence is not a thing, but an adjective. Performance that society honors is called superior, talented, genius; skilled and that which is disparaged is termed inferior, incompetent, dull, or stupid.

When intelligence is used as an explanation of the behavior it describes, circularity is invoked. The construct becomes a mythical causal power for described characteristics. As clinical testers we impose upon the student a series of contrived closed events, one example; the student recites digits in order as dictated, thus embarking on the "mythological rampage." This myth encompasses a creation of similar problem types described as reified constructs, in the case of the above example; the construct "auditory sequential memory", implying cause. The natural outcome with almost any student tested is a cluster of poor, relatively low scores which we assume to be organismic "deficits". At this point, continuing to freely use our imagination we relate these theoretical "deficits" to some disparaging characteristic of a completely separate and independent natural event, ie. the student's demonstrated difficulty in remembering sound symbol matches in reading, which is made up of a different set of controlling variables.

We have now completed the cycle. We start with

a mythological construct, impose it on a natural event and finish with a reification, implying cause, leaving the classroom teacher with no implied remedy. It is a diagnostic procedure that relieves the teacher of blame at the expense of the child, but leaves her/him with little or no help in resolving the problem. Finally this procedure is almost always done without ever truly observing or describing the natural event in question. In another more logical setting this could and probably would be called a destructive act of witchcraft. In causal psychology there is a failure to recognize that the event in question is a field of factors, a field that is not reducible to any one of its components, for the field consists of a different level of organization than any of its components. To place emphasis only on one component or set of components would be to over simplify the event. Therefore it would be futile to search for a controlling force; for there are a multitude of contributors and the only meaning of awareness or intelligence is as a description of these interactions and their relationship to similarly described events.

We may use intellect or intelligence as an adjective in describing natural events. For example, a surgeon can be accepted as commendably superior in his surgery, grossly inefficient in interpreting hieroglyphics, skilled in windsurfing, and incompetent in art. We will not incorrectly define him as intelligent in everything he does, as we do with "learning disabled" children, which, by the way, is another reified label.

Intelligence is only one of many mythical constructs that we in education treat as real things. Educational language, mostly taken from western psychological language, is replete with jargon that logicians have called "a disease of the language". For example, we as professionals treat the many forms of perception — auditory sequential perception, visual perception, motor perception, spatial perception, to name a few, — as reifications that actually exist in some biological form.

A New Perspective on Perception and Language

In reality, perception is an act, as in the act of perceiving. The act, from an interbehavioral perspective involves:

- A. An organism which has organs for sensing.
- B. The object which has properties which can be sensed
- C. A medium that facilitates the contact.
- D. An interaction of the sensing organism and the object.

There are no mysterious internal processes that reflect the external world, but only an interaction that is comprised of an interbehavioral field.

The implicit postulate of speech and language therapists that speech consists of sounds which form strings of words must be replaced with the explicit postulate that speaking is a field of events involving speakers, listeners, and things referred to. It then becomes clear that living language involves a speaker interacting simultaneously with a listener and the object of reference. Thus language is a bistimulational interaction for both speaker and listener. In short, language is speaking about something to someone. Therefore, it is an interbehavioral act and not a construct of internal processes. A scientific analysis should be made on the basis of direct observation of the natural act absent of these imposed mythical reifications such as visual and auditory learning styles, visual and auditory reception, auditory expression, visual and auditory association, manual and kinesthetic reception, multisensory reception, visual and auditory closure, on and on and on. And of course the clinical psychologist has come up with a plethora of reified labels according to the testee's construct score or test behavior: visual or auditorily handicapped, specific language disabled, and — this is a good one — attention deficit disorder. This is the reified label placed on the child who has difficulty paying attention to disagreeable things in school. And of course, we keep adding labels as we create new and interesting construct tests.

More logically as testers, when a child is having difficulty reading, we should not ask which reified construct is the cause of the child's reading failure, for we are already proceeding on the basis of at least three false assumptions:

1. The fault is due to the child.
2. A behavioral or psychological event is localized in the organism. Therefore the natural event of learn-

ing to read can be described by a total focus on the child.

3. There are no other significant variables outside the organism affecting the child's progress.

Again, from an interbehavioral perspective the psychological event is not localized in the organism, nor is it a mere organismic act. Thus it is not reducible to structure or function. The psychological event, as a natural event, is not just an action of the organism; it is not just behavior but interbehavior. It is mutual and reciprocal activity in a field.

Failure in learning to read, as a natural event, may be caused by a multitude of variables, only one of which may be due to the fault of the child. We know that the intellectual crippling of children is caused overwhelmingly by faulty instructional presentations, not faulty constructs in children. In other words if the learner fails to learn, the problem may lie within the learner, but it is more likely that the problem lies in the instructional-communications-interaction. So what is the basic remedy?

1. Identify faults in the communications and correct them.
2. If the child does not learn via sophisticated communications, then those communications need to be modified according to the mistake type made in the context of which it was made.

Assuredly, the successful accomplishment of the above is no small feat. The following describes some of the instructional changes that can be made, especially for the more naive learner, to assure the beginnings of effective instruction:

1. Use clear, concise, consistent language in instruction.
2. Juxtapose connected concepts side by side showing sameness, while placing similar but different concepts far apart and treating them differently.
3. Provide effective correction procedures, according to learner mistake type made for all instructional objectives.
4. Develop effective problem solving strategies for concepts to be taught.
5. Determine appropriate concepts to be taught on the basis of what the learner knows and does not know.
6. Provide a broad range of applications of the concept being taught to promote effective learner generalization.
7. Provide necessary practice to assure mastery.
8. Provide distributed review spaced over time to

secure retention.

9. The instructor uses:
 - a. the "HEAT" approach (High Energy Animated Teaching).
 - b. an effective, warm, but demanding relationship with the learner, where the learner is always corrected with dignity.
 - c. effective fast pacing in teaching to assure learner attention.
 - d. effective signals for clarity in monitoring criterion performance.

Problem Solving in Education From an Interbehavioral Perspective

Problem solving from the interbehavioral perspective, focuses on the interaction of the primary variables in a contextual field. In teaching, the instructional communication is the primary variable that defines the interaction. This focus is different from the child centered approach or the clinical diagnostic approach, where the focus is on the child. Consequently, the position of responsibility and blame is different. The language that is used in the interbehavioral approach places the position of responsibility on the interaction and the communications of the interaction; consequently, it is the contextual communication that is blamed when learning problems are demonstrated.

If, for example, the learner in kindergarten is reversing numbers, a child-centered practitioner concludes, from an exclusive focus on the child, a normal developmental delay. If the same learner, at the age of 8 1/2, is still reversing numbers, the clinical diagnostician, also from an exclusive focus on the learner, describes the child as perceptually handicapped. In either instance it is noted that there is no implied remedy in the developmental or diagnostic language.

The interbehavioral teacher (IBT), operates from a different perspective. From a contextual focus on the interaction (the communications between the teacher and learner), the IBT recognizes some basic principles that make for the most effective teaching. For example, one of those principles describes the probable confusion that is created when the teacher introduces the teachings of similar, but different concepts close together, and treats them the same. Therefore, to prevent learner confusion, when teaching similar concepts, the ITB teaches them far apart, and shows difference: This is one demonstration of how a study of the interbehavioral language implies a remedy. The

(IBT) notices, for example, that in number writing (0-9), the efficient production of those numbers falls into three *separate* groups:

1. Those numbers that are initiated by drawing a down and to the right (ie., the number "4").
2. Those numbers that are initiated by drawing a line to the right 1st and then down (ie., the number 7).
3. Those numbers that are initiated by drawing a line to the left before going down (ie., the number 9).

The IBT knows that constructing instructional formats where these numbers are clustered into 3 separate groups, and taught far apart, showing difference, literally prevents the most naive learner from writing numbers in reverse form. Consequently, where the above basic principle has not been considered, and the naive learner reverses, it is the communications, not the learner that the IBT blames. The IBT realizes that some learners, who are confused by the instructional communications, not delayed, not visually perceptually handicapped, will reverse numbers, or letters, or will work a double digit addition problem from right to left if ambiguity is not eliminated from the communications. Another common problem in learning the basics is spelling accurately in the context of composition writing. Third and fourth grade teachers frequently notice the learner who consistently spells well on the 10 to 20 word spelling test given every Friday, but misspells the same words later in the context of composition writing. The learning problem is typically referred and diagnosed by the clinician as a "visual imagery long term memory deficit," which is only one of many reifications the psychologist uses that implies no practical remedy.

The IBT, on the other hand, is familiar with the principle that states: To promote generalization, provide a broad range of applications. If we want the learner to spell accurately on Friday spelling tests and in the context of composition writing we must communicate that expectation by treating the two situations as similar.

Some common communications that set up the naive learner to treat the two spelling situations differently are:

1. Spelling accuracy is of primary importance on spelling tests, but often is treated as unimportant in teaching writing. In fact, it is emphasized in the Writing Process Approach to encourage the learner not to worry about spelling, so as not to discourage the fluency of getting the thought down on the page.

2. Learner performance on spelling tests typically amounts to writing only the word being spelled. In composition writing, words written are almost always in the context of sentences.
3. In the better spelling programs (ie. Spelling Mastery) spelling is taught to mastery. Rarely, if ever, is there an intention to specifically teach or even review spelling accuracy in the context of teaching expressive writing.

The IBT, rather than imposing some reified clinical label that blames the learner, recognizes these spelling mistakes as under-generalizations or as sameness mistakes, where the learner stipulates, or undergeneralizes, by not transferring sameness from one situation to another. This occurs because two similar situations appear to be different to the learner. The IBT knows that the implied remedy is to place the two situations side by side and show how they are the same.

A third, and most frequently reported learning problem is where the learner has shown proficiency in learning a concept on one occasion, but fails to exhibit that proficiency on other occasions. Anyone who has been in education for any period of time has heard the classroom teacher report, "I don't understand, he knew the concept yesterday, but today he didn't. He must have some kind of memory problem."

The IBT also recognizes the situation as a memory mistake, but instead of blaming the learner, (s)he again blames the communications. The IBT knows that in order to successfully teach proficiency or the mastery of any concept, experiences must be constructed that provide practice that effectively shapes proficiency. But to establish demonstrated proficiency does not in any way assure that the learner will remember how to exhibit the concept when it is called for in the future. To assure remembering, distributed review is required in future teachings. Teaching mastery is remarkably different from teaching remembering: To provide for the most effective mastery of a given concept the learner must experience *uninterrupted* practice. But to assure the most effective remembering of a given concept systematic *interruption* is needed where the learner is required to recall the concept in unpredictably occurring situations.

Becoming an IBT Teacher

The traditional teacher who converts to becoming an IBT will discover that taking the interbehavioral approach empowers one to promote effective intellec-

tual-academic/social-emotional learning beyond the scope of any other teaching approach.

There is a plethora of research that has been accumulated over the past 25 years to support this prediction.

Some other exciting events that are in store for the IBT are:

1. With a better understanding of communications that make for effective teaching interactions, comes a sense of self assurance and competency in preventing learning failure.
2. The IBT never has to assume a defensive posture where they find themselves blaming people for learning failure. More traditionally, either the child, the parent, or both are blamed. The IBT only takes responsibility for modifying the interactive communications, where necessary.
3. Most importantly, the IBT notices that the learner who has previously experienced learning failure, now, as a student of the IBT approach, changes. From an interbehavioral perspective, people are what they do. In this sense the communications of the interaction define the learner. Through well-constructed communications even the most naive learner experiences 90% 1st time success in all learning. Consequently, he feels smart. He becomes confident in knowing, at least in the IBT situation, that he is smart. And finally, his self esteem soars. He feels smarter, safer, more responsible, and respected, in a place where he does not make as many mistakes as he used to. And when he does make mistakes, he doesn't get blamed.

Concluding Comments

The intention of this paper is to give a brief description of the differences in teaching, and problem solving associated with teaching, from an interbehavioral perspective, as opposed to other approaches based on more traditional psychological perspectives. From the interbehavioral perspective the primary focus in effective teaching, as in any interbehavioral event, is not just on the learner, but is a study of a multitude of interacting variables. In the case of the natural event of teaching, the primary variables are the instructional communications, in accompaniment with other interacting variables that define the event, such as those of the teacher-learner interaction, setting, and event history.

To achieve effective instruction in our schools the

teacher must first acquire a true understanding of learning and learning failure by skillfully performing an analysis of the contextual event by delivering behavioral constructs directly from observation, not the other way around where we impose speculative developmental or clinical constructs on the natural event derived from such traditions as those of religion, mythology, and folklore. To make our schools more effective there are a number of circumstances that we in education must face. But, by far, the greatest deterrent to effective teaching and problem solving in education is the present approach to problem solving that is based on psychological superstition. These superstitions cloud our vision to the point of ritual. We make critical decisions on the basis of these ritualist habits and politically correct views rather than on the basis of direct observation of what is happening and what is effective. If we are to be successful in creating effective change in education we must make it known to teachers that there is a psychology that is an alternative to those psychologies that use a mythological language that immobilizes the teacher and prevents him/her from becoming effective. From an achieved

interbehavioral perspective, the teacher is capable of becoming proficient in constructing effective teachings, and skilled in the analysis and modification of interactions that interfere with learning. By using a scientific language that truly describes the natural behavioral event under consideration, the teacher becomes empowered to construct implied remedies that induce effective change. But to ask the educator to create effective change in teaching, via traditional western psychological jargon, would be equivalent to asking a blind person, who has never driven a vehicle, to win the Grand Prix with a square wheeled car that has no steering mechanism.

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Article

Cultural Evolution and the Survival of Cultures

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Practices as the Defining Character of a Culture

An evolving culture "begins at the level of the individual. A better way of making a tool, growing food, or teaching a child is reinforced by its consequences.... A culture evolves when practices originating in this way contribute to the success of the practicing group in solving its problems." (Skinner, 1981) It is such practices which define a culture. A culture is a group of people who respond in a similar way to particular environmental stimuli. Therefore, an individual is part of a certain society or culture because he engages in behaviors in which that particular group of people engages. A person is regarded as Catholic if he engages in behaviors which define the Catholic culture, such as catechism and not eating meat on Fridays during lent. If he did not engage in those behaviors, we would not consider him a "Catholic". When we say "what does it mean to be an American?" we usually describe such things as baseball, hot dogs and apple pie, in other words Americans play baseball, and eat hot dogs and apple pie. All of these things are practices engaged in by people who are said to be "American" or part of the American Culture. One can live in America and not take part in these practices, but the people around him are likely to call him "Unamerican". We might say that one who does not engage in any practices embraced by any culture does not belong to any culture.

If it weren't for the practices of cultures, cultures would have no defining characteristics. Skin, eye, or hair color may have some prominence in various places in the world, but they are in no way exclusive to those places. Only the practices are exclusive to particular cultures, and it is through those practices that a culture becomes a particular culture.

A Changed Culture

When is it that a culture is no longer the culture it was before? From the previous discussion it follows that if the practices were to change then the society

defined by those practices would be changed as well. Although this alteration in cultural practices is not typically immediate, these changes can be traced through written or vocal reports across generations of a particular culture.

A logical extension can be made from Skinner's analysis of a changed organism. "Men act upon the world, and change it, and are changed in turn by the consequences of their action." (Skinner, 1957). As a person interacts with his environment, he is changing, and this change occurs because of the consequences that are provided by environmental change. Skinner makes this analysis to replace the concept of behavior coming to the present situation by way of storage. In cultural practices this is not a problem because the culture is not a single organism, therefore the concept of storage is not relevant. Rather it is a group of organisms who behave similarly in given settings because the group has survived long enough to transmit those practices. The extension from organism to culture is made here to analyze when an organism behaves differently to stimuli, he is changed. When a culture as a whole practices differently, it is a changed culture.

Skinner has also used the analysis of natural selection to not only explain the evolution of a species, but the repertoire of an individual and the evolution of social environments. With the expansion of natural selection across these different levels of analysis, the expansion of a changed organism could also be applied to an analysis at the level of the culture.

This extension requires some explaining. Skinner's analysis of a changed organism refers to a change in the physiology of an organism. The organism behaves differently because of this changed physiology. He states that a person "behaves because of its "biological equipment at that moment." (Catania & Harnad, 1988). However, as psychologists we are not in a position to discuss the physiology of an organism. We are only in a place to make expert comments concerning the psychological aspects of an organism. When the

physiology of an organism is altered this will naturally have an influence upon the psychological organism. It is here that psychologists are in a position to say something about a changed physiological organism. It makes more sense, when speaking from a psychological perspective, that it is the psychological aspects of the organism that are changed. It is from this psychologically changed organism that this changed cultural concept is extended. If an organism behaves differently with respect to stimuli, it is a changed organism if a culture interacts differently (practices differently) with respect to its environment, it too is a changed culture.

Consider those who engage in the practices that have changed. Practices are the particular behaviors in which that group of people engage. As an individual in the culture engages in a behavior, that behavior is a part of a cultural practice. When the behavior of that individual changes the practice changes. The person has changed because his behavior is different. If a collectivity of people who engage in a certain behavior (or practice) all change the way they engage in that particular behavior (or practice) then all of those people are changed. The way they interact with the environment is different, so the environment changes, and so do those people. When the people and the behaviors they engage in are different, the practices of the collectivity are different and the culture is changed.

Form and Function

Another question is whether a culture is necessarily a different culture when the topographical qualities of a practice are different. Skinner's whole philosophy of operant conditioning implies function (Skinner, 1938). An organism operates on (or functions with respect to) the environmental stimuli that surround it. However, a couple of perspectives concerning the form of responses should be considered.

Form is Irrelevant

One of these perspectives follows from Skinner's position of form. If the topography or "form" of a practice changes, this does not necessarily mean the culture changes. When a practice is different in form but serves the same function it has always served, nothing has changed except for how that function is now served. The agricultural cultures are an example. At one point persons of this culture plowed a field with a plow towed by a horse and a person walked or ran behind the apparatus with reins to steer the horse. The

topography of this has now changed to the extent that a person now sits on a tractor and steers it with a steering wheel. Some members of the culture even have automated plows in which the steering is done by preprogramming the plow to move from one end of the field to the other. Regardless of how the steering has been done the function of the plowing and steering the plow has remained the same, to harvest food from the field.

Form and Function as the Same Thing

On the other hand, form and function are the same thing. If the form of something changes the function is inherently altered as well. From this perspective the farming culture described above would be considered changed, because once the form of the practice was changed the function of the practice would be different. When the practice changed from a horse and hand plow to an automated plow, the function of that practice changed. Perhaps when persons used horse and hand plows the function of the practice was to cultivate food only for their families. When the practice evolved to the automated plow the function was not only to cultivate food for their families but for other families as well, due to the fact that other families were now working in areas which were not food producing. The function, as well as the form of the plowing is different too, therefore the culture has changed. Of course, this change was due to another change in the culture. That being that those who at one time were farmers now engage in work of an industrial sort.

If a practice didn't serve a particular function, that is considered by the culture to be important in solving its problems, the form would alter so that it did serve that function. If one or the other changes the practice has changed and so the culture itself changes.

What is Good for the Culture?

"What is good for the culture is whatever promotes its ultimate survival, such as holding a group together or transmitting its practices" (Skinner, 1981). There are some practices in cultures that should be examined as to whether they are "good" in terms of "good" as described above. It is interesting how many practices survive over long periods of time that do not necessarily meet these standards. At the surface, many practices may seem to promote the ultimate survival of a culture such that those practices may be transmitted. At another level some practices really are not serving

the main purpose of survival. To look at all practices of all cultures is certainly beyond the scope of this discussion, but a discussion of a few practices is in order.

A couple of practices to analyze take place in the medical field. The practice of finding a way to make the survival of an individual more probable is one such practice. At the surface the concept of survival seems apparent, someone is kept alive, but for what purpose? Is it for purposes of the survival of the culture as it is? This cannot be argued if the person is kept alive by the superficial means of machines. What sorts of practices (or behaviors), survivalistic to the culture or not, can be successfully transmitted by such a person? This may be a ruthless way of looking at such a practice from a personal perspective, but in terms of cultural survival it may be practical. Time spent studying how to keep people alive individually is taking away from the time and dollars spent to find cures for fatal diseases which could be significant for not just one individual, but masses of the culture.

This must be viewed, of course, as a "value" of the culture. Perhaps the culture is one in which the transmission of the view that persons will be taken care of, by the culture, when needed is important to the culture as it is characterized. Therefore, such a practice, as described above, would be necessary for the survival of that culture.

Another practice of the medical field that is questionable with respect to its cultural survival value is abortion. This practice may appear to be one that does not promote the survival of a society. How can we expect to pass on survivalistic practices if we don't allow those to which practices are to be transmitted to live? On the other hand, if those persons are permitted to live, will truly "good" practices be transmitted to them? If a homeless person is able to give birth what practices, which promote the survival of a culture will be passed on? An adolescent or drug user might not be in a place to pass on the "good" practices of a culture. If the adolescent was to obtain more experience and education in the practices of a culture, the chance for "good" practices to be passed on would be more probable. This depends, once again, upon what a particular culture deems good. If it does not value the behaviors of drug users and inexperienced parents, then encouragement of pregnancies in those persons will be low.

In the American culture, practices of the penal

system also seem questionable. According to Skinner, a more effective way of changing behavior is through positive reinforcement (Skinner, 1974). The penal system is a practice which does not follow this basic principle of Skinner's. It was created to control behavior by negative rather than positive means. The effect being, supposedly, that the probability of responding in certain ways such as stealing, murdering, raping and etc., is lower. Even though this is supposed to decrease the probability of such responding, it is a fact that recidivism rates are high for just these kinds of behaviors. This is not an effective practice for removing those practices which serve a deleterious function with respect to survival of the members of a culture.

The Evolution of Cultures

In *Selection by Consequences* Skinner makes another statement. "Ultimately... it is all a matter of natural selection, since operant conditioning is an evolved process, of which cultural practices are special applications." (Skinner, 1981).

This quote deals with the evolution of social environments. This sort of evolution is deserving of a couple of comments. First, the detectability of change in such an evolution, and second, how some practices of cultures may have been due to adventitious contingencies which played a role in the selection of certain practices.

Rate of Cultural Evolution

Unlike the evolution of an individual's repertoire, the evolution of a culture takes a very long time and it is not easy to detect. This raises a practical question of whether or not it is worth while to attempt to find and establish those practices that promote the survival of a culture? Should any attempt to change practices for purposes of utmost survival be disregarded because the change will be too difficult to detect? When considering this type of evolution, one must understand that noticeable changes will probably not be seen in his lifetime. Also, if there is a goal of prediction and control for utilitarian purposes then this answer is not satisfactory. A functional analysis of historical records and of practices engaged in could be done to see what function those practices have had a history of serving, and what function those practices have been intended to serve. If there is a difference between the two, an attempt should be made to alter practices such that the variation between those two functions is decreased.

Though not an easy task, it may be important to the survival of a particular culture.

Adventitious Contingencies of Cultural Practices

In Skinner's paper *The Phylogeny and Ontogeny of Behavior* he discusses this issue of adventitious contingencies and their effect on behavior. He states, "Behavior may have advantages which played no role in its selection. The converse is also true. Events which follow behavior but are not necessarily produced by it may have a selective effect."

It seems reasonable to ask whether it is possible for such contingencies to operate in such a way at the level of social environments? In many cases this could be true. One such area is the political practices in the United States. A sort of Democratic-Capitalistic economy is thought to be the crux of the nation's political and economic practices. In many ways these practices might not be survivalistic for a culture, yet remain in the center of the system. How has this become the case? A good and somewhat satisfactory answer may be adventitious contingencies. This has become apparent as other nations have attempted, unsuccessfully, to transform their systems into ones similar to those followed in the United States. Perhaps the large scale contingencies that may have selected practices of this sort in the U.S. were simply adventitious and therefore cannot be duplicated in other places. These contingencies would be adventitious in the sense that consequences followed certain practices but were not necessarily produced by those practices.

However, the statement concerning behavior having advantages which play no role in its selection makes more sense in this analysis. When the United States became an independent nation, people engaged in various political and economic practices. The simple fact that those practices were different from ones in which people previously had to adhere to may have led those persons to be satisfied with the products of those practices as long as they were self-governing. The practice is adventitious because the practice engaged in is not anything like the previous practices, and was therefore selected. For those who exercise these practices it may seem as though people who adhere to such a system will have economic and political success because of the product which comes from the system, when actually those practices have been "adventitiously" selected. This becomes more and more apparent as people of the U.S. find that this system is not effective in dealing with many problems

which arise such as national deficit, poverty, education, unemployment and etc.. If the system worked as well as it is purported to, many of these problems would not have arisen.

On the other hand, it takes a long time for cultural evolution to be noticed. It may be the case that some of these nations that have recently turned over have not yet had the opportunity to show a promising effect of such practices. Perhaps more time is required to see if this type of setup will indeed be successful for these societies in the future.

Concluding Statement

The issue of cultural change and how good that change is should be seriously examined. Many practices, as they currently exist, do not promote the survival of a culture and therefore are not good for cultures. The concern should not be that those practices exist but that not very much is being done to actively alter those practices. It is one thing to be aware of those things and another to act upon them. By looking at practices as the defining property of cultures these changes can be more directly identified and manipulated.

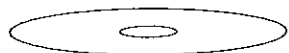
The matter of cultural evolution is an important one, and there is a lot that the field of behavior analysis can contribute to the success of changes in cultures. The reason being that behavior analysis inherently looks to those factors which can be altered. That being the controlling and influential variables which effect or influence behavior (or practices). It will be through attempts to modify those factors that more functional practices, with respect to cultures, can be made.

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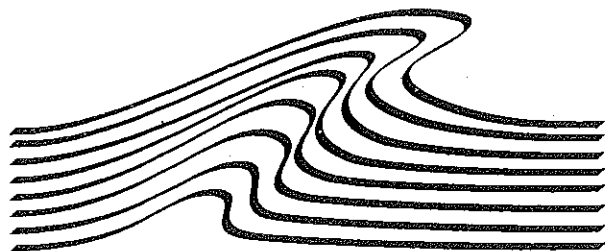
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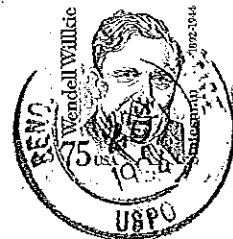
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