

EXP  
PSY

# The Experimental Psychology Bulletin

from Division 3 of the American Psychological Association

► DIVISION 3  
HOMEPAGE

► NEWSLETTER  
ARCHIVE

Volume 11, Number 1  
March, 2007

## Submissions Welcome!

The Editors encourage submission of any announcements, and/or letters to the editors, regarding psychological science.

Comments on the content and presentation of the newsletter are also appreciated.

Submit to:

[krmulthau@ davidson.edu](mailto:krmulthau@ davidson.edu)

## Editors, The Experimental Psychology Bulletin

### Kristi S. Multhaupt

Davidson College  
(704) 894-2008

[krmulthau@ davidson.edu](mailto:krmulthau@ davidson.edu)

### Mark E. Faust

Univ. of North Carolina at  
Charlotte

(704) 687-3564

[mefaust@ uncc.edu](mailto:mefaust@ uncc.edu)

## Humor Needed...

Why waste your time subjecting your family and friends to your humor when you can elicit guffaws from your colleagues? Send us your science related humor: [krmulthau@ davidson.edu](mailto:krmulthau@ davidson.edu)

## Division 3 E-mail Listserv Access

Subscribe to the Division 3 E-mail network to keep informed about Division 3 and issues regarding psychological science. This is a monitored network to keep the number of e-mails down.

## Autobiography of Division 3 President-Elect

Ed Wasserman, Division 3 President-Elect



As is true for each of us, I too was born at a very young age! After growing up in Inglewood, California, I decided to attend UCLA. But, 1 year as a Physics major was enough for me. I was just not that interested in physics to make it my life's work. I needed to strike out in a new direction. So, I decisively changed my major to Undecided. I used my sophomore year to take several general education classes and to repeatedly leaf through the course catalog. A plan finally emerged: to immerse myself in Psychology to see if I might find this unfamiliar field scientifically challenging and engaging. I had enjoyed Tom Trabasso's Introductory Psychology course, but I was not at all sure just what more specialized classes might hold in store for me.

One particular course did the trick: John Houston's class in Learning. It had all of the necessary ingredients for me: a challenging topic, unresolved controversies, clever methods, and grand theories. There was even a strong concern with animal behavior, something in which I had always been interested. I did, as a boy, maintain a diverse menagerie of pets: parakeets, chickens, ducks, lizards, turtles, frogs, and fish. (Only my mother's fear of furry creatures limited the scope of my mini-zoo.) Other classes were important too: perception, motivation, and statistics complemented my growing focus on the psychology of learning.

## PsychDrollery

(Humor from members and the internet)

### *Psycholinguistics to the resku*

Having chosen English as the preferred language in the EEC, the European Parliament has commissioned a feasibility study in ways of improving efficiency in communications between Government departments.

"European officials have often pointed out that English spelling is unnecessarily difficult, for example: cough, plough, rough, through and thorough. What is clearly needed is a phased programme of changes to iron out these anomalies. The programme would, of course, be administered by a committee staff at top level by participating nations.

In the first year, for example, the committee would suggest using 's' instead of the soft 'c'. Certainly sivil servants in all sities would resieve this news with job. Then the hard 'c' could be replaced by 'k' sinse both letters are pronounsed alike. Not only would this klear up konfusion in the minds of klerikal workers, but typewriters could be made with one less letter.

There would be growing enthusiasm when in the sekond year, it was announsed that the troublesome 'ph' would henseforth be writtne 'f'. This would make words like fotograf' twenty persent shorter in print.

In the third year, publik akseptanse of the new spelling kan be expekted to reash the stage where more

**Subscribe:** Send an e-mail to [listserv@lists.apa.org](mailto:listserv@lists.apa.org).

Leave the Subject line blank and type "subscribe div3" in the body of the message.

**Send a Message** (once subscribed): [div3@lists.apa.org](mailto:div3@lists.apa.org)

**Questions:** Send e-mail to Neal Johnson, Ohio State University, [johnson.64@osu.edu](mailto:johnson.64@osu.edu)

## Division Representatives 2005-2006

### President

#### Howard Egeth

Johns Hopkins University  
(410) 516-5324  
[egeth@jhu.edu](mailto:egeth@jhu.edu)

### President-Elect

#### Ed Wasserman

University of Iowa  
(319) 335-2445  
[ed-wasserman@uiowa.edu](mailto:ed-wasserman@uiowa.edu)

### Past President

#### Thomas R. Zentall

University of Kentucky  
(859) 257-4076  
[zentall@uky.edu](mailto:zentall@uky.edu)

### Secretary-Treasurer

#### Angelo Santi

Wilfrid Laurier University  
(519) 884-0710  
[asanti@wlu.ca](mailto:asanti@wlu.ca)

### Members-At-Large of the Executive Committee

#### Gil Einstein (8/06-09)

Furman University  
(864) 294-3214  
[gil.einstein@furman.edu](mailto:gil.einstein@furman.edu)

#### Karen Hollis (8/06-09)

Mount Holyoke College  
(413) 538-2296  
[khollis@mholyoke.edu](mailto:khollis@mholyoke.edu)

#### Mark A. McDaniel (8/05-08)

Washington University, St. Louis  
(314) 935-8030  
[MMcDaniel22@WU STL.EDU](mailto:MMcDaniel22@WU STL.EDU)

#### Valerie F. Reyna (8/05-08)

Cornell University  
(607) 254-1247  
[vr53@cornell.edu](mailto:vr53@cornell.edu)

#### Nelson Cowan (8/04-07)

University of Missouri  
(573) 882-7710  
[cowann@missouri.edu](mailto:cowann@missouri.edu)

#### Ralph R. Miller (8/04-07)

Binghamton Univ., SUNY  
(607) 777-2291  
[rmiller@binghamton.edu](mailto:rmiller@binghamton.edu)

### Graduate Student Representative

#### Rebecca Singer

University of Kentucky

komplikatated shanges are possible. Governments would enkourage the removal of double leters which have always been a deterrent to akurate speling.

We would al agre that the horrible mes of silent 'e's in the languag is disgrasful. Therefor we kould drop them and kontinu to read and writ as though nothing had hapend. By this tim it would be four years sins the skem began and peopl would be reseptive to steps sutsh as replasing 'th' by 'z'. Perhaps zen ze funktion of 'w' kould be taken on by 'v', vitsh is, after al, half a 'w'. Shortly after zis, ze unesesary 'o' kould be dropd from vords kontaining 'ou'. Similar arguments vud of kors be aplid to ozer kombinations of leters.

Kontinuing zis proses yer after yer, ve vud eventuli hav a reli sensibl riten styl. After tventi yers zer vud be no mor trubls, difikultis and evrivun vud find it ezi tu understand ech ozer. Ze drems of the Guvermnt vud finali hav kum tru."

<http://www.psych.upenn.edu/humor.html>

Retrieved 4/03/07

But, courses were not nearly enough to slake my thirst for learning about learning. So, I joined the Psychology Department Honors Program and I did my Honors Thesis research under the supervision of John Houston. I spent many hours behind a memory drum, studying associative learning, attention, and interference in human verbal learning tasks. I also joined the laboratory of Bernie Weiner, who was keenly interested in the role of motivation in human memory, specifically whether forgotten or repressed memories could be retrieved—if sufficient incentives were provided. My first publication came in 1968 from that line of work.

Perhaps the true turning point in my educational journey came when Weiner and I decided in my final summer to explore the role of motivation in animal memory. We planned to teach hooded rats to match-to-sample and then to put signals for reward and nonreward at specific points in the trial: during the sample, the retention interval, or the test. We could then compare the rats' behavior to that of people in analogous experimental situations. As with many of the best laid of plans, this one failed: the rats never learned to match-to-sample. But, I learned that this was my kind of project and one that I wanted to pursue in graduate school.

With the strong encouragement of the UCLA faculty, I applied to and received a fellowship for study at Indiana University. When I arrived, Rich Shiffrin invited me to join his new human cognition laboratory. Although tempted by this opportunity, I decided instead to work with Don Jensen on an unexplained phenomenon of rat runway behavior: the pseudo-extinction effect. Control rats on a schedule of continuous reinforcement were reported to slow down after they followed other experimental rats undergoing extinction in the same runway. My project manipulated the flooring in the alleyway and documented that this effect is attributable to odors emitted by the frustrated rats. My first graduate school project was published in *Science*.

At this point, Jensen's unexpected departure to the University of Nebraska meant that I had to join forces with another faculty member. I worked for a year with Jim Dinsmoor on observing behavior and I then moved to Eliot Hearst's laboratory after he arrived from the University of Missouri. With Hearst, I planned to repeat the same matching-to-sample experiment with pigeons as I had attempted with rats. Training pigeons to match-to-sample posed no problem: Don Blough had discovered how to do so. But, I learned from Hearst that pairing visual stimuli with food or no food outcomes might have pronounced behavioral effects that were more than motivational. I decided to see for myself just how much of a contaminating influence the newly discovered phenomenon of autoshaping might have on my planned memory study.

I assiduously programmed my autoshaping experiment much as had Brown and Jenkins. But, to enhance whatever effect autoshaped responses might have on my pigeons' memory performance, I used no house light that could compete with the light from the pecking key. To my amazement, none of my pigeons pecked the food-paired key light! Were my pigeons associatively deficient? No. Observations of their behaviors suggested that the pigeons had indeed connected the key light with food. The problem was that the birds were able to detect the key's illumination anywhere in the box they happened to be looking; in an otherwise dark box, the key light flooded the whole chamber with ambient illumination. The pigeons' conditioned responses were thus not directed to the key and went unrecorded by that device. The next, critical step was clear: I turned on the house light to eliminate these ambient illumination changes and to see if the pigeons might begin pecking the lighted key, now a punctate rather than a global cue. The birds did so soon after the house light was added to the procedure. I was hooked. I reported this finding in *Animal Learning*

(859) 257-9640  
[rasing2@uky.edu](mailto:rasing2@uky.edu)

#### Representative to APA Council

**Lewis P. Lipsitt** (8/04-07)  
 Brown University  
 (401) 863-2332  
[Lewis\\_Lipsitt@Brown.edu](mailto:Lewis_Lipsitt@Brown.edu)

**Thomas R. Zentall** (1/07-09)  
 University of Kentucky  
 (859) 257-4076  
[zentall@uky.edu](mailto:zentall@uky.edu)

#### Committee Chairs

**Irving Biederman** (Awards)  
 University of Southern California  
 (213) 740-6094  
[bieder@usc.edu](mailto:bieder@usc.edu)

**Linda Parker** (Fellows)  
 University of Guelph  
 (519) 824-4120  
[parkerl@uoguelph.ca](mailto:parkerl@uoguelph.ca)

**Anne Cleary** (Program)  
 Colorado State University  
 (970) 491-7701  
[Anne.Cleary@colostate.edu](mailto:Anne.Cleary@colostate.edu)

#### Historian

**Charles L. Brewer**  
 Furman University  
 (803) 294-3216  
[charles.brewer@furman.edu](mailto:charles.brewer@furman.edu)

*and Behavior* and I did my dissertation on autoshaping, again putting off the memory project.

Because my planned memory study was to explore the effects of key lights that were signals for the occurrence or nonoccurrence of food, I was now particularly alert to the possible role of directed responses to signals of reward or nonreward. An interest in conditioned inhibition had also been piqued by the writings of Hearst and Rescorla. So, just before I graduated from Indiana University, I built a special teeter-totter floor that allowed me to record the pigeon's movement toward or away from two keys that were could be individually lighted on opposite ends of the conditioning chamber. I discovered that pigeons came to move away or to stay away from signals of nonreward much as they came to move toward or to stay close to signals of reward. A report of this research project was published in the *Journal of Comparative and Physiological Psychology*.

As a result of the attentional nature of the house light effect on autoshaping and my past study of observing responses, it was natural for me to follow my graduate training with suitable postdoctoral experience. I journeyed to the University of Sussex in England to study with attentional expert Stuart Sutherland on a project that pursued the well-known relative validity effect discovered by Allan Wagner and his colleagues. My project exploited the fact that pigeons can only peck one stimulus at a time, thereby allowing me separately to record responses to the common and distinctive elements of compound discriminative stimuli. Now, selective attentional processes could be studied trial-by-trial instead of after-the-fact. Using this key peck technique, I was able to chart the course of the relative validity effect and to study its parametric determinants. That project became my first publication in the *Journal of Experimental Psychology*.

My postdoctoral fellowship in England afforded me an unexpected opportunity to consult with neuroethologist Richard Andrew on several topics in animal learning and behavior. While discussing autoshaping with him, he cleverly suggested that one might use heat as an effective unconditioned stimulus for autoshaping baby chicks; because heat does not elicit pecking, it was an ideal choice for testing the stimulus substitution account of autoshaping. I found that chicks do indeed learn to approach and to peck a key light that is paired with heat, thus challenging this popular theory of autoshaping. This finding led to my second publication in *Science*.

These formative years—from 1966 to 1972—set the stage for much of my later research career. I revisited many of the themes and issues of my student days as a faculty member at The University of Iowa, where I have been since 1972. I tried to bring innovative methods and fresh ideas to the study of learning, memory, and cognition in animals. I also endeavored to pursue parallel research projects in humans and animals, believing that a unified science of behavior is better than one arbitrarily divided by species. And, I did my best to mentor students in and to advocate for what I firmly believe is a cornerstone of psychological science, cognitive science, and neuroscience. The comparative analysis of learning, memory, and cognition has disclosed the basic principles of behavioral change and motivation; it has brought forth many of the central theoretical analyses and philosophical tenets of contemporary psychology; and, it should continue to play this pivotal role for the foreseeable future, as young scholars tackle new and persistent problems in behavior and cognition.

I have researched four distinctive topics in my 35 years at the University of Iowa. In the first, I investigated autoshaping in pigeons and chickens. In the second, I studied memory in pigeons. In the third, I explored the problem of causal judgment in people. And, in the fourth, I studied categorization in pigeons and people.

From 1972 to 1984, I published a series of papers and chapters on autoshaping in birds. I found that pecking emerged and persisted even when the reinforcer—either infrared heat or water injected directly into the mouth—did not elicit pecking or when pecking cancelled the reinforcer altogether. I further found that the key light had to be the best predictor of the reinforcer for robust responding to emerge. Redundant illumination from the house light or from the feeder adversely affected autoshaped key pecking; when multiple key lights were available, the birds pecked the one that was most highly correlated with the reinforcer. Finally, the exact timing and duration of key illumination and reinforcer delivery strongly determined the autoshaped responses of both pigeons and chicks. Despite these clear stimulus-reinforcer influences on key pecking, I also found that the rate and temporal pattern of pecking is affected by response-reinforcer relations, thereby testifying to the complex determination of this seemingly simple act.

From 1976 to 1992, I published a series of papers and chapters on short-term memory in pigeons. That work began with my development of a go/no go method for studying short-term memory that

capitalized on the pigeon's predilection to peck at signals for food and to withdraw from signals for no food. I later exploited that method and several others in projects that helped to elucidate the nature of memory for single events, for multiple events (both stimuli and responses), and for time. Parallel studies of response sequence learning showed how memory may participate in the learning and (temporal and spatial) organization of response sequences. A key event in my work on animal memory was an extended trip that I took in 1978 to the laboratories of Mark Rilling, Bill Roberts, Ron Weisman, Vern Honig, Allan Wagner, and Stew Hulse. Not only did I learn about the latest developments in the field from its most respected researchers, but I formed close personal friendships and productive professional collaborations. Of special note is the work that I did with Vern Honig on prospective and retrospective memory processes. The possibility that both forward-looking and backward-looking memories might participate in animal behavior was originally suggested by Konorski, but Honig and I were among the first to document such participation; later research in both animal and human memory has further developed this intriguing notion.

Of course, Hulse, Honig, and Wagner edited the highly influential *Cognitive Process in Animal Behavior* volume, which signaled both a broadening of the scope of animal behavior research and a liberalization of the theories that might be invoked to explain complex animal behavior. I reviewed this book for the *Journal of the Experimental Analysis of Behavior*. My 1981 review and my 1982 addendum in the same journal afforded me the opportunity to place research in animal learning and behavior into historical, biological, and philosophical context. Many of my later writings have further considered the place of comparative cognition in contemporary psychology as well as its relationship to the field of cognitive ethology. My most recent contribution to the field was an edited volume canvassing the realm of comparative cognition [E. A. Wasserman & T. R. Zentall (Eds.), *Comparative cognition: Experimental explorations of animal intelligence*. New York: Oxford University Press.]

In 1983, I began a new line of research into human causal judgment. My initial work investigated: the method of presenting contingency information; people's weighting of different kinds of contingency information; the role of necessity, sufficiency, and temporal contiguity in causal judgment; and people's use of different strategies in making contingency judgments. My later research has been more theoretically oriented. After replicating the relative validity effect with humans, I went on to show that people not only revalued reinforced and nonreinforced cues that were *given* on training trials, but they also revalued other possible causes that were *not given* on those trials. This result is not predicted by most associative learning theories; but, the modification of the Rescorla-Wagner model that Linda Van Hamme and I devised nicely does the trick. That theoretical modification also enables an associative account to explain the otherwise unexplainable phenomena of recovery from overshadowing and backward blocking. I have successfully documented both of these retrospective revaluation effects in human causal settings and have found that they may be mediated by within-compound associations. In collaboration with Mike Young, now at Southern Illinois University, I have also begun exploring other animal conditioning phenomena in human causal judgment, particularly occasion setting and positive and negative patterning. I am continuing this work on contingency judgment with Leyre Castro.

In 1988, I began research into categorization by pigeons. Many years of teaching students about Herrnstein's groundbreaking studies of pigeons' discriminating photographic stimuli convinced me that much more could be learned about categorization processes by building on his innovative methods and analyses. My own work developed in three directions. First, I explored the pigeon's categorization of four different classes of photographic stimuli: cats, cars, chairs, and flowers. Not only did pigeons accurately discriminate the original training stimuli, but they also reliably discriminated novel testing stimuli—the hallmark of conceptualization. Follow-up work elucidated many of the conditions that are conducive to the categorization of basic-level stimuli. Collaborative research with Irv Biederman, a human visual scientist at USC, pursued the possibility that pigeons process visual stimuli in accord with a componential analysis of an object's irreducible geometric parts or "geons." Other collaborative research with Shaun Vecera, here at The University of Iowa, with Philippe Schyns, at the University of Glasgow, and with Frédéric Gosselin, at the University of Montreal, has built on that work to provide a fuller understanding of the perceptual mechanisms of object categorization by pigeons. Second, with Sue Astley at Cornell College and with Olga Lazareva here at The University of Iowa, I studied the pigeon's forming of higher-level or superordinate categories. Superordinate categories defy explanation in terms of primary stimulus generalization, but they are readily explicable by means of secondary stimulus generalization via mediated associative links. We have found that pigeons do form such superordinate categories when exemplars from two basic-level categories are associated with the same response, delay of

reward, probability of reward, or amount of reward. Third, with Mike Young and Brett Gibson (now at the University of New Hampshire), I studied the pigeon's forming an abstract same-different category. Clear evidence of abstraction by nonhuman animals had proven to be difficult. Nonetheless, with arrays of 16 same pictures or 16 different pictures, we have obtained unequivocal evidence that pigeons not only accurately discriminate the original training arrays, but they also reliably discriminate novel same and different arrays created from a palate of brand-new pictures. Follow-up research intriguingly suggests that the pigeons may not have learned a qualitative same-different category at all; rather, they may have based their discriminative responding on the variability or entropy in the stimulus array. This quantitative or dimensional possibility has received empirical support from a series of pigeon experiments, from several analogous experiments on baboons conducted in collaboration with Joël Fagot at the CNRS in Marseille, France, and from recently published experiments on college students here at The University of Iowa. I will continue my studies of animal and human categorization here at The University of Iowa, at the Great Ape Trust in Des Moines, Iowa, and with Robert Cook at Tufts University.

If you have read this far, then you will see that I have had a very interesting and rewarding career as an experimental psychologist. My enthusiasm has not waned and I look forward to further adventures in uncovering the basic laws of learning and cognition. This task will be all the more enjoyable because of the opportunity to work with so many talented students and colleagues.