

## VITA

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#### Academic Training

B.E.E. Electrical Engineering, June 1963 - Union College, Schenectady, New York  
B.S. Psychology, June 1963 - Union College, Schenectady, New York  
Ph.D. Psychology, Aug 1969 - University of California, Berkeley, California

#### Positions Held

Sept 1969 - Dec 1975: Assistant Professor, University of Pittsburgh  
Jan 1976 - June 1977: Assistant Professor, University of Kentucky  
July 1977 - July 1982: Associate Professor, University of Kentucky  
July 1982 - Present: Professor, University of Kentucky  
Sept 1982 - May 1983: Visiting Professor, Purdue University  
Aug 2006 - Dec 2006 : Visiting Professor, Université de Lille III, France  
June 2007 Visiting Professor, Universidad de Sevilla, Spain  
July 2009 Visiting Professor, Keio University, Tokyo, Japan

#### Extramural Awards and Grants

NIMH Grant MH 19757, Concept learning in the pigeon, 1972-1973, \$5,834  
NIMH Grant MH 24092, Imitative behavior in animals, 1974-1975, \$5,633  
NIMH Grant MH 35378, Conditional discrimination learning, 1980-1982, \$7,025  
NSF Grant BNS 8418275, Determinants of animal memory strategies, 1985-1990, \$73,998  
NSF Grant R11 8902792, Sponsor, Visiting Prof. for Women, to Dr. Janice Steirn, 1989-1990, \$60,000  
NSF Grant BNS 9019080, Stimulus equivalences and stimulus class formation, 1990-1993, \$114,510  
NSF Grant BNS 9019080, Research Opportunities Award, 1990-1991, \$10,000,  
Research Experiences for Undergraduates, 1990-1991, \$3,997; 1991-1992, \$3,200  
NIMH Grant R01 MH45979, Anticipation effects in animal memory, 1991-1994, \$324,001  
NSF Grant IBN 9414589, Transfer of value in simultaneous discriminations, 1995-1998, \$150,000  
NIMH Grant R01 MH55118, Coding processes in animal memory, 1996-2000, \$244,670  
NIMH Grant F31 MH11754, Sponsor, NRSA to Daren Kaiser, 1997-1998, \$13,167  
NIMH Minority Supplement to Grant R01 MH55118, 1997-1999, \$41,048  
NIMH Grant R01 MH59194, Single-code/default strategy use by animals, 1998-2002, \$282,349  
NIMH Grant F31 MH12046, Sponsor, NRSA to Brigitte Dorrance, 1998-2000, \$39,084  
NIMH Grant R01 MH63726, Effect of prior effort on reward value, 2002-2007, \$832,600  
NIMH Grant F31 MH72065, Sponsor, NRSA to Kelly DiGian, 2004-2006, \$56,338  
NIMH Grant F31 DA018476, Co-Sponsor, NRSA to Emily Klein, 2004-2006, \$47,044  
Fulbright-Hayes Fellowship, Université de Lille III, France, 2006, \$24,393  
NIMH Grant F31 MH077450, sponsor, NRSA to Rebecca Singer, 2006-2008, \$65,180  
NICHD Grant RO1 HD060996, Effect of prior event on reward value, 2009- 2012, \$428,622

## **Honors**

Fellow Society of Experimental Psychologists, Awarded 2009  
President Midwestern Psychological Association, 2002-2003  
President Eastern Psychological Association, 2013-2014  
Chair of the Governing Board, Psychonomic Society 2006-2007  
President Comparative Cognition Society, 2004-2006  
President Division 3 (Experimental Psychology) American Psychological Association, 2005-2006  
President Division 6 (Behavioral Neuroscience and Comparative Psychology) Am. Psych. Assn, 2005-2006  
Endowed Professorship (Di Silvestro) Arts and Sciences, 2008  
Fulbright-Hayes Fellowship, Université de Lille III, France, 2006  
Professional and Scholarly Publishing Division of the Association of American Publishers:  
    Outstanding Scholarly Work of 2006 in Psychology & Cognitive Science  
Fred Keller Distinguished Lecture: Eastern Psychological Association, New York, March 12, 2010  
D. O. Hebb Distinguished Scientific Contributions Award: Division 6 APA, Honolulu, August 1, 2013  
Comparative Cognition Society Distinguished Research Award, Melbourne, FL, March 28, 2014  
Distinguished Contributions to Basic Research Award: Division 25 APA, August, 2014  
William B. Sturgill Award: Outstanding Contributions to Graduate Education, University of Kentucky, 2015  
University Research Professorship: 2016-2017

## **Professional Affiliations and Service**

### **American Psychological Association: Fellow**

Committee on Divisions/APA Relations, 2004-2006  
Chair: F. J. McGuigan Young Investigator Prize Committee 2004, 2006, 2008, 2010  
Chair: F. J. McGuigan Dissertation Award Review Committee 2009  
Council of Representatives (Division 3) 2007-2009, 2011-2013  
    **Division 1** (General), Fellow  
    **Division 3** (Experimental Psychology), Fellow  
        President, 2005-2006  
        Secretary-Treasurer, 1991-1994  
    **Division 6** (Behavioral Neuroscience and Comparative Psychology), Fellow  
        President, 2005-2006  
    **Division 25** (Experimental Analysis of Behavior), Fellow  
        Member of the Executive Committee, 2006-2009  
    **Division 52** (International Psychology), Fellow

### **Psychonomic Society:**

Chair of the Governing Board 2006-2007  
Member of the Governing Board 2002-2007

### **American Psychological Society: Fellow**

### **Comparative Cognition Society:**

President 2004-2006  
Comparative Cognition Society Distinguished Research Award (Master Lecture) 2014

### **Midwestern Psychological Association: Fellow**

Secretary-Treasurer, 1998-2001  
President, 2002-2003

### **Eastern Psychological Association:**

Member of the Board of Directors 2008-2010  
President, 2013-2014

### **Association for Behavior Analysis International: Member of the Science Board 2015-2018**

### **Journal Editorships:**

**Editor:** Comparative Cognition and Behavior Reviews, 2011-2014

#### **Associate (Action) Editor:**

Psychonomic Bulletin & Review, 1998-2002

Learning & Behavior, 2002-2006

Journal of the Experimental Analysis of Behavior 2011-2015

Journal of the Experimental Analysis of Behavior (Special Issue) 2001-2002

Behavioural Processes (Special Issue) 2005-2006

International Journal of Psychology and Psychological Therapy (Special Issue) 2005-2006

Behavioural Processes (Special Issue) 2010-2011

Current Directions in Psychological Science (Special Issue) 2016

#### **Consulting Editor:**

Journal of Experimental Psychology: Animal Behavior Processes, 1986-1997; 2013-2016

Psychonomic Bulletin & Review, 1993-1998; 2002-2010

Journal of the Experimental Analysis of Behavior, 1993-1998; 2001-2005

Animal Learning & Behavior, 1998-2002

Comparative Cognition and Behavior Review, 2004-2011

The Journal of General Psychology, 1998-present

International Journal of Psychology and Psychological Therapy, 2001-present

Learning & Behavior, 2008-present

The Psychological Record, 2009-present

Behavioral Processes, 2012-present

International Journal of Comparative Psychology, 2014-present

Animal Cognition, 2014 - present

Frontiers in Psychology, 2015 – present

Learning and Motivation, 2018 - present

#### **Grant Review Panel:**

NIMH Basic Behavioral Processes Study Section, 1988-1989

NIH Cognition, Perception and Language Fellowship Study Section, 2006

NSF Integrative Organismal Biology: Animal Behavior Panel, 2004, 2006

NICHHD Human-Animal Interaction Study Section, 2011

NIH Behavioral Regulation, Learning, and Ethology Study Section, 2016

#### **Administrative Experience**

Acting Chair, Department of Psychology, Univ. of Kentucky, 1/82-7/82

Chair, Arts and Sciences Tenure & Promotion Com: Soc. Sciences, Univ. of Kentucky, 1980-81; 1985-86

Director of Graduate Studies, Department of Psychology, Univ. of Kentucky, 7/92-6/97

Coordinator, Behavioral and Neural Studies Area, Univ. of Kentucky, 7/83-6/89

Chair, Faculty Summer Research Fellowship Committee, Univ. of Kentucky, 7/80-6/81

Chair, Review Committee, University of Kentucky, Department of History, 11/84

Chair, Review Committee, Indiana University Purdue University at Indianapolis, Dept. of Psychology, 4/97

Chair, University Social Sciences Area Advisory Com. for Tenure & Promotion, Univ. Kentucky 7/03-7/04

Chair, University Senate Research Committee, Univ. of Kentucky 9/08 – 8/11

#### **Other University Service**

Member of the University Senate 9/81-6/84, 9/98-6/01, 9/03-6/06, 9/08-6/11

Member of the Graduate Council 9/01-6/04

University Social Sciences Area Advisory Com. for Tenure & Promotion, 9/95-8/97

College Natural Sciences Area Advisory Com. for Tenure & Promotion, 9/90-8/91

College Humanities Area Advisory Com. for Tenure & Promotion, 9/11-8/14

**Graduate Student Masters Degrees (current affiliation):**

David Hogan, Northern Kentucky University  
Charles Edwards, Edinboro University of Pennsylvania  
James Henning, unknown  
Joyce Jagielo, Edinboro University of Pennsylvania  
Lou Sherburne, Indiana University of Pennsylvania  
Christopher Randall, Kenesaw State University  
Karen Roper, Centre College  
Zhongbiao Zhang, Software engineer, Marlboro, NJ  
Tricia Clement, Marketing consultant  
Brigette Dorrance, Saint Ambrose University  
Andrea Lonon, Bastrop, TX  
Emily Neiman, Certified Nurse-Midwife, Columbus, OH  
Emily Klein, Gwinnett County Public Schools  
Andrea Friedrich, University of Kentucky  
Rebecca Singer, Georgetown College  
Tracy Martin, Texas A&M  
Benjamin Abroms, Clinical Research Associate PPD  
Holly Miller, KU Leuven, Leuven, Belgium  
Cassandra Gipson, Faculty Member University of Kentucky  
Jessica Stagner, Faculty Member Georgia Southern University  
Kristina Pattison, Instructor University of Kentucky  
Jennifer Laude, Stanford University  
Danielle Andrews, Staff Michigan State University  
Megan Halloran, University of Kentucky, Graduate Student  
Peyton Mueller, Ohio State University, Post Doc

**Graduate Student Doctoral Degrees (current affiliation):**

David Hogan, Faculty Member Northern Kentucky University  
Charles Edwards, Faculty Member Edinboro University of Pennsylvania  
Joyce Jagielo, Faculty Member Edinboro University of Pennsylvania  
Pamela Jackson, Faculty Member Radford University  
Vernon Strength, Boeing Aircraft  
Lou Sherburne, Faculty Member Indiana University of Pennsylvania  
Karen Roper, Faculty Member University of Kentucky, College of Medicine  
Janice Weaver, Faculty Member Ferris State University  
Daren Kaiser, Faculty Member Indiana-Purdue University Fort Wayne  
Tricia Clement, Marketing consultant  
Brigette Dorrance, Instructor Saint Ambrose University  
Emily Klein, Gwinnett County Public Schools  
Andrea Friedrich, Faculty Member University of Kentucky  
Rebecca Singer, Faculty Member Georgetown College  
Kelly DiGian, Sanofi-Aventis  
Jerome Alessandri, Maitre de Conference Université de la Nord de France, Lille, France  
Holly Miller, General Mills, Minneapolis, MN  
Rebecca Rayburn-Reeves, Faculty Member Armstrong Atlantic University  
Jessica Stagner, Faculty Member Georgia Southern University  
Peyton Mueller, Ohio State University, Post Doc

## **Books:**

- Zentall, T. R. & Galef, B. G. Jr. (Eds.). (1988). *Social learning: Psychological and biological perspectives*. Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (Ed.). (1993). *Animal cognition: A tribute to Donald A. Riley*. Hillsdale, NJ: Erlbaum.
- Zentall, T. R., & Smeets, P. M. (Eds.). (1996). *Stimulus class formation in humans and animals*. Amsterdam: North Holland.
- Wasserman, E. A., & Zentall, T. R. (Eds.). (2006). *Comparative Cognition: Experimental Explorations of Animal Intelligence*. New York: Oxford University Press.  
\*Professional and Scholarly Publishing Division of the Association of American Publishers  
Outstanding Professional, Reference or Scholarly Work of 2006 in Psychology & Cognitive Science (Honorable Mention).
- Zentall, T. R. & Wasserman, E. A. (Eds.). (2012). *Oxford Handbook of Comparative Cognition*. New York: Oxford University Press.
- Crowley, P. H., & Zentall, T. R. (Eds.). (2013). *Comparative Decision Making*. New York: Oxford University Press.
- Call, J., Burghardt, G., Pepperberg, I., Snowdon, C., & Zentall, T. (Eds.). (2017). *APA Handbook of Comparative Psychology*. Washington, DC: American Psychological Association.

## **Research Publications and Book Chapters:**

- Lee, W., & Zentall, T. R. (1966). Factorial effects in the categorization of externally distributed stimulus samples. *Perception and Psychophysics, 1*, 120-124.
- Singer, B., Zentall, T. R., & Riley, D. A. (1969). Stimulus generalization and the easy-to-hard effect. *Journal of Comparative and Physiological Psychology, 69*, 528-535.
- Zentall, T. R. (1970). Effects of context change on forgetting in rats. *Journal of Experimental Psychology, 86*, 440-448.
- Zentall, T. R., Collins, N., & Hearst, E. (1971). Generalization gradients around a formerly positive S-. *Psychonomic Science, 22*, 257-259.
- Zentall, T. R. (1972). Attention in the pigeon: Novelty effects and testing with compounds. *Psychonomic Science, 27*, 31-32.
- Zentall, T. R., & Levine, J. M. (1972). Observational learning and social facilitation in the rat. *Science, 178*, 1220-1221.
- Zentall, T. R. (1973). Memory in the pigeon: Retroactive inhibition in a delayed matching task. *Bulletin of the Psychonomic Society, 1*, 126-128.

- Zentall, T. R., & Hogan, D. E. (1974). Abstract concept learning in the pigeon. *Journal of Experimental Psychology*, *102*, 393-398.
- Zentall, T. R., Hogan, D. E., & Holder, J. (1974). Comparison of two oddity tasks with pigeons. *Learning and Motivation*, *5*, 106-117.
- Levine, J. M., & Zentall, T. R. (1974). Effect of conspecific's presence on deprived rats' performance: Social facilitation vs. distraction/imitation. *Animal Learning & Behavior*, *2*, 119-122.
- Zentall, T. R., & Hogan, D. E. (1974). Memory in the pigeon: Proactive inhibition in a delayed matching task. *Bulletin of the Psychonomic Society*, *4*, 109-112.
- Zentall, T. R., & Hogan, D. E. (1975). Key pecking in pigeons produced by pairing key light with inaccessible grain. *Journal of the Experimental Analysis of Behavior*, *23*, 199-206.
- Zentall, T. R., & Hogan, D. E. (1975). Concept learning in the pigeon: Transfer of matching and nonmatching to new stimuli. *American Journal of Psychology*, *88*, 233-244.
- Zentall, T. R., & Hogan, D. E. (1976). Pigeons can learn identity, difference, or both. *Science*, *191*, 408-409.
- Zentall, T. R., Hogan, D. E., Compomizzi, K., & Compomizzi, C. (1976). Responding to a positive stimulus by "satiated" pigeons. *Learning and Motivation*, *7*, 141-159.
- Zentall, S. S., & Zentall, T. R. (1976). Activity and task performance of hyperactive children as a function of manipulated environmental stimulation. *Journal of Consulting and Clinical Psychology*, *44*, 693-697.
- Zentall, S. S., & Zentall, T. R. (1976). Amphetamine's effects may be predictable. *Journal of Learning Disabilities*, *9*, 188-189.
- Zentall, T. R., & Hogan, D. E. (1976). Imitation and social facilitation in the pigeon. *Animal Learning & Behavior*, *4*, 427-430.
- Hogan, D. E., & Zentall, T. R. (1977). Backward associative learning in the pigeon. *American Journal of Psychology*, *90*, 3-15.
- Zentall, T. R., & Hogan, D. E. (1977). Short-term proactive inhibition in the pigeon. *Learning and Motivation*, *8*, 367-386.
- Zentall, T. R., Hogan, D. E., Howard, M. M., & Moore, B. S. (1978). Delayed matching in the pigeon: Effect on performance of sample-specific observing responses and differential delay behavior. *Learning and Motivation*, *9*, 202-218.
- Zentall, T. R., & Hogan, D. E. (1978). Same/different concept learning in the pigeon: The effect of negative instances and prior adaptation to the transfer stimuli. *Journal of the Experimental Analysis of Behavior*, *30*, 177-186.

- Zentall, S. S., Zentall, T. R., & Booth, M. (1978). Within-task stimulation: Effects on activity and spelling performance of hyperactive and normal children. *Journal of Educational Research, 71*, 222-230.
- Zentall, S. S., Zentall, T. R., & Barack, R. S. (1978). Distraction as a function of within-task stimulation for hyperactive and normal children. *Journal of Learning Disabilities, 11*, 540-548.
- Nallan, G. B., Pace, G. M., McCoy, D. F., & Zentall, T. R. (1979). Temporal parameters of the feature positive effect. *American Journal of Psychology, 92*, 703-710.
- Zentall, T. R., Hogan, D. E., Edwards, C. A., & Hearst, E. (1980). Oddity learning in the pigeon as a function of the number of incorrect alternatives. *Journal of Experimental Psychology: Animal Behavior Processes, 6*, 278-299.
- Edwards, C. A., Hogan, D. E., & Zentall, T. R. (1980). Imitation of an appetitive discriminatory task by pigeons. *Bird Behaviour, 2*, 87-91.
- Martorano, S. H., & Zentall, T. R. (1980). Children's knowledge of the separation of variables concept. *Journal of Experimental Child Psychology, 30*, 513-526.
- Bunch, G. B., & Zentall, T. R. (1980). Imitation of a passive avoidance response in the rat. *Bulletin of the Psychonomic Society, 15*, 73-75.
- Zentall, T. R., Hogan, D. E., & Edwards, C. A. (1980). Oddity learning in the pigeon: Effect of negative instances, correction, and number of incorrect alternatives. *Animal Learning & Behavior, 8*, 621-629.
- Henning, J. M., & Zentall, T. R. (1981). Imitation, social facilitation, and the effects of ACTH 4-10 on rats' barpress behavior. *American Journal of Psychology, 94*, 125-134.
- Zentall, T. R., Edwards, C. A., Moore, B. S., & Hogan, D. E. (1981). Identity: The basis for both matching and oddity learning in pigeons. *Journal of Experimental Psychology: Animal Behavior Processes, 7*, 70-86.
- Hogan, D. E., Edwards, C. A., & Zentall, T. R. (1981). The role of identity in learning and memory of matching-to-sample by pigeons. *Bird Behaviour, 3*, 27-36.
- Hogan, D. E., Edwards, C. A., & Zentall, T. R. (1981). Delayed matching in the pigeon: Interference produced by a prior delayed matching trial. *Animal Learning & Behavior, 9*, 395-400.
- Edwards, C. A., Jagielo, J. A., Zentall, T. R., & Hogan, D. E. (1982). Acquired equivalence and distinctiveness in matching-to-sample by pigeons: Mediation by reinforcer-specific expectancies. *Journal of Experimental Psychology: Animal Behavior Processes, 8*, 244-259.
- Zentall, T. R. (1982). The heuristic value of representation. *The Behavioral and Brain Sciences, 5*, 393-394.
- Hogan, D. E., Pace, G. M., & Zentall, T. R. (1983). Control of pigeons' matching-to-sample performance by differential sample response requirements. *American Journal of Psychology, 96*, 37-49.

- Edwards, C. A., Jagielo, J. A., & Zentall, T. R. (1983). Same/different symbol use by pigeons. *Animal Learning & Behavior*, *11*, 349-355.
- Zentall, S. S., & Zentall, T. R. (1983). Optimal stimulation: A model of disordered activity and performance in normal and deviant children. *Psychological Bulletin*, *94*, 446-471.
- Nallan, G. B., Pace, G. M., McCoy, D. F., & Zentall, T. R. (1983). The role of elicited responding in the feature-positive effect. *American Journal of Psychology*, *93*, 377-390.
- Zentall, T. R., Edwards, C. A., & Hogan, D. E. (1983). Pigeons' use of identity. In M. L. Commons, R. J. Herrnstein, & A. Wagner (Eds.), *The quantitative analyses of behavior: Vol. 4. Discrimination processes* (pp. 273-293). Cambridge, MA: Ballinger.
- Zentall, T. R. (1983). Abstract codes are not just for chimpanzees. *The Behavioral and Brain Sciences*, *6*, 157-158.
- Zentall, T. R., & Edwards, C. A. (1984). Categorical color coding by pigeons. *Animal Learning & Behavior*, *12*, 249-255.
- Zentall, T. R., Hogan, D. E., & Edwards, C. A. (1984). Cognitive factors in conditional learning by pigeons. In H. L. Roitblat, T. G. Bever, & H. S. Terrace, (Eds.), *Animal cognition* (pp. 389-405). Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (1984). In support of cognitive theories. *The Behavioral and Brain Sciences*, *7*, 654-655.
- Edwards, C. A., Miller, J. S., & Zentall, T. R. (1985). Control of pigeons' matching and mismatching performance by instructional cues. *Animal Learning & Behavior*, *13*, 383-391.
- Zentall, S. S., & Zentall, T. R. (1986). Hyperactivity ratings: Statistical regression provides an insufficient explanation of practice effects. *Journal of Pediatric Psychology*, *11*, 393-396.
- Urcuioli, P. J., & Zentall, T. R. (1986). Retrospective memory in pigeons' delayed matching-to-sample. *Journal of Experimental Psychology: Animal Behavior Processes*, *12*, 69-77.
- Zentall, T. R., Jackson-Smith, P., Jagielo, J. A., & Nallan, G. B. (1986). Categorical shape and color coding by pigeons. *Journal of Experimental Psychology: Animal Behavior Processes*, *12*, 153-159.
- Jagielo, J. A., & Zentall, T. R. (1986). Predictable long-delay matching-to-sample trials results in long-latency sample responding by pigeons. *Learning and Motivation*, *17*, 269-286.
- Edwards, C. A., Miller, J. S., Zentall, T. R., & Jagielo, J. A. (1987). Effects of stimulus dimension and of trial and intertrial illumination on acquisition of a match/mismatch task by pigeons. *Animal Learning & Behavior*, *15*, 25-34.
- Zentall, T. R., Jagielo, J. A., Jackson-Smith, P., & Urcuioli, P. J. (1987). Memory codes in pigeon short-term memory: Effect of varying number of sample and comparison stimuli. *Learning and Motivation*, *18*, 21-33.



- Zentall, T. R. (1988). Experimentally manipulated imitative behavior in rats and pigeons. In T. R. Zentall & B. G. Galef, Jr. (Eds.), *Social learning: Psychological and biological perspectives* (pp. 191-206). Hillsdale, NJ: Erlbaum.
- Zentall, T. R., Urcuioli, P. J., Jagielo, J. A., & Jackson-Smith, P. (1989). Interaction of sample dimension and sample-comparison mapping on pigeons' performance of delayed conditional discriminations. *Animal Learning & Behavior*, *17*, 172-178.
- Urcuioli, P. J., Zentall, T. R., Jackson-Smith, P., & Steirn, J. N. (1989). Evidence for common coding in many-to-one matching: Retention, intertrial interference, and transfer. *Journal of Experimental Psychology: Animal Behavior Processes*, *15*, 264-273.
- Urcuioli, P. J., & Zentall, T. R. (1990). On the role of trial outcomes in delayed discriminations. *Animal Learning & Behavior*, *18*, 141-150.
- Zentall, T. R., Steirn, J. N., & Jackson-Smith, P. (1990). Memory strategies in pigeons' performance of a radial-arm-maze analog task. *Journal of Experimental Psychology: Animal Behavior Processes*, *16*, 358-371.
- Zentall, T. R., Jackson-Smith, P., & Jagielo, J. A. (1990). Categorical color and shape coding by pigeons. In M. L. Commons, R. J. Herrnstein, & S. Kosslyn (Eds.), *The quantitative analyses of behavior: Vol. 8. Pattern recognition and concepts in animals, people, and machines* (pp. 3-21). Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (1990). Not so elementary, my dear Watson. [Review of *Mechanical man*]. *Contemporary Psychology*, *35*, 841-842.
- Strength, V., & Zentall, T. R. (1991). Matching and oddity learning in pigeons: Effects of penalty time for incorrect responding. *Animal Learning & Behavior*, *19*, 49-57.
- Zentall, T. R., Steirn, J. N., Sherburne, L. M., & Urcuioli, P. J. (1991). Common coding in pigeons assessed through partial versus total reversals of many-to-one conditional and simple discriminations. *Journal of Experimental Psychology: Animal Behavior Processes*, *17*, 194-201.
- Steirn, J. N., Jackson-Smith, P., & Zentall, T. R. (1991). Mediational use of internal representations of food and no-food events by pigeons. *Learning and Motivation*, *22*, 353-365.
- Zentall, T. R., Urcuioli, P. J., Jackson-Smith, P., & Steirn, J. N. (1991). Memory strategies in pigeons. In L. Dachowski & C. F. Flaherty (Eds.), *Current topics in animal learning: Brain, emotion, and cognition* (pp. 119-139). Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (1991). What to do about peer review: Is the cure worse than the disease? *The Behavioral and Brain Sciences*, *14*, 166-167.
- Zentall, T. R. (1991). "Bouncing back" from a loss: A statistical artifact. *Bulletin of the Psychonomic Society*, *29*, 384-386.
- Steirn, J. N., Zentall, T. R., & Sherburne, L. M. (1992). Pigeons' performances of a radial-arm-maze analog task: Effect of spatial distinctiveness. *Psychological Record*, *42*, 255-272.

- Urcuioli, P. J., & Zentall, T. R. (1992). Transfer across delayed discriminations: Evidence regarding the nature of prospective working memory. *Journal of Experimental Psychology: Animal Behavior Processes*, *18*, 154-173.
- Zentall, T. R., Sherburne, L. M., Steirn, J. N., Randall, C. K., Roper, K. L., & Urcuioli, P. J. (1992). Common coding in pigeons: Partial versus total reversals of one-to-many conditional discriminations. *Animal Learning & Behavior*, *20*, 373-381.
- Zentall, T. R., Sherburne, L. M., & Steirn, J. N. (1992). Development of excitatory backward associations during the establishment of forward associations in a delayed conditional discrimination by pigeons. *Animal Learning & Behavior*, *20*, 199-206.
- Jackson-Smith, P. A., Zentall, T. R., & Steirn, J. N. (1993). Prospective and retrospective memory processes in pigeons' performances on a successive delayed matching-to-sample task. *Learning and Motivation*, *24*, 1-22.
- Sherburne, L. M., & Zentall, T. R. (1993). Coding of feature and no-feature events by pigeons in a delayed conditional discrimination. *Animal Learning & Behavior*, *21*, 92-100.
- Steirn, J. N., Zentall, T. R., & Sherburne, L. M. (1993). Representation strength in pigeon short-term memory: Effect of delay training. *Animal Learning & Behavior*, *21*, 113-119.
- Roper, K. L., & Zentall, T. R. (1993). Directed forgetting in animals. *Psychological Bulletin*, *113*, 513-532.
- Sherburne, L. M., & Zentall, T. R. (1993). Asymmetrical coding of food and no-food events by pigeons: Sample pecking versus food as the basis of the sample code. *Learning and Motivation*, *24*, 141-155.
- Zentall, T. R., Sherburne, L. M., & Urcuioli, P. J. (1993). Common coding in a many-to-one delayed matching task as evidenced by facilitation and interference effects. *Animal Learning & Behavior*, *21*, 233-237.
- Zentall, T. R., & Urcuioli, P. J. (1993). Emergent relations in the formation of stimulus classes by pigeons. *Psychological Record*, *43*, 795-810.
- Urcuioli, P. J., & Zentall, T. R. (1993). A test of comparison-stimulus substitutability following one-to-many matching by pigeons. *Psychological Record*, *43*, 725-744.
- Zentall, T. R. (1993). Animal cognition: An approach to the study of animal behavior. In T. R. Zentall (Ed.), *Animal cognition: A tribute to Donald A. Riley* (pp. 3-15). Hillsdale, NJ: Erlbaum.
- Zentall, T. R., Sherburne, L. M., & Steirn, J. N. (1993). Common coding and stimulus class formation in pigeons. In T. R. Zentall (Ed.), *Animal cognition: A tribute to Donald A. Riley* (pp. 217-236). Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (1993). Mechanisms of Learning [Review of *Perceptual and associative learning*, by G. Hall]. *Science*, *360*, 834.
- Zentall, T. R. (1993). The assessment of intentionality in animals. *Behavioral and Brain Sciences*, *16*, 663.

- Roper, K. L., & Zentall, T. R. (1994). Directed forgetting in pigeons: The role of retention interval keypecking on delayed matching accuracy. *Learning and Motivation, 25*, 26-44.
- Zentall, T. R., & Sherburne, L. M. (1994). Transfer of value from S+ to S- in a simultaneous discrimination. *Journal of Experimental Psychology: Animal Behavior Processes, 20*, 176-183.
- Urcuioli, P. J., DeMarse, T., & Zentall, T. R. (1994). Some properties of many-to-one matching with hue, response, and food samples: Retention and mediated transfer. *Learning and Motivation, 25*, 175-200.
- Zentall, T. R., & Sherburne, L. M. (1994). The role of differential sample responding in the differential outcomes effect involving delayed matching by pigeons. *Journal of Experimental Psychology: Animal Behavior Processes, 20*, 390-402.
- Zentall, T. R. (1994). Effects of experimenters on their animal subjects can be the source of valuable knowledge [Review of *The inevitable bond*, by H. Davis & D. Balfour]. *International Journal of Comparative Psychology, 7*, 87-89. [Also published in *Psychology* 4(48) human-animal-bond.4.zentall.]
- Steirn, J. N., Weaver, J. E., & Zentall, T. R. (1995). Transitive inference in pigeons: Simplified procedures and a test of value transfer theory. *Animal Learning & Behavior, 23*, 76-82.
- Zentall, T. R., Roper, K. L., & Sherburne, L. M. (1995). Most directed forgetting in pigeons can be attributed to the absence of reinforcement on forget trials during training or to other procedural artifacts. *Journal of the Experimental Analysis of Behavior, 63*, 127-137.
- Sherburne, L. M., & Zentall, T. R. (1995). Delayed matching in pigeons with food and no-food samples: Further examination of backward associations. *Animal Learning & Behavior, 23*, 177-181.
- Zentall, T. R., Sherburne, L. M., & Urcuioli, P. J. (1995). Coding of hedonic and nonhedonic samples by pigeons in many-to-one delayed matching. *Animal Learning & Behavior, 23*, 189-196.
- Urcuioli, P. J., Zentall, T. R., & DeMarse, T. (1995). Transfer to derived sample-comparison relations by pigeons following many-to-one versus one-to-many matching with identical training relations. *Quarterly Journal of Experimental Psychology, 48B*, 158-178.
- Roper, K. L., Kaiser, D. H., & Zentall, T. R. (1995). True directed forgetting in pigeons may occur only when alternative working memory is required on forget-cue trials. *Animal Learning & Behavior, 23*, 280-285.
- Sherburne, L. M., & Zentall, T. R. (1995). Pigeons transfer between conditional discriminations with differential outcomes in the absence of differential-sample-responding cues. *Animal Learning & Behavior, 23*, 273-279.
- Zentall, T. R. (1995). The cost of an interrupted response pattern. *Behavioral and Brain Sciences, 18*, 147-148.

- Zentall, T. R., Sherburne, L. M., Roper, K. L., & Kraemer, P. J. (1996). Value transfer in a simultaneous discrimination appears to result from within-event Pavlovian conditioning. *Journal of Experimental Psychology: Animal Behavior Processes*, *22*, 68-75.
- Zentall, T. R., Sutton, J. E., & Sherburne, L. M. (1996). True imitative learning in pigeons. *Psychological Science*, *7*, 343-346.
- Akins, C. K., & Zentall, T. R. (1996). Imitative learning in male Japanese quail (*Coturnix japonica*) involving the two-action method. *Journal of Comparative Psychology*, *110*, 316-320.
- Zentall, T. R., Weaver, J. E., & Sherburne, L. M. (1996). Value transfer in concurrent-schedule discriminations by pigeons. *Animal Learning & Behavior*, *24*, 401-409.
- Zentall, T. R. (1996). An analysis of imitative learning in animals. In C. M. Heyes & B. G. Galef, Jr. (Eds.), *Social learning and tradition in animals* (pp. 211-243). Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (1996). An analysis of stimulus class formation in animals. In T. R. Zentall & P. M. Smeets (Eds.), *Stimulus class formation in humans and animals* (pp.15-34). Amsterdam: North Holland.
- Weaver, J. E., Steirn, J. N., & Zentall, T. R. (1997). Transitive inference in pigeons: Control for differential value transfer. *Psychonomic Bulletin & Review*, *4*, 113-117.
- Zentall, T. R., Sherburne, L. M., & Zhang, Z. (1997). Shared attention in pigeons: Retrieval failure does not account for the element superiority effect. *Learning and Motivation*, *28*, 248-267.
- Zentall, T. R. (1997). Animal memory: The role of instructions. *Learning and Motivation*, *28*, 280-308.
- Kaiser, D. H., Sherburne, L. M., Steirn, J. N., & Zentall, T. R. (1997). Perceptual learning in pigeons: Decreased ability to discriminate samples mapped onto the same comparison in many-to-one matching. *Psychonomic Bulletin & Review*, *4*, 378-381.
- Randall, C. K., & Zentall, T. R. (1997). Win-stay/lose-shift and win-shift/lose-stay learning by pigeons in the absence of overt response mediation. *Behavioural Processes*, *41*, 227-236.
- Kaiser, D. H., Zentall, T. R., & Galef, B. G., Jr. (1997). Can imitation in pigeons be explained by local enhancement together with trial and error learning? *Psychological Science*, *8*, 459-465.
- Kaiser, D. H., Sherburne, L. M., & Zentall, T. R. (1997). Directed forgetting in pigeons resulting from reallocation of memory-maintaining processes on forget-cue trials. *Psychonomic Bulletin & Review*, *4*, 559-565.
- Zentall, T. R., Jagielo, J. A., Jackson-Smith, P. & Urcuioli, P. J. (1997). Memory codes in pigeon short-term memory: Varying the number of sample and comparison stimuli. *Learning and Motivation*, *18*, 21-33.
- Zentall, T. R., Roper, K. L., Kaiser, D. H., & Sherburne, L. M. (1997). A critical analysis of directed forgetting research in animals. In J. M. Golding & C. MacLeod (Eds.), *Interdisciplinary approaches to intentional forgetting* (pp. 265-287). Hillsdale, NJ: Erlbaum.

- Urcuioli, P. J., DeMarse, T., & Zentall, T. R. (1998). Transfer across delayed discriminations II. Differences in the substitutability of initial versus test stimuli. *Journal of Experimental Psychology: Animal Behavior Processes*, *24*, 47-59.
- Sherburne, L. M., Zentall, T. R., & Kaiser, D. H. (1998). Timing in pigeons: The choose-short effect may result from confusion between delay and intertrial intervals. *Psychonomic Bulletin & Review*, *5*, 516-522.
- Zentall, T. R., Clement, T. S., & Kaiser, D. H. (1998). Delayed matching in pigeons: can apparent memory loss be attributed to the delay of reinforcement of sample orienting behavior? *Behavioral Processes*, *43*, 1-10.
- Zentall, T. R. (1998). Symbolic representation in pigeons: Emergent stimulus relations in conditional discrimination learning. *Animal Learning & Behavior*, *26*, 363-377.
- Sherburne, L. M., & Zentall, T. R. (1998). The differential outcomes effect in pigeons is not reduced by eliminating response-outcome associations: Support for a two-process account. *Animal Learning & Behavior*, *26*, 378-387.
- Akins, C. K., & Zentall, T. R. (1998). Imitation in Japanese quail: The role of reinforcement of demonstrator responding. *Psychonomic Bulletin & Review*, *5*, 694-697.
- Clement, T. S., Weaver, J. E., Sherburne, L. M., & Zentall, T. R. (1998). Effect of the S- on the S+ in a simultaneous discrimination: Negative value transfer or contrast. *Quarterly Journal of Experimental Psychology*, *51B*, 363-378.
- Dorrance, B. R., Kaiser, D. H., & Zentall, T. R. (1998). Value transfer in a simultaneous discrimination by pigeons: The value of the S+ is not specific to the simultaneous discrimination context. *Animal Learning & Behavior*, *26*, 257-263.
- Zentall, T. R. (1998). Stimulus class formation in animals. In K. H. Pribram (Ed.), *Brain and values: Is a biological science of values possible* (pp. 77-107). Mahwah, NJ: Erlbaum.
- Zentall, T. R., Sherburne, L. M. (1998). The transfer of value in simultaneous discriminations: Implications for cognitive and social processes. In K. H. Pribram (Ed.), *Brain and values: Is a biological science of values possible* (pp. 323-336). Mahwah, NJ: Erlbaum.
- Zentall, T. R. (1998). What can we learn from the absence of evidence? *Behavioral and Brain Sciences*, *21*, 133-134.
- Zentall, T. R. (1998). Insufficient support for either response priming or program level imitation. *Behavioral and Brain Sciences*, *21*, 708-709.
- Lonon, A. M. & Zentall, T. R. (1999). Transfer of value from S+ to S- in simultaneous discriminations in humans. *American Journal of Psychology*, *112*, 21-39.
- Zentall, T. R. (1999). Animal cognition: The bridge between animal learning and human cognition. *Psychological Science*, *10*, 206-208.

- Dorrance, B. R., & Zentall, T. R. (1999). Within-event learning contributes to value transfer in simultaneous instrumental discrimination learning by pigeons. *Animal Learning & Behavior*, 27, 206-210.
- Roper, K. L., & Zentall, T. R. (1999). Observing behavior in pigeons: The effect of reinforcement probability and response cost using a symmetrical choice procedure. *Learning and Motivation*, 30, 201-220.
- Weaver, J. E., Dorrance, B. R., & Zentall, T. R. (1999). Present/absent sample matching in pigeons: Is comparison choice controlled by the sample stimulus or by differential sample responding? *Animal Learning & Behavior*, 27, 288-294.
- Zentall, T. R. (1999). Support for a theory of event duration must distinguish between test-trial ambiguity and actual memory loss. *Journal of the Experimental Analysis of Behavior*, 72, 467-472.
- Zentall, T. R., Dorrance, B. R., & Clement, T. S. (1999). Differential inhibition and stimulus generalization cannot account for value transfer in simultaneous discrimination learning by pigeons: Reply to Aitken. *Animal Learning & Behavior*, 27, 494-496.
- Zentall, T. R. (1999). Are we ready to consider the role of evolution in human behavior? *Contemporary Psychology*, 44, 93-94.
- Zentall, T. R. (2000). Symbolic representation by pigeons. *Current Directions in Psychological Science*, 9, 118-123.
- Clement, T. S., Feltus, J., Kaiser, D. H., & Zentall, T. R. (2000). 'Work ethic' in pigeons: Reward value is directly related to the effort or time required to obtain the reward. *Psychonomic Bulletin & Review*, 7, 100-106.
- Zentall, T. R., & Riley, D. A. (2000). Selective attention in animal discrimination learning. *The Journal of General Psychology (special issue)*, 127, 45-66.
- Clement, T. S., & Zentall, T. R. (2000). Development of a single-code/default coding strategy in pigeons. *Psychological Science*, 11, 261-264.
- Clement, T. S., & Zentall, T. R. (2000). Determinants of value transfer and contrast in simultaneous discriminations. *Animal Learning & Behavior*, 28, 195-200.
- Zentall, T. R., Kaiser, D. H., Clement, T. S., Weaver, J. E., & Campbell, G. (2000). Presence/absence-sample matching by pigeons: Divergent retention functions may result from the similarity of behavior during the absence sample and the retention interval. *Journal of Experimental Psychology: Animal Behavior Processes*, 26, 294-304.
- Dorrance, B. R., Kaiser, D. H., & Zentall, T. R. (2000). Event duration discrimination by pigeons: The choose-short effect may result from retention-test novelty. *Animal Learning & Behavior*, 28, 344-353.
- Zentall, T. R. (2000). Animal Intelligence. In R. J. Sternberg (Ed.). *Handbook of Intelligence*. Cambridge: Cambridge University Press.

- Zentall, T. R. (2000). An integrative approach to the interaction of nature and nurture. *Contemporary Psychology*, 45, 292-295.
- Zentall, T. R. (2001). Imitation and other forms of social learning in animals: evidence, function, and mechanisms. *Cybernetics and Systems*, 32, 53-96.
- Dorrance, B. R., & Zentall, T. R. (2001). Imitative learning in Japanese quail depends on the motivational state of the observer at the time of observation. *Journal of Comparative Psychology*, 115, 62-67.
- Zentall, T. R. (2001). The case for a cognitive approach to animal learning and behavior. *Behavioural Processes*, 54, 65-78.
- Zentall, T. R. (2001). The Alex studies: The cognitive abilities of an African grey parrot. *Ethology*, 107, 365-368.
- Neiman, E. R., & Zentall, T. R. (2001). Common coding of samples associated with the same comparison: The nature of the common representation. *Learning and Motivation*, 32, 367-382.
- Zentall, T. R., Clement, T. S., Bhatt, R. S., & Allen, J. (2001). Episodic-like memory in pigeons. *Psychonomic Bulletin & Review*, 8, 685-690.
- Zentall, T. R., & Clement, T. S. (2001). Simultaneous discrimination learning: Stimulus interactions. *Animal Learning & Behavior*, 29, 311-325.
- Zentall, T. R. (2001). What can animal models tell us about human behavior? *Contemporary Psychology*, 46, 172-173.
- Zentall, T. R., & Clement, T. S. (2001). Base-rate neglect in pigeons: Implications for memory mechanisms. In K. Stenning & J. Moore (Eds.), *Proceedings of the 23rd Annual Meeting of the Cognitive Science Society* pp. 1069-1072. Hillsdale, NJ: Erlbaum.
- Zentall, T. R. & Akins, C. K. (2001). Imitation in animals: Evidence, function, and mechanisms. In R. G. Cook (Ed.), *Avian visual cognition* [On-line]. Available: [www.pigeon.psy.tufts.edu/avc/zentall/](http://www.pigeon.psy.tufts.edu/avc/zentall/)
- Zentall, T. R., & Clement, T. S. (2002). Memory mechanisms in pigeons: Evidence of base-rate neglect. *Journal of Experiment Psychology: Animal Behavior Processes*, 28, 111-115.
- Clement, T. S., & Zentall, T. R. (2002). Second-order contrast based on the expectation of effort and reinforcement. *Journal of Experiment Psychology: Animal Behavior Processes*, 28, 64-74.
- Akins, C. K., Klein, E. D., & Zentall, T. R. (2002). Imitative learning in Japanese quail (*Coturnix japonica*) using the bidirectional control procedure. *Animal Learning & Behavior*, 30, 275-281.
- Dorrance, B. R., & Zentall, T. R. (2002). Imitation of conditional discriminations in pigeons. *Journal of Comparative Psychology*, 116, 277-285.
- Zentall, T. R. (2002). A cognitive behaviorist approach to the study of animal behavior. *The Journal of General Psychology*, 129, 328-363.

- Kaiser, D. H., Zentall, T. R., & Neiman, E. (2002). Timing in pigeons: Effects of the similarity between intertrial interval and gap in a timing signal. *Journal of Experimental Psychology: Animal Behavior Processes*, 28, 416-422.
- Zentall, T. R., Galizio, M., & Critchfield, T. S. (2002). Concept learning, categorization, and behavior analysis. *Journal of the Experimental Analysis of Behavior: Special Issue on Categorization and Concept Learning*, 78, 237-248.
- Zentall, T. R., & Morris, B. J. (2002). How did we get so smart? *Contemporary Psychology*, 47, 205-207.
- Zentall, T. R., Wasserman, E. A., Thompson, R. K. R., Ratterman, M. J., & Chemero, A. P. (2002). Nature's Turing test. In W. D. Gray & C. Schunn, (Eds.), *Proceedings of the 24th Annual Meeting of the Cognitive Science Society* p. 20. Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (2002). The self-referential independent brain. *Contemporary Psychology*, 47, 677-679.
- Critchfield, T. S., Galizio, M., & Zentall, T. R. (Eds.). (2002). *Journal of the Experimental Analysis of Behavior: Special Issue on Categorization and Concept Learning*, 78, 237-607.
- Zentall, T. R. (2002). A potentially testable mechanism to account for altruistic behavior. *Behavioral and Brain Sciences*, 25, 282.
- Zentall, T. R. (2002). A multichannel information processing system is simpler and more easily tested. *Behavioral and Brain Sciences*, 25, 646.
- Zentall, T. R. (2003). Imitation by animals: How do they do it? *Current Directions in Psychological Science*, 12, 91-95.
- Zentall, T. R., Clement, T. S., & Weaver, J. E. (2003). Symmetry training in pigeons can produce functional equivalences. *Psychonomic Bulletin & Review*, 10, 387-391.
- Klein, E. D., & Zentall, T. R. (2003). Imitation and affordance learning by pigeons (*Columba livia*). *Journal of Comparative Psychology*, 117, 414-419.
- Clement, T. S., & Zentall, T. R. (2003). Choice based on exclusion in pigeons. *Psychonomic Bulletin & Review*, 10, 959-964.
- Zentall, T. R., & Friedrich, A. M. (2003). Justification of effort by pigeons. In R. Alterman & D. Kirsch (Eds.), *Proceedings of the 25th Annual Meeting of the Cognitive Science Society* p. 835. Hillsdale, NJ: Erlbaum.
- Zentall, T. R. (2003). Review of Imitation in animals and artifacts. *The Quarterly Review of Biology*, 78, 512.
- Zentall, T. R. (2004) Evidence both for and against metacognition is insufficient. *Behavioral and Brain Sciences*, 26, 357-358.
- Zentall, T. R., Weaver, J. E., & Clement, T. S. (2004). Pigeons group time intervals according to their relative duration. *Psychonomic Bulletin & Review*, 11, 113-117.



- Zentall, T. R., Klein, E. D., & Singer, R. A. (2004). Evidence for detection of one duration sample and default responding to others by pigeons may result from an artifact of retention-test ambiguity. *Journal of Experimental Psychology: Animal Behavior Processes*, *30*, 129-134.
- Zentall, T. R. (2004). Action imitation in birds. *Learning & Behavior*, *32*, 15-23.
- Zentall, T. R. (2004). Pavlovian processes in simultaneous discriminations. *International Journal of Comparative Psychology*, *17*, 185-202.
- Zentall, T. R. (2004). Comparative psychology: The behavioral bridge between experience and genetic predisposition. *Contemporary Psychology*, *49*, 195-197.
- Zentall, T. R. (2004). Historic observations of chimpanzee and child. *Contemporary Psychology*, *49*, 304-306.
- Zentall, T. R. (2004). The mind of the animal. *Contemporary Psychology*, *49*, 411-413.
- Friedrich, A. M., Clement, T. S., & Zentall, T. R. (2004). Functional equivalence in pigeons involving a four-member class. *Behavioural Processes*, *67*, 395-403.
- Friedrich, A. M., & Zentall, T. R. (2004). Pigeons shift their preference toward locations of food that take more effort to obtain. *Behavioural Processes*, *67*, 405-415.
- DiGian, K. A., Friedrich, A. M., & Zentall, T. R. (2004). Discriminative stimuli that follow a delay have added value for pigeons. *Psychonomic Bulletin & Review*, *11*, 889-895.
- Zentall, T. R. (2005). Novelty is an unreasonable requirement for imitated behavior. In S. Hurley & N. Chater, (Eds.), *Perspectives on imitation: From Mirror Neurons to Memes* (pp. 189-191). Cambridge, MA: MIT Press.
- Zentall, T. R. (2005). Action-level versus program-level imitation In S. Hurley & N. Chater, (Eds.), *Perspectives on imitation: From Mirror Neurons to Memes* (pp. 285-287). Cambridge, MA: MIT Press.
- Zentall, T. R. (2005). Selective attention and shared attention in animals. *Behavioural Processes*, *69*, 1-16.
- Zentall, T. R. (2005). Animals may not be stuck in time. *Learning and Motivation* *36*, 208-225.
- Zentall, T. R. (2005). Configural/holistic processing or differential element versus compound similarity. *Animal Cognition*, *8*, 141-142.
- Klein, E. D., Bhatt, R. S., & Zentall, T. R. (2005). Contrast and the justification of effort. *Psychonomic Bulletin & Review*, *12*, 335-339.
- Nguyen, N. H., Klein, E. D., & Zentall, T. R. (2005). Imitation of two-action sequences by pigeons. *Psychonomic Bulletin & Review*, *12*, 514-518.
- Martin, T. I., & Zentall, T. R. (2005). Post-choice information processing by pigeons. *Animal Cognition*, *8*, 273-278.

- Zentall, T. R. (2005). A within-trial contrast effect and its implications for several social psychological phenomena. *International Journal of Comparative Psychology*, *18*, 273-297.
- Friedrich, A. M., Clement, T. S., & Zentall, T. R. (2005). Discriminative stimuli that follow the absence of reinforcement are preferred by pigeons over those that follow reinforcement. *Learning & Behavior*, *33*, 337-342.
- Zentall, T. R. & Kaiser, D. H. (2005). Interval timing with gaps: Gap ambiguity as an alternative to gap salience and temporal decay. *Journal of Experimental Psychology: Animal Behavioral Processes*, *41*, 484-486.
- Zentall, T. R. (2005). A focus on instructions in research with animals  
*The Experimental Psychology Bulletin*, *9*, 4-8.
- Zentall, T. R. (2005). A message from the President. *The Behavioral Neuroscientist and Comparative Psychologist*, *20*, 1-4.
- Zentall, T. R. (2006). Timing, memory for intervals, and memory for untimed stimuli: The role of instructional ambiguity. *Behavioural Processes*, *71*, 88-97.
- Zentall, T. R. (2006). Representation in animals: Cognitive maps, episodic memory, prospective memory, and metamemory. In K. Fujita & S. Itakura (Eds.), *Diversity of cognition: Development, domestication, and pathology* (pp.259-281). Kyoto, Japan: Kyoto University Press.
- Zentall, T. R. (2006). Mental time travel in animals: A challenging question. *Behavioural Processes*, *72*, 173-183.
- Zentall, T. R. (2006). Introduction to the special issue. *Behavioural Processes*, *72*, 113-114.
- Zentall, T. R. (Ed.). (2006). Special Issue in Honor of William Roberts. *Behavioural Processes*, *72*, 113-190.
- Wasserman, E. A., & Zentall, T. R. (Eds.) (2006). *Comparative Cognition: Experimental Explorations of Animal Intelligence*. New York: Oxford University Press.\*
- Zentall, T. R., Clement, T. S., Friedrich, A. M., & DiGian, K. A. (2006). Stimuli signaling rewards that follow a less preferred event are themselves preferred: Implications for cognitive dissonance. In E. A. Wasserman, & T. R. Zentall (Eds.), *Comparative Cognition: Experimental Explorations of Animal Intelligence* (pp. 651-667). New York: Oxford University Press.
- Wasserman, E. A., & Zentall, T. R. (2006). Comparative Cognition: A Natural Science Approach to the Study of Animal Intelligence. In E. A. Wasserman & T. R. Zentall (Eds.), *Comparative Cognition: Experimental Explorations of Animal Intelligence* (pp. 3-11). New York: Oxford University Press.
- Zentall, T. R. (2006, September 20). Support for animal intelligence requires evidence, not just argument. [Review of *The Evolution of Intelligence: Are Humans the Only Animals With Minds?*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*, *51* (No. 38). Retrieved September 24, 2006, from the *PsycCRITIQUES* database.

- Benjumea, S., & Zentall, T. R. (2006). Special issue on animal learning and cognition. *International Journal of Psychology and Psychological Therapy*, 6, 129-290.
- Zentall, T. R. (2006). Instructional ambiguity in the discrimination of and memory for the duration of a stimulus. *International Journal of Psychology and Psychological Therapy*, 6, 163-183.
- Benjumea, S., & Zentall, T. R. (2006). Darwin lives: Introduction to the series on animal learning and cognition. *International Journal of Psychology and Psychological Therapy*, 6, 129-132.
- Zentall, T. R. (2006). Imitation: definitions, evidence, and mechanisms. *Animal Cognition*, 9, 355-367.
- Martin, T. I., & Zentall, T. R. (2006). Simple discrimination reversals in the domestic horse (*Equus caballus*). *Applied Animal Behavior Science*, 101, 328-338.
- Zentall, T. R. (2006). Functional equivalence in pigeons. *Behavior Analyst Today*, 7, 262-274.
- Singer, R. A., Klein, E. D., & Zentall, T. R. (2006). The use of a single-code/default coding strategy by pigeons to acquire duration-sample discriminations. *Learning & Behavior*, 34, 340-347.
- Singer, R. A., & Zentall, T. R. (2006). Methodological issues in the study of cognitive mapping in animals. In M. J. Anderson (Ed.), *Tasks and Techniques: A Sampling of Methodologies for the Investigation of Animal Learning, Behavior, and Cognition* (pp. 209-222). Hauppauge, NY: Nova Science Publishers.
- Zentall, T. R. (2006). Methodological issues in the study of imitative learning in animals. In M. J. Anderson (Ed.), *Tasks and Techniques: A Sampling of Methodologies for the Investigation of Animal Learning, Behavior, and Cognition* pp. (223-232). Hauppauge, NY: Nova Science Publishers.
- Zentall, T. R., Friedrich, A. M., & Clement, T. S. (2006). Required pecking alters judgments of the passage of time by pigeons. *Psychonomic Bulletin & Review*, 13, 1038-1042.
- Zentall, T. R. (2007). Temporal discrimination learning by pigeons. *Behavioural Processes*, 74, 286-292.
- Zentall, T. R. (2007, February 21). Remembering a future event. [Review of *Timing the Future: The Case for a Time-Based Prospective Memory*.] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*, 52 (No. 8). Retrieved February 22, 2007, from the *PsycCRITIQUES* database.
- Klein, E. D., Gehrke, B. J., Green, T. A., Zentall, T. R., & Bardo, M. T. (2007). Repeated cocaine experience facilitates sucrose-reinforced operant responding in enriched and isolated rats. *Learning and Motivation*, 38, 44-55.
- Friedrich, A. M., Zentall, T. R., & Weisman, R. (2007). Absolute pitch: Frequency range discriminations in pigeons (*Columba livia*), comparisons with zebra finches (*Taeniopygia guttata*), and humans (*Homo sapiens*). *Journal of Comparative Psychology*, 125, 95-105.
- Singer, R. A., Berry, L. M., & Zentall, T. R. (2007). Preference for a stimulus that follows a relatively aversive event: contrast or delay reduction? *Journal of the Experimental Analysis of Behavior*, 87, 275-285.

- Zentall, T. R. (2007, April 11). What is everyone looking at? [Review of *Gaze-Following: Its Development and Significance*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*, 52 (No. 15). Retrieved April 12, 2007, from the *PsycCRITIQUES* database.
- Zentall, T. R., & Singer, R. A. (2007). Within-trial contrast: When is a failure to replicate not a Type I error? *Journal of the Experimental Analysis of Behavior*, 87, 401-404.
- DiGian, K. A., & Zentall, T. R. (2007). Pigeons may not use dual coding in the radial maze analog task. *Journal of Experimental Psychology: Animal Behavior Processes*, 33, 262-272.
- Singer, R. A., & Zentall, T. R. (2007). Pigeons learn to answer the question 'Where did you just peck?' and can report peck location when unexpectedly asked. *Learning & Behavior*, 35, 184-189.
- Zentall, T. R., & Singer, R. A. (2007). Within-trial contrast: Pigeons prefer conditioned reinforcers that follow a relatively more rather than less aversive event. *Journal of the Experimental Analysis of Behavior*, 88, 131-149.
- DiGian, K. A., & Zentall, T. R. (2007). Matching-to-sample in pigeons: In the absence of sample memory, sample frequency is a better predictor of comparison choice than the probability of reinforcement for comparison choice. *Learning & Behavior*, 35, 242-261.
- Zentall, T. R. (2007). Review of Learning and Behavior: A Contemporary Synthesis. *Psychological Record*, 57, 613-615.
- Zentall, T. R., Wasserman, E. A., Lazareva, O. F., Thompson, R., & Ratterman, M. J. (2007). Concept learning in animals. *Comparative Cognition & Behavior Reviews*, 3, 1-33.
- Singer, R. A., Abrams, B. D., & Zentall, T. R. (2007). Formation of a simple cognitive map by rats. *International Journal of Comparative Psychology*, 19, 417-425.
- Zentall, T. R. (2007). Reinforcers following greater effort are preferred: A within-trial contrast effect. *Behavior Analysis Today*, 8, 512-527.
- Zentall, T. R. (2008) Within-trial contrast: When you see it and when you don't. *Learning & Behavior*, 36, 19-22.
- Zentall, T. R., & Singer, R. A. (2008). Required pecking and refraining from pecking alters judgments of time by pigeons. *Learning & Behavior*, 36, 55-61.
- Zentall, T. R. (2008). Review of 'Critical thinking in psychology'. *Psychological Record*, 58, 156-158.
- Molet, M., & Zentall, T. R. (2008). Relative judgments affect assessments of stimulus duration. *Psychonomic Bulletin & Review*, 15, 431-436.
- Zentall, T. R. (2008). Is psychology a science? [Review of *The immeasurable mind: The real science of psychology*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*, 53 (No. 16). Retrieved April 15, 2008, from the the *PsycCRITIQUES* database.

- Alessandri, J., Darcheville, J.-C., & Zentall, T. R. (2008). Cognitive dissonance in children: Justification of effort or contrast? *Psychonomic Bulletin & Review*, *15*, 673-677.
- Zentall, T. R., Singer, R. A., & Miller, H. C. (2008). Matching-to-sample by pigeons: The dissociation of samples from reinforcement contingencies. *Behavioural Processes*, *78*, 185-190.
- Zentall, T. R., Singer, R. A., & Stagner, J. P. (2008). Episodic-like memory: Pigeons can report location pecked when unexpectedly asked. *Behavioural Processes*, *79*, 93-98.
- Zentall, T. R., Craddock, P., & Molet, M., (2008). L'apprentissage de concepts perceptuels, associationnels et relationnels chez le pigeon. *Psychologie Française*, *53*, 411-436.
- Alessandri, J., Darcheville, J.-C., Delevoeye-Turrell, Y., & Zentall, T. R. (2008). Preference for rewards that follow greater effort and greater delay. *Learning & Behavior*, *36*, 352-358.
- Zentall, T. R., (2008). Representing past and future events. In E. Dere, A. Easton, L. Nadel, & J. P. Huston (Eds.), *Handbook of Episodic Memory Research*, (pp.217-234). Oxford, UK: Elsevier.
- Gipson, C. D., DiGian, K. A., Miller, H. C., Zentall, T. R. (2008). Radial maze analog for pigeons: Evidence for flexible coding strategies may result from faulty assumptions. *Learning and Motivation*, *39*, 285-295.
- Zentall, T. R. (2008). Working memory in animals. In N. B. Johansen (Ed.), *New research on short-term memory*. Hauppauge, NY: Nova Science Publishers.
- Miller, H. C., Gipson, C. D., Vaughan, A., Rayburn-Reeves, R., & Zentall, T. R. (2009). Object permanence in dogs: Invisible displacement in a rotation task. *Psychonomic Bulletin & Review*, *16*, 150-155.
- Zentall, T. R. (2009). Of Human and Animal Signals. [Review of *Coding and Redundancy: Man-Made and Animal-Evolved Signals*.] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*, *54* (No.7.) Retrieved February 25, 2009, from the *PsycCRITIQUES* database.
- Molet, M., Craddock, P., Leconte, C., & Zentall, T. R. (2009). Pour une approche cognitive du conditionnement Pavlovien. *L'Année Psychologique*, *109*, 333-357.
- Zentall, T. R. (2009). Social networks: A powerful graphical and statistical analytic tool. [Review of *Exploring Animal Social Networks*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*. *54* (No.4.) Retrieved March 25, 2009, from the *PsycCRITIQUES* database.
- Miller, H. C., Friedrich, A. M., Narkavic, R. J., & Zentall, T. R. (2009). A differential outcomes effect using hedonically-nondifferential outcomes with delayed matching-to-sample by pigeons. *Learning & Behavior*, *37*, 161-166.
- Miller, H. C., Rayburn-Reeves, R., Zentall, T. R. (2009). Imitation and emulation by dogs using the bidirectional control procedure. *Behavioural Processes*, *80*, 109-114.
- Zentall, T. R. (2009). Animal culture or animal tradition? [Review of *The question of animal culture*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*. *54*(No.12) Retrieved August 25, 2009, from the *PsycCRITIQUES* database.

- Gipson, C. D., Alessandri, J. D., Miller, H. C., & Zentall, T. R. (2009). Preference for 50% reinforcement over 75% reinforcement by pigeons. *Learning & Behavior*, *37*, 289-298.
- Rayburn-Reeves, R., & Zentall, T. R. (2009). Animal memory: The contribution of generalization decrement to delayed conditional discrimination retention functions. *Learning & Behavior*, *37*, 299-304.
- Gipson, C. D., Miller, H. C., Alessandri, J. D., & Zentall, T. R. (2009) Within-trial contrast: The effect of probability of reinforcement in training. *Behavioural Processes*, *82*, 126-132.
- Miller, H. C., Rayburn-Reeves, R. & Zentall, T. R. (2009). What do dogs know about hidden objects? *Behavioural Processes*, *81*, 439-446.
- Zentall, T. R. (2010). The human brain: Evidence against the theory of intelligent design [Review of: The accidental mind: How brain evolution has given us love, memory, dreams, and god.] *The Psychological Record*, *60*, 173–162.
- Friedrich, A. M., & Zentall, T. R. (2010). A relational differential-outcomes effect: pigeons can classify outcomes as “good” and “better.” *Animal Cognition*, *13*, 359-365.
- Rayburn-Reeves, R. M., Miller, H. C., & Zentall, T. R. (2010) “Counting” by pigeons: Discrimination of the number of biologically relevant sequential events. *Learning & Behavior*, *38*, 169-176.
- Miller, H. C., Pattison, K. F., DeWall, C. N., Rayburn-Reeves, R., & Zentall, T. R. (2010). Self-control without a “self”? Common self-control processes in humans and dogs. *Psychological Science*, *21*, 534-538.
- Zentall, T. R. & Stagner, J. P. (2010) Pigeons prefer conditional stimuli over their absence: A comment on Roberts et al. (2009). *Journal of Experimental Psychology: Animal Behavior Processes*, *36*, 506-509.
- Stagner, J. P. & Zentall, T. R. (2010). Suboptimal choice behavior by pigeons. *Psychonomic Bulletin & Review*, *17*, 412-416.
- Zentall, T. R. (2010). Types of social learning: Implications for cognitive theories of imitation. In B. G. Galef, Jr. (Ed.), *Encyclopedia of Animal Behavior*. Oxford, (pp. 127-132) UK: Elsevier.
- Zentall, T. R. (2010). Human Sexual Attractants? [Review of *The great pheromone myth*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*. *55*(No.7) Retrieved September 15, 2010, from the *PsycCRITIQUES* database.
- Zentall, T. R. (2010). Coding of stimuli by animals: Retrospection, prospection, episodic memory, and future planning. *Learning and Motivation*, *41*, 225-240.
- Zentall, T. R. (2010). Justification of effort by humans and pigeons: Cognitive dissonance or contrast? *Current Directions in Psychological Science*, *19*, 219-300.
- Zentall, T. R., Brown, M. F., & Cook, R. G. (2010). Introduction. *Behavioural Processes: Special Issue in Honor of Donald A. Riley*, *85*, 207-208.
- Zentall, T. R. (Ed.). (2010). Special Issue in Honor of Donald A. Riley. *Behavioural Processes*, *85*, 207- 298.

- Pattison, K. F., Miller, H. C., Rayburn-Reeves, R. & Zentall, T. R. (2010). The case of the disappearing bone: Dogs' understanding of the physical properties of objects. *Behavioural Processes: Special Issue in Honor of Donald A. Riley*, 85, 278-282.
- Zentall, T. R. (2010). Sleep on it, you'll feel better in the morning. [Review of *The twenty-four hour mind: The role of sleep and dreaming in our emotional lives*] *PsycCRITIQUES-- Contemporary Psychology: APA Review of Books*. 55(No.51) Retrieved January 12, 2011, from the PsycCRITIQUES database.
- Zentall, T. R., & Stagner, J. P. (2011). Maladaptive choice behavior by pigeons: An animal analog of gambling (sub-optimal human decision making behavior). *Proceedings of the Royal Society B: Biological Sciences*, 278, 1203-1208.
- Zentall, T. R. (2011). Maladaptive gambling by pigeons. *Behavioural Processes*, 87, 50–56.
- Friedrich, A. M., & Zentall, T. R. (2011). A differential-outcomes effect in pigeons using hedonically nondifferential outcomes. *Learning & Behavior*, 39, 68-78.
- Rayburn-Reeves, R. M., Molet, M., Zentall, T. R. (2011). Simultaneous discrimination reversal learning in pigeons and humans: Anticipatory and perseverative errors. *Learning & Behavior*, 39, 125-137.
- Molet, M., Miller, H. C., & Zentall, T. R. (2011). Acquired equivalence between stimuli trained in the same context. *Psychonomic Bulletin & Review*, 18, 618-623.
- Molet, M., Alessandri, J., & Zentall, T. R. (2011). Subjective time: Cognitive and physical secondary tasks affect timing differently. *Quarterly Journal of Experimental Psychology*, 64, 1344–1353.
- Zentall, T. R., & Stagner, J. P. (2011). Suboptimal choice by pigeons: Failure to support the Allais paradox. *Learning and Motivation*, 42, 245-254.
- Zentall, T. R. (2011). Animal intelligence. In R. J. Sternberg & S. B. Kaufman (Eds.). *The Cambridge Handbook of Intelligence* (pp. 309-327). New York: Cambridge University Press.
- Zentall, T. R. (2011). Social learning mechanisms: Implications for a cognitive theory of imitation. *Interaction Studies*, 12, 233-261.
- Stagner, J. P., Laude, J. R., & Zentall, T. R. (2011). Suboptimal choice in pigeons does not depend on avoidance of the stimulus associated with the absence of reinforcement. *Learning and Motivation*, 42, 282-287.
- Singer, R. A. & Zentall, T. R. (2011). Preference for the outcome that follows a relative aversive event: Contrast or delay reduction? *Learning and Motivation*, 42, 255-271.
- Gipson, C. D., Yates, J. R., Beckmann, J. S., Marusich, J. A., Zentall, T. R., & Bardo, M.T. (2011). Social facilitation of d-amphetamine self-administration in rats. *Experimental and Clinical Psychopharmacology*, 19, 409–419.
- Zentall, T. R. (2012). What we can learn about ourselves from studying other animals. *Psychological*

*Record*, 62, 159–162.

- Molet, M., Miller, H. C., & Zentall, T. R. (2012). Acquired equivalence of cues by presentation in a common context in rats. *Animal Cognition*, 15, 143-147.
- Zentall, T. R. (2012). Simultaneous discrimination learning in animals. In N. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp 3080-3082). New York: Springer.
- Zentall, T. R. (2012). Selective and divided attention in birds. In O. F. Lazareva, T. Shimizu, & E. A. Wasserman (Eds.), *How Animals See the World: Comparative Behavior, Biology, and Evolution of Vision* (pp351-369). New York: Oxford University Press.
- Zentall, T. R. (2012). Working memory in animals. In Zentall, T. R. & Wasserman, E. A. (Eds.), *The Oxford Handbook of Comparative Cognition* (pp 215-238). New York: Oxford University Press.
- Wasserman, E. A. & Zentall, T. R. (2012). Introduction. in T. R. Zentall, & E. A. Wasserman (Eds.), *The Oxford Handbook of Comparative Cognition* (pp 1-8). New York: Oxford University Press.
- Zentall, T. R., Singer, R. A., Clement, T. S., Friedrich, A. M., & Alessandri, J. (2012). Contrast a more parsimonious account of cognitive dissonance effects. In Zentall, T. R. & Wasserman, E. A. (Eds.), *The Oxford Handbook of Comparative Cognition* (pp 199-212). New York: Oxford University Press.
- Pattison, K. F., Zentall, T. R., & Watanabe, S. (2012). Sunk cost: Pigeons (*Columba livia*) too show bias to complete a task rather than shift to another. *Journal of Comparative Psychology*, 126, 1-9.
- Zentall, T. R. (2012). Imitation: Definitions, evidence, and mechanisms. In N.M. Seel (Ed.), *The Encyclopedia of the Sciences of Learning* (Vol. 3, pp. 1496-1499). New York: Springer.
- Zentall, T. R. (2012). Simultaneous discrimination learning in animals. In N.M. Seel (Ed.), *The Encyclopedia of the Sciences of Learning* (Vol. 7, pp. 3080-3084). New York: Springer.
- Zentall, T. R. (2012). The heuristic value of cognitive terminology. *The Psychological Record*, 62, 321–336.
- Neilsen, M., Subiaul, F., Galef, B. G., Zentall, T. R., & Whiten, A. (Eds.). (2012). Social learning in humans and non-human animals: theoretical and empirical dissections: Special Issue. *Journal of Comparative Psychology*, 126, 109-205.
- Zentall, T. R. (2012). Perspectives on social learning. *Journal of Comparative Psychology*, 126, 114-128 doi: 10.1037/a0025381.
- Nielsen, M., Subiaul, F., Galef, B. G., Zentall, T. R., & Whiten, A. (Eds.). (2012). Introduction to social learning in humans and non-human animals: theoretical and empirical dissections: Special Issue. *Journal of Comparative Psychology*, 126, 109-113 DOI: 10.1037/a0027758.
- Miller, H. C., DeWall, C. N., Pattison, K. F., Molet, M., & Zentall, T. R. (2012). Too dog tired to avoid danger: Self-control depletion in canines increases behavioral approach toward an aggressive threat. *Psychonomic Bulletin & Review*, 19, 535-540. DOI: 10.3758/s13423-012-0231-0
- Zentall, T. R., & Stagner, J. P. (2012). Do pigeons prefer information in the absence of differential



- reinforcement? *Learning & Behavior*, 40, 465-475. doi: 10.3758/s13420-012-0067-5.
- Laude, J. R., Pattison, K. F., Zentall, T. R. (2012). Hungry pigeons make suboptimal choices, less hungry pigeons do not. *Psychonomic Bulletin & Review*, 19, 884–891. doi: 10.3758/s13423-012-0282-2.
- Molet, M., Miller, H. C., Laude, J. R., Kirk, C., Manning, B., & Zentall, T. R. (2012). Decision-making by humans as assessed by a choice task: Do humans, like pigeons, show suboptimal choice? *Learning & Behavior*, 40, 439-447. doi: 10.3758/s13420-012-0065-7.
- Stagner, J. P., Laude, J. R., & Zentall, T. R. (2012). Pigeons prefer discriminative stimuli independently of the overall probability of reinforcement and of the number of presentations of the conditioned reinforcer. *Journal of Experimental Psychology: Animal Behavior Processes*, 38, 446-452. doi: [10.1037/a0030321](https://doi.org/10.1037/a0030321)
- Crowley, P. H., & Zentall, T. R. (2013). Introduction. In P. H. Crowley & T. R. Zentall (Eds.), *Comparative Decision Making*. New York: Oxford University Press.
- Crowley, P. H., & Zentall, T. R. (2013). What the comparative approach to decision making has to offer. In P. H. Crowley & T. R. Zentall (Eds.), *Comparative Decision Making* (pp. 489-492). New York: Oxford University Press.
- Stagner, J. P., Michler, D. M., Rayburn-Reeves, R. M., Laude, J. R., & Zentall, T. R. (2013). Midsession reversal learning: Why do pigeons anticipate and persevere? *Learning & Behavior*, 41, 54-60. doi: 10.3758/s13420-012-0077-3
- Zentall, T. R. (2013). Animals prefer reinforcement that follows greater effort: Justification of effort or within-trial contrast? *Comparative Cognition & Behavior Reviews*. Retrieved from <http://psyc.queensu.ca/ccbr/> doi: 10.3819/ccbr.2013.80004
- Pattison, K. F., Laude, J. R., & Zentall, T. R. (2013). Social enrichment affects suboptimal, risky, gambling-like choice by pigeons. *Animal Cognition*, 16, 429-434. doi: 10.1007/s10071-012-0583-x
- Rayburn-Reeves, R. M., & Zentall, T. R. (2013). Pigeons' use of cues in a repeated five-trial-sequence, single-reversal task. *Learning & Behavior*, 41, 138-147. doi: 10.3758/s13420-012-0091-5.
- Rayburn-Reeves, R. M., Laude, J. R., & Zentall, T. R. (2013). Pigeons show near-optimal win-stay/lose-shift performance on a simultaneous-discrimination, midsession reversal task with short intertrial intervals. *Behavioural Processes*, 92, 65-70. doi: 10.1016/j.beproc.2012.10.011
- Zentall, T. R. (2013). Observational learning in animals. In K. Clark (Ed.), *Social Learning Theory: Phylogenetic Considerations across Animal, Plant, and Microbial Taxa* (pp.3-34). Hauppauge, NY: Nova Science Publishers.
- Crowley, P. H., & Zentall, T. R. (2013, May-June). Comparative decision making: An emerging interdisciplinary. *European Business Review*, 49-52.
- Zentall, T. R., & Laude, J. R. (2013). Do pigeons gamble? I wouldn't bet against it. *Current Directions*

in *Psychological Science*, 22, 271-277.

Zentall, T. R. (2013). Animals represent the past and the future. *Evolutionary Psychology*, 11, 573-590.

Zentall, T. R. (2013). Left brain right brain: How and why the brain is lateralized [Review of *Divided Brains: The Biology and Behavior of Brain Asymmetries*] *PsycCRITIQUES--Contemporary Psychology: APA Review of Books*, 55(No.33) Retrieved August 19, 2013, from the *PsycCRITIQUES* database.

Rayburn-Reeves, R. M., Stagner, J. P., Kirk, C. R. & Zentall, T. R. (2013). Reversal learning in rats (*Rattus norvegicus*) and pigeons (*Columba livia*): Qualitative differences in behavioral flexibility. *Journal of Comparative Psychology*, 127, 202-211. doi: 10.1037/a0026311.

Molet, M., Stagner, J. P., Miller, H. C., Kosinski, T., Zentall, T. R. (2013). Guilt by association and honor by association: The role of acquired equivalence. *Psychonomic Bulletin & Review*, 20, 385-390. DOI 10.3758/s13423-012-0346-3

Zentall, T. R. (2013). Comparative cognition: An approach whose time has come. *Journal of the Experimental Analysis of Behavior*, 100, 257-268.

Stagner, J. P., Rayburn-Reeves, R. M., & Zentall, T. R. (2013). The Monty Hall dilemma in pigeons: Effect of investment in initial choice. *Psychonomic Bulletin & Review*, 20, 997-1004. DOI 10.3758/s13423-013-0403-6

Pattison, K. F., Laude, J. R., & Zentall, T. R. (2013). The case of the magic bones: Dogs' memory of the physical properties of objects. *Learning and Motivation*. 44, 252-257.

Daniels, C. W., Laude, J. R., & Zentall, T. R. (2014). Six-term transitive inference with pigeons: Successive-pair training followed by mixed-pair training. *Journal of the Experimental Analysis of Behavior*, 101, 26-37.

Zentall, T. R., Wasserman, E. A., & Urcuioli, P. J. (2014). Associative concept learning in animals. *Journal of the Experimental Analysis of Behavior*, 101, 130-151.

Urcuioli, P. J., Wasserman, E. A., & Zentall, T. R. (2014). Associative concept learning in animals: Issues and opportunities. *Journal of the Experimental Analysis of Behavior*, 101, 165-170.

Laude, J. R., Beckmann, J. S., Daniels, C. W., & Zentall, T. R. (2014). Impulsivity affects gambling-like choice by pigeons. *Journal of Experimental Psychology: Animal Behavior Processes*, 40, 2-11.

Laude, J. R., Stagner, J. P., & Zentall, T. R. (2014). Suboptimal choice by pigeons may result from the diminishing effect of nonreinforcement. *Journal of Experimental Psychology: Animal Behavior Processes*, 40, 12-21.

Laude, J. R., Stagner, J. P., Rayburn-Reeves, R. M., & Zentall, T. R. (2014). Midsession reversals with pigeons: Visual versus spatial discriminations and the intertrial interval. *Learning & Behavior*, 42, 40-46.

Zentall, T. R. (2014). Suboptimal choice by pigeons: An analog of human gambling behavior. *Behavioral*

*Processes, 103, 156-164.*

Zentall, T. R. (2014). Suboptimal choice by pigeons: An analog of human gambling behavior revisited. *Behavioral Processes, 104, 99-107.*

Daniels, C. W., Laude, J. R., & Zentall, T. R. (2014). Transitive inference by pigeons: Does the geometric presentation of the stimuli make a difference? *Animal Cognition, 17, 973-981.*

Pattison, K. F., & Zentall, T. R. (2014). Suboptimal choice by dogs: When less is better than more. *Animal Cognition, 17, 1019-1022.*

MacLean, E. L., Hare, B., Laude, J. R., Wade, C. J., Zentall, T. R. & Zhao, Y. (2014). The evolution of self-control. *Proceedings of the National Academy of Sciences, 111, 2140-2148.*

Zentall, T. R. & Smith, A. (2014). Risk should be objectively defined: Comment on Pelé and Sueur *Animal Cognition, 17, 1433-1436.*

Zentall, T. R., Laude, J. R., Case, J. P. & Daniels, C. W. (2014). Less means more for pigeons but not always. *Psychonomic Bulletin & Review, 21, 1623-1628.*

Zentall, T. R. (2015). Intelligence in non-primates. In D. Princiotta, J. Naglieri, & S. Goldstein (Eds.), *Handbook of intelligence* (pp.11-25). New York: Springer.

Zentall, T. R. (2015). When animals misbehave: Analogs of human biases and suboptimal choice. *Behavioural Processes, 112, 3-13.*

Stagner, J. P. & Zentall, T. R. (2015). Further investigation of the Monty Hall Dilemma in pigeons and rats *Behavioural Processes, 112, 14-21.*

Case, J. P., Laude, J. R., & Zentall, T. R. (2015). Delayed matching to sample in pigeons: effects of delay of reinforcement and illuminated delays. *Learning and Motivation, 49, 51-59.*

Miller, H. C., Pattison, C. F., Laude, J. R., & Zentall, T. R. (2015). Self-regulatory depletion in dogs: Insulin release is not necessary for the replenishment of persistence. *Behavioural Processes, 110, 22-26.*

Zentall, T. R., Laude, J. R., Stagner, J. P., & Smith, A. P. (2015). Suboptimal choice by pigeons: Evidence that the value of the conditioned reinforcer rather than its frequency determines choice. *Psychological Record, 65, 223-229.*

Zentall, T. R. (2015). Cognitive and noncognitive aspects of social learning. In A. B. Kaufman & J. C. Kaufman (Eds.), *Animal creativity and innovation*, pp 335-372. San Diego, CA: Academic Press.

Stagner, J. P., Case, J. P., Sticklen, M. F., Duncan, A. K., & Zentall, T. R. (2015). Do pigeons prefer alternatives that include near-hit outcomes? *Journal of Experimental Psychology: Animal Behavior Processes, 41, 247-254.*

Zentall, T. R., Case, J. P., & Collins, T. L. (2015). The Monty Hall dilemma with pigeons: No, you choose for me. *Learning & Behavior, 43, 209-216.*

- Laude, J. R., Pattison, K. P., Rayburn-Reeves, R. M., Michler, D. M., & Zentall, T. R. (2016). Who are the real bird brains? Qualitative differences in behavioral flexibility between dogs (*Canis familiaris*) and pigeons (*Columba livia*). *Animal Cognition*, *19*, 163-169.
- Zentall, T. R. (2016). Resolving the paradox of suboptimal choice. *Journal of Experimental Psychology: Animal Learning and Cognition*, *42*, 1-14.
- Wasserman, E. A., Brown, M. F., Church, R. M., MacDonald, S. E., Urcuioli, P. J., Vasconcelos, M., & Zentall, T. R. (2016). *Journal of the Experimental Analysis of Behavior: Special Issue on Comparative Cognition*, *105*, 1-229.
- Pinto, C., Fortes, I., Wilson, A. G., & Zentall, T. R. (2016). The relative value of two options for pigeons depends on their context. *Journal of the Experimental Analysis of Behavior: Special Issue on Comparative Cognition*, *105*, 176–183.
- Zentall, T. R. (2016). Review of “Bird Minds: Cognition and Behaviour of Australian Native Birds” by Gisela Kapla, *Animal Behaviour*, *114*, 11-12.
- Zentall, T. R., & Smith, A. P. (2016). Delayed matching-to-sample: A tool to assess memory and other cognitive processes in pigeons. *Behavioural Processes*, *123*, 26-42.
- Zentall, T. R. (2016). Reciprocal altruism in rats: Why does it occur? *Learning & Behavior*, *44*, 7-8.
- Smith, A. P., Pattison, K. F., & Zentall, T. R. (2016). Rats’ midsession reversal performance: The nature of the response. *Learning & Behavior*, *44*, 49-58.
- Smith, A. P., & Zentall, T. R. (2016). Suboptimal choice in pigeons: Choice is based primarily on the value of the conditioned reinforcer rather than overall reinforcement rate. *Journal of Experimental Psychology: Animal Behavior Processes*, *42*, 212-220.
- Zentall, T. R. (2016). When humans and other animals behave irrationally. *Comparative Cognition & Behavior Reviews*, *11*, 25-48.
- Smith, A. P., Bailey, A. R., Chow, J. J., Beckmann, J. S., & Zentall, T. R. (2016). Suboptimal choice in pigeons: stimulus value predicts choice over frequencies. *PLoS One*, [doi.org/10.1371/journal.pone.0159336](https://doi.org/10.1371/journal.pone.0159336)
- Zentall, T. R., Case, J. P. & Luong, J. (2016). Pigeon’s paradoxical preference for the suboptimal alternative in a complex foraging task. *Journal of Comparative Psychology*, *130*, 138-144.
- Zentall, T. R. (2016). An animal model of human gambling. *International Journal of Psychological Research*, *9*, 96-112.
- Zentall, T. R. (2016). Cognitive dissonance or contrast? *Animal Sentience*, 2016.142.
- Zentall, T. R., & Pattison, K. F. (2016). Now you see it, now you don’t: object permanence in dogs. *Current Directions in Psychological Science*, *25*, 357-362.

- Engle, R. W. & Zentall, T. R. (Eds.). (2016). Special Issue on Dog cognition. *Current Directions in Psychological Science*, 25, 299-369.
- Zentall, T. R. & Engle, R. W. (2016). Introduction: Special issue on cognition in dogs. *Current Directions in Psychological Sciences*, 24, 299.
- Laude, J. R., Daniels, C. W., Wade, J. C., & Zentall, T. R. (2016). I can time with a little help from my friends: effect of social enrichment on timing processes in pigeons (*Columbia livia*). *Animal Cognition*, 19, 1205-1213.
- Smith, A. P., Beckmann, J. S., & Zentall, T. R. (2017). Mechanisms of midsession reversal accuracy: memory for preceding events and timing. *Journal of Experimental Psychology: Animal Learning and Cognition*, 43, 62-71.
- Zentall, T. R. (2017). Decision making: Rational and irrational choice. In J. Call (Ed.), G. Burghardt, I. Pepperberg, C. Snowdon, & T. Zentall (Assoc. Eds.), *APA Handbook of Comparative Psychology: Vol. 2* (pp. 309-328). Washington, DC: American Psychological Association.
- Call, J., Snowdon, C., Burkhart, G. M., Pepperberg, I. M., & Zentall, T. R. (2017). What is Comparative Psychology. In J. Call, C. Snowdon, G. M., Burkhart, I. M. Pepperberg, & T. R. Zentall (Eds.), *Handbook of Comparative Psychology: Vol. 1* (pp. 3-15). Washington, DC: Amer. Psych. Assoc.
- Fortes, I., Case, J. P., & Zentall, T. R. (2017). Pigeons, unlike humans, do not prefer near hits in a slot-machine-like task. *Behavioural Processes*, 138, 67-72.
- Chow, J. J., Smith, A. P., Wilson, A. G., Zentall, T. R., & Beckmann, J. S. (2017). Suboptimal choice in rats: incentive salience attribution promotes maladaptive decision-making. *Behavioural Brain Research*, 320, 244-254.
- Zentall, T. R., Case, J. P., & Berry, J. R. (2017). Rats' acquisition of the ephemeral reward task. *Animal Cognition*, 20, 419-425.
- Zentall, T. R. (2017). An animal model of human gambling based on pigeon suboptimal choice. *Research & Reviews: Neuroscience*, 1, 27-37.
- Zentall, T. R. (2017) Cognitive dissonance or contrast? It could be both. *Animal Sentience* 12(6)
- Zentall, T. R., Case, J. P., & Berry, J. R. (2017). Early commitment facilitates optimal choice by pigeons. *Psychonomic Bulletin & Review*, 24(3), 957-963.
- Smith, A. P., Beckmann, J. S., & Zentall, T. R. (2017). Gambling-like behavior in pigeons: 'jackpot' signals promote maladaptive risky choice. *Nature: Scientific Reports*, 7, 6625 doi:10.1038/s41598-017-06641-x
- Zentall, T. R., Andrews, D. M., & Case, J. P. (2017). Prior commitment: Its effect on suboptimal choice in a gambling-like task. *Behavioural Processes*, 145, 1-9.
- Zentall, T. R. (2017). The study of emotions in animals *Animal Sentience*, 2016.14(3).
- Zentall, T. R., Case, J. P., Berry, J. R., & Luong, J. (2018). The ephemeral reward task: Pigeons and rats fail

to learn unless discouraged from impulsive choice. *Animal Behavior & Cognition*, 5(1), 169-180.  
<https://doi.org/10.26451/abc.05.01.12.2018>

- Zentall, T. R., & Case, J. P. (2018). The ephemeral reward task: Optimal performance depends on reducing impulsive choice. *Current Directions in Psychological Science*, 27, 103-109.
- Smith, A. P., Hofford, R. S., Zentall, T. R., & Beckmann, J. S. (2018). The role of 'jackpot' stimuli in maladaptive decision-making: dissociable effects of D1/D2 receptor agonists and antagonists. *Psychopharmacology*, 235, 1427-1437.
- Zentall, T. R. (2018). Jealousy, competition, or a contextual cue for reward? *Animal Sentience*, 22(4).
- Zentall, T. R. (2018). The value of research in comparative cognition. *International Journal of Comparative Psychology*, 31.
- Zentall, T. R., Andrews, D. M., & Case, J. P. (2018). Sameness may be a natural concept that does not require learning. *Psychological Science*, 29, 1185-1189.
- Zentall, T. R. (2018). Morgan's canon: Is it still a useful rule of thumb? *Ethology*, 124, 449-457.
- Zentall, T. R., Case, J. P., & Andrews, D. M. (2018). Procrastination in the pigeon: Can conditioned reinforcement increase the likelihood of human procrastination? *Psychonomic Bulletin & Review*, 25(5), 1952-1957.  
<https://doi.org/10.3758/s13423-017-1409-2>.
- Smith, A. P., Zentall, T. R., & Kacelnik, A. (2018). Midsession reversal task with pigeons: Parallel processing of alternatives explains choices. *Journal of Experimental Psychology: Animal Learning and Cognition*, 44(3), 272-279.
- Case, J. P., & Zentall, T. R. (2018). Suboptimal choice in pigeons: Does the predictive value of the conditioned reinforcer alone determine choice? *Behavioural Processes*, 157, 320-326.
- Case, J. P., Zentall, T. R., Lopez, P., Alba, R., Orduna, V., Smith, A. P., Hofford, R. S., Zentall, T. R., & Beckmann, J. S. (2018). The role of 'jackpot' stimuli in maladaptive decision making: dissociable effects of D1/D2 receptor agonists and antagonists. *Psychopharmacology*, 235(5), 1427-1437. <https://doi.org/10.1016/j.bbr.2017.12.028>
- Zentall, T. R., Andrews, D. M., & Case, J. P. (2019). Contrast between what is expected and what occurs increases pigeon's suboptimal choice. *Animal Cognition*, 22, 81-87.
- Zentall, T. R., & Raley, O. L. (2019). Object permanence in the pigeon: Insertion of a delay prior to choice facilitates visible- and invisible-displacement accuracy. *Journal of Comparative Psychology*, 133, 132-139.
- Zentall, T. R., Smith, A. P., & Beckmann, J. (2019). Differences in rats' and pigeons' suboptimal choice may depend on where those stimuli are in their behavior system. *Behavioural Processes*, 159, 37-41.
- Zentall, T. R. (2019). Crystal replay of episodic memories in the rat. *Learning & Behavior*, 47, 5-6.  
<https://doi.org/10.3758/s13420-018-0340-3>

- Zentall, T. R. (2019). What suboptimal choice tells us about the control of behavior. *Comparative Cognition & Behavior Reviews*, *14*, 1-18.
- Zentall, T. R. (2019). The case for a heuristic approach to account for suboptimal choice. *Comparative Cognition & Behavior Reviews*, *14*, 43-50.
- Rosenbaum, D. A., Fournier, L. R., Levy-Tzedek, S., McBride, D. M., Rosenthal, R., Saurberger, K., VonderHaar, R. L., Wasserman, E. A., & Zentall, T. R. (2019). Sooner rather than later: Precrastination rather than procrastination. *Current Directions in Psychological Science*, *28*, 229-233  
[doi.org/10.1177/0963721419833652](https://doi.org/10.1177/0963721419833652)
- Zentall, T. R., Peng, D., & Miles, L. (2019). Transitive inference in pigeons may result from differential tendencies to reject the test stimuli acquired during training. *Animal Cognition*, *22*, 619-624.
- Andrews, D. M. & Zentall, T. R. (2019). To peck or not peck: Which do pigeons prefer? *Learning & Behavior*, *47*(3), 217-226.
- Zentall, T. R., Smith, A. P., & Beckmann, J. S. (2019) Gambling behavior: An animal model. *Translational Issues in Psychological Science*, *5*(3), 276-288.
- Zentall, T. R. (2019). A Curious Scientist: My career as an experimental psychologist. In *Aproximaciones al Estudio del Comportamiento y sus Aplicaciones: Vol. 2*, pp 23-69. Guadalajara, Mexico: Universidad de Guadalajara.
- Zentall, T. R., Peng, D. N., House, D. C., & Yadav, R. (2019). Midsession reversal learning by pigeons: Effect on accuracy of increasing the number of stimuli associated with one of the alternatives. *Learning & Behavior*, *47*, 326-333.
- Zentall, T. R., Andrews, D. M., Case, J. P., Peng, D. N. (2019). Less information results in better midsession reversal accuracy by pigeons. *Journal of Experimental Psychology: Animal Learning and Cognition*, *45*, 422-430.
- Zentall, T. R., Peng, D., House, D. & Halloran, M. (2020). Animal procrastination: Pigeons choose to defer experiencing an aversive gap or a peck requirement. *Learning & Behavior*, *48*, 246-253.
- Zentall, T. R. (2020). Enhancing self-control: The paradoxical effect of delay of reinforcement. *Learning delayed following choice. Animal Cognition*, *23*, 503-508.  
& *Behavior*, *48*, 165-172.
- Zentall, T. R. (2020) Animal intelligence. In R. J. Sternberg (Ed.). *Cambridge Handbook of Intelligence*, 2nd ed (pp. 397-427). New York: Cambridge University Press.
- House, D., Peng, D., & Zentall, T. R. (2020). Pigeons can learn a difficult discrimination if reinforcement is delayed following choice. *Animal Cognition*, *23*(3), 503–508. <https://doi.org/10.1007/s10071-020-01352-9>
- Zentall, T. R., Halloran, M. & Peng, D. (2020). Midsession reversal learning: Pigeons learn what stimulus to avoid. *Journal of Experimental Psychology: Animal Learning and Cognition*, *46*, 101-106.

- Zentall, T. R. (2020). The midsession reversal task: A theoretical analysis. *Learning & Behavior*, 48, 195-207.
- Zentall, T. R. (2020) Cognition, movement, and morality. *Animal Sentience* 29(11).
- Zentall, T. R. (2020). Within trial contrast or Wagner's SOP model: Can they both account for two presumed complex cognitive phenomena? *Journal of Experimental Psychology: Animal Learning and Cognition*, 46, 235-242.
- Zentall, T. R. (2020). Does conditioned reinforcement play a role in procrastination: A pigeon model. *Behavioural Processes*, 178, 104-139.
- Halloran, M. A., & Zentall, T. R. (2020). The midsession reversal task with pigeons: Does a brief delay between choice and reinforcement facilitate reversal learning? *Behavioural Processes*, 177, 104-150.
- Zentall, T. R. (2020). Suboptimal behavior in gambling-like tasks. In J. Vonk & T. K. Shackelford (Eds.), *Encyclopedia of Animal Cognition and Behavior*, New York: Springer.
- Zentall, T. R. (2020). Base rate neglect. In J. Vonk & T. K. Shackelford (Eds.), *Encyclopedia of Animal Cognition and Behavior*, New York: Springer, Cham. [https://doi.org/10.1007/978-3-319-47829-6\\_234-1](https://doi.org/10.1007/978-3-319-47829-6_234-1).
- Zentall, T. R. (2020). Animal intelligence. In J. Vonk & T. K. Shackelford (Eds.), *Encyclopedia of Animal Cognition and Behavior*, New York: Springer. doi.org/10.1007/978-3-319-47829-6\_778-1
- Zentall, T. R. (2021). Sameness may be a natural concept that does not require learning. *Current Opinion in Behavioral Sciences*, 37, 7-12.
- Zentall, T. R. (2021). MacPhail (1987) revisited: Pigeons have much cognitive behavior in common with humans. *Frontiers in Psychology: Section on Comparative Psychology*. doi:10.3389/fpsyg.2020.618636.
- Colombo, M., Scarf, D., & Zentall, T. R. (2021). Editorial: The comparative psychology of intelligence: Macphail revisited. *Frontiers in Psychology: Section on Comparative Psychology*. doi.10.3389/fpsyg.2021.648782
- Colombo, M., Scarf, D., & Zentall, T. R. (2021). Macphail (1987) Revisited: Pigeons have much cognitive behavior in common with humans, In The comparative psychology of intelligence: Macphail revisited. *Frontiers in Psychology: Section on Comparative Psychology*. doi.10.3389/fpsyg.2021.648782
- Zentall, T. R. (2021). The paradoxical performance by different species on the ephemeral reward task. *Special Issue of Learning & Behavior*, 49(1), 99-105.
- Clayton, W. D., & Zentall, T. R. (2021). Pigeons are attracted to a perceived gain without an actual gain. *Animal Cognition*, 24, 605-611.
- Mueller, P. M. & Zentall, T. R. (2021). Pigeons' midsession reversal: Greater magnitude of reinforcement on the first half of the session leads to improved accuracy. *Learning & Behavior*, 49, 190-195.
- Sturgill, J., Bergeron, C., Ransdell, T., Colvin, T., Joshi, G., & Zentall, T. R. (2021). "What you see may not



be what you get”: Reverse contingency and perceived loss aversion in pigeons. *Psychonomic Bulletin & Review*, 28, 1015-1020.

Chandel, H., Boring, M., Zentall, T. R., & Wasserman, W. A. (2021). Should I stay or should I go? Implications of a pigeon (*Columba livia*) foraging task for optimal foraging theory and serial pattern learning. *Journal of Comparative Psychology*, 135, 266-272.

Zentall, T. R. (2021). Effect of environmental enrichment on the brain and on learning and cognition by animals. *Animals*, 11, 973.

Zentall, T. R. (2021). Gambling fallacies. In J. Vonk & T. K. Shackelford (Eds.), *Encyclopedia of Animal Cognition and Behavior*, New York: Springer, Cham. [https://doi.org/10.1007/978-3-319-47829-6\\_2114-1](https://doi.org/10.1007/978-3-319-47829-6_2114-1).

Nosarzewska, A. Peng, D., & Zentall, T. R. (2021). Pigeons acquire the 1-back task: Implications for implicit versus explicit learning. *Learning & Behavior*, 49, 363-372.

Clayton, W. D., Peng, D. N., & Zentall, T. R. (2021). Visual alternation by pigeons: Learning to select or learning to avoid. *Learning & Behavior*, 49, 373-378.

Rohrer, J. M., DeBruine, L. M., Heyman, T., Jones, B., Schmukle, S. C., Silberzahn, R., Uhlmann, E. L., Willén, R. M., Carlsson, R., Lucas, R. E., Vazire, S., Zentall, T. R., Chabris, C. F., & Yarkoni, T. (2021). Putting the self in self-correction: The loss of confidence project. *Perspectives in Psychological Science*, 16(6), 1255–1269.

Zentall, T. R. (2021). An animal model of addictive gambling. *Annals of Psychiatry and Mental Health Special Issue on Gambling Disorders*, 9(3): 1170.

Peng, D. N., Mueller, P. M., & Zentall, T. R. (2021). Flexible conditional discrimination learning: Pigeons can learn to select the correct comparison stimulus, reject the incorrect comparison stimulus, or both. *Journal of Experimental Psychology: Animal Learning and Cognition*, 47, 445-454.

Zentall, T. R. (2021). Basic behavioral processes involved in procrastination. New perspectives in procrastination, Volume II, *Frontiers in Psychology*. Nov 23;12:769928.

Zentall, T. R. (2021). What can animal research tell us about complex human behavior? *The General Psychologist*, 56, 27-30.

Zentall, T. R., Peng, D. N. & Mueller, P. M. (2022). Pigeon’s choice depends primarily on the value of the signal for the outcome rather than its frequency or contrast. *Journal of Experimental Psychology: Animal Learning and Cognition*, 48, 135-144.

Zentall, T. R. (2022). Pavlovian processes may produce contrast leading to bias and suboptimal choice. *Learning & Behavior (Special Issue)*, 50, 349-359.

Zentall, T. R. (2022). Biases and suboptimal choice by animals suggest that framing effects may be ubiquitous. *Behavioral and Brain Sciences*, 45, E246. Doi: 10:1017/S0140525X22000966.

Clayton, W. D., Brantley, S. M. & Zentall, T. R. (2022). Decision making under risk: Framing effects in

- pigeon risk preferences. *Animal Cognition*, 25, 1281-1288. doi.org/10.1007/s10071-022-01610-y
- Zentall, T. R. (2022). Is there a need to distinguish instrumental copying behavior from traditions? *Behavioral and Brain Sciences*, 45, 2022, e274 DOI: <https://doi.org/10.1017/S0140525X22001170>
- Zentall, T. R., Peng, D. N., & Mueller, P. M. (2022). 1-Back reinforcement matching and mismatching by pigeons: Implicit or explicit learning? *Behavioural Processes*, 195, 104562.
- Zentall, T. R., Peng, D. N., & Mueller, P. M. (2022). Pigeons learn two matching tasks, two non-matching tasks, or one of each. *Learning & Behavior*, 50, doi.org/10.3758/s13420-022-00530-8.
- Zentall, T. R. (2022). Mechanisms of copying, social learning, and imitation in animals. *Special Issue: Learning and Motivation*, 80, doi.org/10.1016/j.lmot.2022.101844.
- Zentall, T. R. (2023). An animal model of addictive gambling. In *Current Approaches in Addiction Psychology*. Cambridge UK: Cambridge University Press.
- Zentall, T. R., Brantley, S. M., Mueller, P. M., & Peng, D. N. (2023). Matching is acquired faster than mismatching by pigeons when salient stimuli are presented manually. *Behavioral Processes*, 205, 104998.
- Mueller, P. M., Peng, D. N., & Zentall, T. R. (2023). “Distractor” effects in delay discounting of probability by pigeons. *Animal Cognition*. doi.org/10.1007/s10071-023-01759-0
- Zentall, T. R. (2023). An animal model of human gambling behavior. *Current Research in Behavioral Science*, 4, 100101.
- Zentall, T. R. (2023). Comparative cognition research demonstrates the similarity between humans and other animals. *Animals*, 13, 1165. <https://doi.org/10.3390/ani13071165>
- Peng, D. N. & Zentall, T. R. (2023). Implicit learning of the one-back reinforcement matching/mismatching task by pigeons. *Current Biology*. <https://doi.org/10.1016/j.cub.2023.05.045>
- Zentall, T. R. & Miller, R. R. (2023). Memories of past Conferences on Comparative Cognition. *Comparative Cognition and Behavior Reviews*, 8, 3-9.
- Mueller, P. M., Peng, D. N., & Zentall, T. R. (2023). What enables “distraction” to reduce delay discounting for pigeons (*Columba livia*). *Journal of Comparative Psychology*, 137(3), 148-154. <https://doi.org/10.1037/com0000337>
- Zentall, T. R., Mueller, P. M., & Peng, D. N. (2023). 1-back reinforcement symbolic-matching by humans: how do they learn it? *Learning & Behavior*, 51, 274–280. <https://doi.org/10.1037/com0000337>
- Zentall, T. R. (2024). Comparative cognition: The narrowing gulf between humans and other animals. *Biology and Life Science*. DOI: 10.33552/SJBL.2024.03.000563
- Peng, D. N., & Zentall, T. R. (in press). Interference of same/different learning by a spatial discrimination.

*Behavioural Processes.*

- Zentall, T. R., Mueller, P. M., & Peng, D. N. (in press). Flexible learning of matching and mismatching by pigeons. *Behavioral Processes.*
- Zentall, T. R. (in press). The role of language and agriculture in the development of culture and peace promoting norms. *Behavioral and Brain Sciences.*
- Mueller, P. M., Peng, D. N., & Zentall, T. R. (in press). Increasing trial discriminability in the ephemeral reward task does not improve optimal choice in pigeons (*Columba livia*). *Learning & Behavior.*
- Zentall, T. R., & Peng, D. N. (in press). Conditional discrimination learning by pigeons: Stimulus-response chains or occasion setters? *Journal of Experimental Psychology: Animal Learning and Cognition.*
- Mueller, P. M., Peng, D. N., Burroughs, W. C., & Zentall, T. R. (in press). What makes the ephemeral reward task so difficult? *Journal of Comparative Psychology.*
- Zentall, T. R. & Peng, D. N. (in press). Memory for where and when: Pigeons use single-code/default strategy. *Learning & Behavior.*
- Mueller, P. M., & Zentall, T. R. (in press). Conspecific presence reduces pigeons' suboptimal choice. *Learning and Motivation.*
- Clarke, A. D. F., Sauerberger, K., Nowakowska, A., Rosenbaum, D. A., Zentall, T. R., Hunt, A. R. (in press). Does pre-crastination explain why some observers are sub-optimal in a visual search task? *Royal Society Open Science.*
- Zentall, T. R. (in press). Comparative cognition research: Where do we go from here? *Comparative Cognition and Behavior Reviews.*
- Ifraimov, M., Peng, D.N., & Zentall, T. R. (in press). Serial pattern learning: Pigeons (*Columba livia*) prefer an improving schedule over an initially easier fixed ratio schedule. *Animal Cognition.*
- Zentall, T. R. & Peng, D. N. (in press). Serial pattern learning: The anticipation of worsening conditions by pigeons. *Learning & Behavior.*