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## **The Teaching of Comparative Psychology: Exercises, Experiences, and Philosophy: An Introduction to the Special Issue**

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This special issue of the *International Journal of Comparative Psychology* is devoted to the teaching of comparative psychology. The 12 papers in this issue represent a wide range of activities and collectively provide the teacher of comparative psychology with over 50 inquiry-based activities. These activities include a variety of animal demonstrations using both vertebrates and invertebrates and those related to teaching the history of comparative psychology. To help increase interest in comparative psychology within a psychology department, there is a paper describing how aspects of clinical psychology can be incorporated into a course on comparative psychology. Teachers of comparative psychology will also find a paper on how the oriental art of origami can help students understand aspects of evolution. For teachers of comparative psychology who wish to incorporate behavioral technology into their classrooms, there are papers that describe how to construct low-cost animal robots and how to incorporate 3D printers. The issue closes with a paper on how to teach behavioral observation techniques.

*Keywords:* comparative psychology, demonstrations, education, teaching

I am honored to edit this special issue. Since 1986 (Abramson, 1986), I have been developing teaching exercises for comparative psychology (Abramson, 1986) and have always wanted to edit a special issue on teaching exercises. The underlying philosophy behind this special issue is simple: If the field of comparative psychology is to return to prominence, then we must have undergraduate students (Abramson, 2015a, b). One way to attract students is to provide them with a series of interesting inquiry-based exercises that illustrate the importance of our field. Such exercises can be part of a comparative psychology course and/or be incorporated into other courses to increase student interest. It is my belief that when a student encounters a course on comparative psychology (or even given a little “taste” of comparative in other courses), the majority find it exciting, intellectually rich, and, frankly, exhilarating – it is what psychology should be.

This special issue can be considered as a companion to the earlier special issue on *The State of Comparative Psychology Today* (Abramson & Hill, 2018). That issue contains many interesting articles that are well worth reading. These articles include those that advocate the importance of comparative psychology in teaching and research, document the decline of comparative psychology, and stress the importance of the comparative method. Other articles in the issue focus on the need for automated experiments, history, and comparative psychology’s importance to clinical treatment.

This special issue of the *International Journal of Comparative Psychology* provides the instructor of comparative psychology, as well as those wishing to incorporate aspects of comparative psychology into their classes, with a wide range of teaching demonstrations. To the best of our knowledge, the last time the teaching of comparative psychology was discussed within an issue of a journal was in 1987 – a span of 33 years. The articles appeared in a section of *Teaching of Psychology* and highlighted the results of a symposium on the teaching of comparative psychology. Surprisingly, only four papers were presented with none of them highlighting classroom activities. Rather, the articles focused on the philosophical issues related to the teaching of comparative psychology – certainly an important topic. One of the articles suggested that comparative

psychology replace introductory psychology as the first course majors receive (Demarest, 1987). While I readily agree, given the current state of comparative psychology, I doubt that any department head (let alone the majority of faculty) would sanction such a decision. However, collaborating with an introductory psychology instructor to incorporate some of the activities and philosophies advocated in this special issue would be expected to increase student interest in comparative psychology.

The 12 papers in this issue represent a wide range of activities and collectively provide the teacher of comparative psychology with over 50 inquiry-based activities. These activities include animal and human demonstrations in the areas of the comparative analysis of learning, comparative cognition, and teaching the history of comparative psychology. There are also papers describing the use of origami to understand aspects of evolution, and how animal-based robots and 3D printing can be incorporated into a comparative psychology course. The issue closes with a paper on how to teach behavioral observation techniques.

Our first article in this special issue discusses the impression of undergraduate students taking their first course in comparative psychology. This paper by Dr. Heather M. Hill (“Musings about the importance of comparative psychology: Reflections from undergraduate students”) provides some interesting insights into the views of undergraduates. Many of her impressions mirror mine and, probably, many of our readers’ impressions. Sadly, students have often told me that they had never heard of comparative psychology until my course and wish they heard about it earlier. The paper is also noteworthy, as it provides some of Dr. Hill’s thoughts on “finding herself” as a comparative psychologist. I have no doubt that many of our younger readers will concur with Dr. Hill’s past struggles.

The second article in our series discusses how aspects of clinical psychology can be incorporated into a comparative psychology course. Drs. Daniel C. Marston’s and Margaret GoPaul’s article (“Considerations for an integrated undergraduate comparative and clinical psychology course”) provides a guide on how clinical material can be integrated into a comparative course. Like many of us, they believe that comparative psychology is on the decline. Their solution to reverse this trend is to develop a comparative course in which we include discussions of other areas in psychology. They make a strong case that such an approach is necessary because the vast majority of psychology undergraduates never go onto graduate school, yet the comparative principles students learn as an undergraduate will serve them well in any career they select.

Our third paper is an update of an earlier paper. This article by Charles I. Abramson (“The use of invertebrates and other animals to demonstrate principles of learning: Activities developed by the Laboratory of Comparative Psychology and Behavioral Biology – Additional exercises”) originally appeared in a journal that is now out of print. We took the opportunity to republish it with additional activities. The article now contains citations/discussions for over 40 activities on a wide variety of topics, including learning of both invertebrates and vertebrates, history, development of websites, and project petscope. Project petscope turns pet stores into animal behavior research centers. The article also contains a link to a free behavioral observation program.

The fourth paper was contributed by Dr. Julia E. Meyers-Manor (“Animal farm: Using common domestic animals to teach comparative psychology”). This article describes an easy to use exercise in animal cognition. The animal can be a household pet. The goal of the activity is to study animal-human communication using a finger-pointing gesture.

Our fifth paper was provided by Dr. David A. Washburn and colleagues (“History in ten minutes: Two activities for promoting learning about the history of comparative psychology”). The article provides two excellent inquiry-based activities, in which students create a library of student-generated tutorials on historical figures. These tutorials can be saved for future use in other classes. The data supplied by Dr. Washburn and his colleagues suggest that students find this an interesting activity.

The sixth article in our series was contributed by Charles I. Abramson and colleagues (“Cost-effective laboratory exercises to teach principles in the comparative analysis of behavior”). This article was previously

published in a journal that is no longer active. It describes the use of “action figures,” such as dolls and animal shapes, to demonstrate several principles related to comparative psychology. These principles include classification, identification of independent and dependent variables, systematic variation, homologies, analogies, environmental variables, and subject variables.

The seventh paper is an interesting article using origami to understand pattern and process in evolution. This article was contributed by Dr. Alan M. Daniel (“Pattern and process in evolution; Unfolding nature’s origami”) and is unique, in that it represents one of the few teaching demonstrations on this important topic. The article includes several activities and suggestions along with discussion questions. A brief history of origami is presented and well worth reading.

Our eighth paper was also contributed by Dr. David A. Washburn (“Animal minds in the media: Learning outcomes for a critical-analysis assignment for students of comparative psychology”). This is an excellent exercise, in which students critically analyze the portrayal of animal cognition and behavior in the media. The exercise was designed to encourage students to think like a comparative psychologist and to instill in our students a healthy skepticism. This exercise can easily be incorporated into any comparative psychology class.

The ninth paper contributed by Riley J. Wincheski and colleagues (“Tardigrades as a teaching model of learning”) presents a method of training tardigrades to habituate to touch. Tardigrades (also known as water bears) are micro-organisms that have the interesting ability to survive under extreme environmental conditions, such as low temperatures. They also have an ability to survive long periods without water. This article provides detailed instructions on how to habituate tardigrades and includes discussion questions, suggested experiments, and a sample data sheet.

The tenth and eleventh papers are concerned with technology. The former, by Brahmandam and colleagues (“The use of robotic animals to increase interest in comparative psychology”), describes an activity, in which students design their own robotic animals. Robotic animals are becoming popular in animal behavior research, but few comparative psychologists use them. This article describes the development of a robotic squirrel. Discussion questions are provided, along with several experiments students can perform. While the article advocates building a robot from scratch, this is not necessary as a commercially purchased robot can be modified.

The eleventh paper by Hitesh D. Vora and Charles I. Abramson (“The use of 3D printing in comparative research and teaching”) is a call for students (and their professors) to use 3D printers in the design of apparatuses. Although 3D printing is now common, it does not seem to have made its way into comparative psychology. This article provides data on the use of 3D printers in psychology and provides guidance on how students can develop a variety of 3D printer projects.

The final paper in this issue describes the results of a workshop and was contributed by Rachel T. Walker and Heather M. Hill (“Workshop effectiveness on content knowledge of behavioral observation techniques for an applied animal behavior context”). The goal of the workshop was to teach participants behavioral observation techniques. Ethograms and behavioral observation are the bedrocks of both our field and the material in this paper and can easily be adapted for classroom use.

In closing, the exercises that comprise this special issue can be incorporated into a formal laboratory component of a comparative course, as an independent or research project, and as a directed study. They can also be used in related courses such as clinical psychology, developmental psychology, experimental psychology, and the psychology of learning. As the *International Journal of Comparative Psychology* does not assess article access fees, the material is free of charge to all.

I encourage our readers to share this issue and the special issue *The State of Comparative Psychology Today* (Abramson & Hill, 2018) with colleagues not only in the United States but around the world. Together,

these two special issues provide excellent material to anyone interested in comparative psychology or in incorporating aspects of comparative psychology into other courses. If these two special issues are combined with the four papers presented from the 1987 symposium that appeared in *Teaching of Psychology* (1987, volume 14, number 3), an instructor will have a firm foundation for teaching and/or advocating for the importance of teaching comparative psychology.

Other material that can be used for a comparative psychology course can be found in *Psychological Reports*. When it was headed by the Ammons family (now taken over by Sage), many articles of interest to the teaching of comparative psychology were published. A listing of these articles that appeared from 1955-2010 is available (Abramson et al., 2011).

If I can provide some assistance, please contact me.

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