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Charles I. Abramson
Editor

XXII Biennial Meeting of the International Society for Comparative Psychology (ISCP)

Bogotá, Colombia

December 3-5, 2025

Gabriela E. Lopez-Tolsa[1] & Leonardo A. Ortega[2]

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[2]Fundación Universitaria Konrad Lorenz, Colombia.

ISCP biennial meetings

Since 1984, the International Society for Comparative Psychology (ISCP) has convened biennial meetings, except for the 2020-2023 interval. The responsibility for organizing each meeting rests with the Program Committee appointed by the Board and the meeting host. The President customarily delivers a presidential address. At least one business meeting, open to all members, is held during each biennial conference and is organized by the President in consultation with the Board. Scientific presentations are not restricted to ISCP members, and attendance has historically varied across meetings. Consistent with its mission, ISCP seeks to select host locations that reflect and promote the ISCP's international character.

ISCP 2025 highlights

The XXII Biennial ISCP Meeting was held in Bogotá, Colombia, from December 3 to 5, 2025. Leonardo A. Ortega served as the local organizer and President of ISCP. Gabriela E. López-Tolsa served as the Program Chair, and John Solorzano, Aaron Blasidell, Jonathan Buriticá, Brissa Gutiérrez, and Eduardo Reynoso served as part of the Organizing Committee. The symposium, paper, and poster sessions were devoted entirely to the presentation of scientific research and its applications. The conference featured a comprehensive program comprising a total of six invited talks, one symposium, one discussion panel, nine paper sessions, and one poster session.

As reflected in the book of abstracts below, the meeting included presentations spanning a broad range of topics and addressing the behavior of numerous species. More than 110 participants from 12 countries across four continents completed registration for the meeting. The presidential address was entitled "Integrating comparative psychology frameworks in the advancement of multilevel health models."

Society members also participated in the business meeting. ISCP membership is conferred through participation registered as Faculty in the Society meeting. During the event, elections were held to fill two positions on the ISCP Board. The resulting Board positions are as follows: *President*: Leonardo A. Ortega; *President-Elect*: Sarah Cowie; *Secretary*: Jonathan Buriticá; *Treasurer*: Federico Sanabria; *Editor in Chief, International Journal of Comparative Psychology*: Charles I. Abramson; *Student Representative*: Yaren Kose; *Web-Manager*: John Solorzano-Restrepo; *Members-at-Large*: Gabriela E. López-Tolsa, Lauren Guillette, Brissa Gutiérrez, Eduardo Reynoso.

The meeting was generously co-sponsored by Fundación Universitaria Konrad Lorenz. The University hosted the event at its facilities at no cost and provided institutional support for marketing and dissemination, thereby facilitating broad outreach and contributing substantially to the successful organization of the meeting.

Please send correspondence to Leonardo A. Ortega. Email: leonardoa.ortegam@konradlorenz.edu.co

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December 3rd

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15:00-16:00	Auditorium SFF **Session 6** Lauren Guillette, J. Eduardo Reynoso-Cruz, Brissa Gutiérrez Mod: E. Reynoso	Lecture Hall 406 **Session 7** Leonardo Moreno-Naranjo, Danilo Zambrano Ricaurte, Laura Trejos Moreno & Sara Lucia Rivera Quiroga Mod: F. Sanabria
16:00-17:00	Auditorium SFF **Invited talk** *From Experience to Expectation* Sarah Cowie	

	Mod: G. López-Tolsa
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December 5th

Day 3- Friday

10:00-11:00	Auditorium SFF **Invited talk** *Empirical and theoretical investigation of associative learning in animal groups* Takao Sasaki Mod: F. Sanabria	
11:00-12:30	Auditorium SFF **Session 8** Diana Milena Cortés-Patiño, Miguel Puentes-Escamilla, Felipe Cabrera, Javier Leonardo Rico Mod: S. Cowie	Lecture Hall 406 **Session 9** Paulina Montoya, Paulo Soares-Filho, Rodrigo Benavides Mod: J. Buriticá
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14:30-15:00	**Business Meeting + Clousure**	

Abstracts

Invited Talks

Integrating Comparative Psychology Frameworks in the Advancement of Multilevel Health Models

Leonardo A. Ortega

Fundación Universitaria Konrad Lorenz

Current preventive and interventional health models often lack an integrative framework that encompasses multilevel, mechanistic, developmental, functional, and evolutionary perspectives necessary to fully understand and improve health outcomes. Integrating frameworks from comparative psychology can deepen our understanding of the dynamic processes underlying health and behavior, thereby enriching existing approaches. This presentation outlines the potential of three comparative psychology-related frameworks (Tinbergen's Four Questions, Probabilistic Epigenesis, and Behavior Systems Theory) to strengthen translational links between research and practice, enhance the conceptual depth of health models, offer heuristic opportunities for innovative research, and inform the design of more comprehensive and effective preventive and intervention strategies.

Keywords: comparative psychology, health models, translational research

Insight as Functional Reorganization: From Learning History to Behavioral Novelty

Miriam García-Mijares

Universidade de São Paulo

Insightful problem-solving has traditionally been characterized by the sudden emergence of innovative solutions without direct training or gradual trial-and-error. In our research program, we have examined insight as a functional reorganization of behavior shaped by the organism's learning history. This reorganization reflects how prior experiences establish the conditions under which new behavioral relations can emerge in response to novel problems. Data from experiments conducted with humans in virtual environments and with rats in laboratory settings indicate that three features of learning history are critical for the occurrence of insightful behavior. First, behavioral variability functions both as a prerequisite and as a process required for behavioral change in new environments. Second, the history of stimulus control determines whether the individual discriminates between stimuli that are irrelevant and those that are functionally necessary to solve the problem. Third, the emergence of functional classes allows control to transfer across different contexts, enabling previously independent behaviors to combine into new sequences. Under these conditions, what appears to arise suddenly can be understood as the cumulative outcome of an extended history of interaction with changing contingencies.

Keywords: functional classes, humans, insight, problem-solving, rats, stimulus control, variability

Utility Maximization in Rodent Models of Motivated Behavior

Federico Sanabria

Arizona State University

Rationality is often regarded not only as a uniquely human trait but also as the primary guide of human action. A core expression of rationality is the maximization of economic utility: among all possible actions, the one with the highest utility is selected. Here, we extend this principle beyond humans through the Modular Maximization Theory (MMT)—a framework proposing that natural selection favors behavioral mechanisms that approximate utility maximization across animal species. Within this framework, apparent irrationalities in behavior are interpreted as evolutionary mismatches rather than deviations from rationality. We illustrate how MMT can be formalized into mathematical models for specific behavioral tasks, generating quantitative predictions that can be empirically tested. Using recent data from our laboratory, we evaluate MMT predictions in rodent models by examining (1) the effects of reinforcer magnitude and non-contingent reinforcement on operant performance, and (2) how alcohol concentration influences choice between alcoholic and non-alcoholic rewards. Finally, we discuss the theoretical limitations of MMT and highlight future directions for expanding its explanatory scope within comparative psychology and behavioral neuroscience.

Keywords: behavioral economics, comparative psychology, mathematical models, Modular Maximization Theory (MMT), utility maximization

From Experience to Expectation

Sarah Cowie

The University of Auckland

Clever crows, diligent dogs, and precocious primates demonstrate remarkable capacity to plan for the future, usually using species-specific behaviors. Given the mounting evidence for flexible control by potential future events in 'simple' operant and respondent learning, the ability to consider one's personal past and potential future may not be reserved for more 'sophisticated' animals. Despite this potential overlap, the distinct paradigms and assumptions that separate 'simple' from 'sophisticated' learning often preclude exploration of the extent to which organisms deemed less sophisticated can engage in flexible future cognition. This talk explores how operant approaches might help (and hinder) the exploration of future 'thinking' in animals not typically considered as 'clever' as those used in comparative-cognition research.

Keywords: comparative cognition, future-oriented cognition, operant approaches

Empirical and Theoretical Investigation of Associative Learning in Animal Groups

Takao Sasaki

University of Rochester

Associative learning underlies behavior and cognition in both animals and humans. While existing models identify mechanisms by which individuals adjust to environmental regularities, they typically neglect the social context in which many species naturally learn. In groups, animals can use both environmental cues and the behaviors of conspecifics as social cues, sometimes achieving outcomes that surpass individual learning alone—a phenomenon known as *collective learning*. Despite its importance, theoretical understanding of collective learning remains limited. Here, we investigate how individual-level associative learning principles contribute to group-level learning, using the rock ant (*Temnothorax rugatulus*) and the brown rat (*Rattus norvegicus*) as model systems. Our aim is to develop both species-specific and general theoretical frameworks for the mechanisms driving collective learning.

Keywords: associative learning mechanisms, collective learning, social information use

How Dogs Adapted to the Anthropocene

Clive D. L. Wynne

Arizona State University

Dogs (*Canis lupus familaris*) have been living alongside people for over 15,000 years and in that time have clearly adapted to exploit human-dominated niches. Although lay people have been fascinated by their dogs for millennia, the scientific study of dogs in their own right (rather than as model species for more general processes) only came into its own in recent decades. I will review recent research on the claims for behavioral, cognitive and emotional adaptations in dogs. I consider dogs' readiness to cooperate with people and follow their gestures, claims for exceptional, human-like, socio-cognitive skills in dogs as well as their emotional attunement with humans. Throughout, I emphasize that most dogs, even today, are not pets but live as scavengers or (less commonly) hunters: They remain subject to natural selection and can only be understood as products of biology, not human inventions. Furthermore, dogs (as Pavlov first identified) are very readily conditioned and thus ontogenetic factors cannot be ignored. Finally, dogs show evidence of adaptions in the emotional domain that enable them to readily form strong emotional bonds with members of other species.

Keywords: behavioral development, dogs, emotional adaptation

Invited Panel

Thoughts About "Cognition"- A panel discussion

Charles Abramson[1], Aaron Blaisdell[2], Ricardo Pellón[3], Laura Suárez[4]

Moderator: Gabriela E. López-Tolsa[3]

[1]Oklahoma State University; [2]UCLA; [3]Universidad Nacional de Educación a Distancia; [4]Fundación Universitaria Konrad Lorenz

This panel will explore the conceptual and methodological challenges associated with the widespread use of cognitive terms in comparative psychology. Core concepts such as "behavior," "intelligence," and especially "cognition" often lack clear and universally accepted definitions. With numerous competing definitions of intelligence and no consensus on what qualifies as cognition, the term is frequently used so broadly that it risks encompassing almost any behavior. This lack of precision undermines scientific standards and complicates efforts to determine whether a given action should be considered cognitive. These issues become even more pressing when applied to organisms that lack complex nervous systems or recognizable brains, such as invertebrates, plants, or synthetic agents. In such contexts, cognitive attributions are sometimes made without clear criteria, prompting debate within the field. While some researchers advocate for broad interpretations of cognition to capture a wide range of adaptive behaviors, others argue for more functionally defined and operational approaches that emphasize observable interactions with the environment. This panel will bring together diverse perspectives to critically examine these positions and discuss how best to approach the study of behavior across species while maintaining conceptual clarity, empirical rigor, and philosophical coherence.

Keywords: cognition, comparative psychology, operational definitions, scientific rigor

Symposium

Mathematical Models: A Tool for Comparative Psychology

Gloria Ochoa-Zendejas[1]; Julian C. Velasquez[2]; Diego Flores[3]; Gabriela E. [4]

Discussant: Federico Sanabria[5]

[1]Laboratory of Cognition and Comparative Learning, Univ. of Guadalajara-CEIC, Guadalajara; [2]Centro de Estudios e Investigaciones en Comportamiento, University of Guadalajara, MX; [3]Laboratorio de Aprendizaje y Comportamiento Variable, Universidad Intercontinental, MX; [4]Universidad Nacional de Educación a Distancia; [5]Arizona State University

Mathematical models have become increasingly important in Comparative Psychology, offering a precise and systematic framework to describe, predict, and interpret behavioral processes. Unlike descriptive accounts, models force clarity and allow for rigorous comparison between competing theories, highlighting their underlying assumptions and implications (Mazur, 2006). This symposium will feature four presentations illustrating how mathematical modeling contributes to diverse areas of behavioral research. Topics will include applications of models to impulsive choice, timing, relapse, and operant demand, illustrating both theoretical and applied perspectives. By integrating mathematics into behavioral research, these works aim to demonstrate how models provide not only greater accuracy in predictions but also a common language for understanding diverse behavioral processes. Ultimately, this symposium emphasizes the relevance of mathematical modeling as a formal tool for comparing behavior across species.

Keywords: behavioral research, comparative psychology, mathematical modeling

Mathematical Modeling of Impulsive Choice and Timing in ADHD

Gloria Ochoa-Zendejas[1]; Ivette Vargas de la Cruz[2]; Cristiano Valerio dos Santos[3]; Jonathan Buriticá[1]

[1]Laboratory of Cognition and Comparative Learning, Univ. of Guadalajara-CEIC, Guadalajara; Universidad de Guadalajara; [2]Centro Universitario de Ciencias de la Salud; [3]Universidad de Guadalajara, Centro de Estudios e Investigaciones en Comportamiento

Impulsive choice, defined as preferring a smaller, immediate reward over a larger, delayed one, has been linked to timing precision and risk sensitivity. Evidence from animal models suggests that improvements in temporal estimation may reduce impulsive behavior, yet conclusive mechanistic explanations need further research. Children with ADHD often display heightened impulsive choice, perceive time as passing quickly, and show less accuracy in estimating durations, but few studies have examined how these processes interact in this population or how pharmacological treatment may affect them. This study investigates children aged 8 to 12 years with neurologist diagnosis of ADHD, assessed before and after one month of pharmacological treatment. Participants complete tasks on temporal bisection, time reproduction, impulsive choice, and risk-taking. We aim to model performance using discounting models, such as exponential, hyperbolic, hyperboloid and timing-based models. By relating timing parameters with delay-discounting rates, we expect to specify mechanisms of how improved temporal precision underlies reductions in impulsive choice. Findings may provide insights into the mechanisms of impulsive choice and inform intervention strategies grounded in quantitative modeling.

Keywords: delay discounting, mathematical modeling, timing

Further Exploration of Multiple Alternative Responses Training Using the Resurgence-as-Choice-in-Context Framework

Julian C. Velasquez[1]; Rusty W. Nall[1]; Carlos J. Flores[2]

[1]University of Guadalajara; [2]Jacksonville State University, Alabama

Resurgence is the recurrence of previously extinguished behavior due to the worsening of alternative reinforcement conditions. Resurgence-as-Choice (RaC) is a quantitative theory that may provide insights into the variables influencing this form of relapse. Although training multiple alternative responses has yielded mixed effects on resurgence, few studies have applied the RaC framework to analyze these effects. Here, we present a revised exploration of the model to account for the effects of different types of multiple alternative response training, using recent data from Velasquez et al. (2024), which demonstrated a mitigation effect on resurgence. Overall, the revised model captured most of the key findings reported in the study, offering theoretical insights for further empirical exploration.

Keywords: choice, expanded-operant treatments, resurgence, relapse, theory

Using RaC to Analyze Reinforcer Competition in the Concurrent Resurgence of Ethanol Consumption in Rats

Brissa Gutiérrez[1]; Diego Flores[1]; Rodrigo Benavides[2]; Andrew Craig[3]

[1]Laboratorio de Aprendizaje y Comportamiento Variable, Universidad Intercontinental, MX; [2]Laboratorio Digital de Análisis de la Conducta, Universidad Nacional Autónoma de México, MX; [3]SUNY Upstate

Resurgence has been proposed as a procedure that models relapse into substance use. Within the Resurgence as Choice (RaC) model, it has been proposed to incorporate an adjustment on the competition of reinforcers to describe abstinence. The aim of the present study was to evaluate the effects of impoverishing the target response (TR) in a concurrent schedule with the presentation of an alternative response (AR) on the choice of ethanol consumption in rats in two different schedules. First, a TR was reinforced with ethanol under a VI 20s or a VR 20. In the second phase, an AR was reinforced with pellets under a VI 20s or a VR 20 was introduced concurrently with the gradual impoverishment of the TR schedule. In the third, the AR schedule was gradually impoverished. The data were modeled using the simple RaC and with the parameters of competition between reinforcers as a description of abstinence. Differences were found between the reinforcement rate and the values of the reinforcers between the VI and VR, which suggests the possibility of interpreting abstinence in terms of temporal availability versus cost and the possible adjustment to the RaC model that this would imply when describing abstinence.

Keywords: abstinence, ethanol, RaC, rats, resurgence

Making Comparisons Easy by Using the Operant Demand Framework

Gabriela E. López Tolsa

Universidad Nacional de Educación a Distancia

When conducting comparative psychological research, it is often necessary to compare items that are not obviously equivalent. For example, when working with different species, different reinforcers are often delivered, as one might give shopping certificates to humans, sweet food pellets to rats, mixed grain to pigeons, and access to a sexual partner for quails. Although it is generally assumed that the use of different commodities does not necessarily affect the outcome, when comparing different species, more information about the value of each reward will increase the potential validity of the comparisons. This is particularly relevant when using animal models to study human behavior, especially as funding for animal research becomes increasingly difficult to secure. The Operant Demand Framework provides an opportunity to compare the value of different commodities, relatively independent of how they are consumed and/or the responses required to obtain them. This presentation includes a basic explanation of how the Operant Demand Framework is applied, including the calculation of the Essential Value and other relevant measures, followed by a couple of examples in which the Operant Demand Framework has been used to compare across species and types of commodities.

Keywords: cross-species comparison, operant demand, mathematical models

Oral Presentations

Wednesday

Session 1

Auditorium SFF

Characterization of Emotional-like Behavior in Sprague-Dawley Rats Subjected to a Pentylenetetrazol (PTZ) Kindling Epilepsy Model

Bety Guzman Paro[1]; Carlos Medina Saldivar[2]; Luis Fernando Pacheco Otálora[2]

[1]Universidad Andina del Cusco; [2]Laboratorio de Investigación en Neurociencias, Instituto Científico, Universidad Andina del Cusco

Epilepsy is a neurological disorder characterized by excessive neuronal activity that causes recurrent seizures and is often associated with depressive and anxiety disorders. This study described the effects of an epilepsy model by characterizing seizures and emotional behaviors in male Sprague Dawley rats. The PTZ model was used (35 mg/kg every 48 h for 6 weeks, kindling protocol), and seizures were evaluated using the Racine scale. At the end, behavioral tests were administered: the forced swim test (despair), the open field test (motor activity and anxiety), the sucrose preference test (anhedonia), the splash test, and the coat state assessment (self-care). All animals surpassed stage 4 on the Racine scale, exhibiting generalized seizures and greater pathophysiological compromise. A significant decrease in self-care behaviors was observed, while hopelessness- and anxiety-related behaviors showed only trends, and no signs of anhedonia were detected. These findings indicate that the PTZ kindling model reproduces not only generalized convulsive seizures but may also induce specific emotional alterations, primarily reflected in reduced self-care, a symptom associated with depression, without consistent manifestation of other emotional behaviors.

Keywords: emotional alterations, epilepsy, PTZ kindling model, self-care behavior

Integrating Basic and Applied Psychology: A Darwinian Model of Translational Research

Carlos Esteban[1] Convers Baena[1]

Universidad del Rosario

The concept of translational research refers to a research approach aimed at integrating basic and applied research to foster innovation in both theory and practice. From this perspective, the goal is for pure basic science and pure applied work to connect and not develop in isolation. Specifically in psychology, this type of research has permeated the field and has offered development possibilities for basic psychology and the experimental analysis of behavior. However, it has practically been conceived as a unidirectional bridge from basic research, serving practical applications. To promote bidirectionality between these two facets of science, it is proposed, from an evolutionary approach, to make all possible connections between basic research and applications explicit, in a bidirectional manner, combining both animal and human behavior. Based on this Darwinian perspective, some basic and applied research on individual behavior, in both human and non-human animals, is examined.

Keywords: bidirectionality, evolutionary approach, translational research

Primates in Rehabilitation: A Behavioral Look at the Effects of Environmental Enrichment

Angie Paola Varila Murcia[1]; Ana Lucia Arbaiza Bayona[2]; Melany Sulay Vanegas Queeman[1]; Santiago Hernan Ruge Poveda[1]; Karen Sofia Izaquita Chaves[1]; Andrés Felipe Ordóñez Rincón[1]; Germán Antonio Gutierrez[1].

[1]Universidad Nacional de Colombia; [2]University of Göttingen

Environmental Enrichment has been established as a strategy for modifying the environment to promote the welfare of animals under human care. It has been widely studied, primarily in laboratory and zoo settings. The present study evaluated the effect of two enrichment strategies on the activity budget of a group of six primates housed at the Wildlife Rescue and Rehabilitation Unit of the National University of Colombia. A sequential design was used, alternating between enrichment conditions (different diet and enrichment devices) and no enrichment conditions. Five trained observers analyzed 30 days of video recordings using scan sampling and the open-source software BORIS. The results showed individual behavioral changes. Abnormal behaviors were rare or absent, possibly due to group housing. Behavioral changes in one individual appeared to be more closely related to changes in the behavior of other group members than to the presence of enrichment itself. Group dynamics limited lower-ranking individuals' access to enrichment opportunities.

Keywords: environment enrichment, neotropical primates, wild animal rehabilitation

Session 2

Lecture Hall 406

Rethinking Interspecies Differences in Delay Discounting: Measurement Artifacts

Daniela Rocha Jurado[1]; Arturo Clavijo[2], João Lucas Bernardy[1]

[1]Universidade de São Paulo; [2]Universidad Nacional de Colombia

Delay discounting refers to the decrease in the subjective value of an outcome as the delay to its delivery increases. Both human and nonhuman studies have modeled this process using choice procedures between smaller-sooner, and larger-later outcomes. In humans, the hypothetical delay task is most common, requiring participants to imagine rather than experience contingencies. Across species, choices generally follow a hyperbolic function, although nonhuman animals tend to discount more steeply than humans. This study examines how the task type modulates temporal parameters in delay discounting. We compared the results of a hypothetical monetary task, experiential point-based tasks, and an experiential game with consumable outcomes and its hypothetical version. Using an adapted AltmanBland comparison, preliminary results with 17 participants show that when hypothetical outcomes differ in scale or type, discounting measures are not comparable, suggesting distinct underlying processes. Findings may indicate that apparent species differences in discounting reflect task characteristics, advancing more functionally equivalent procedures for comparative research.

Keywords: delay discounting, task dependence

State-dependent Drift Diffusion Models in Animal Decision-making

Juan Sebastian Cely[1]; Pete Trimmer[1]

University of Warwick

Decision-making in natural environments often involves a trade-off between speed and accuracy, particularly in high-stakes scenarios like predator-prey interactions. Drift Diffusion Models (DDMs) have been used extensively to study speed-accuracy trade-offs, but such work has typically assumed that decisions are made independently of one another. In the wild, the consequences of one decision will often influence future choices. To address this gap, we introduce a new framework – State-Dependent Drift Diffusion Models (S3DMs) – which integrate state-dependent variables into the decision-making process. Using simulations of foraging scenarios, we demonstrate that S3DMs can predict markedly different behavioural outcomes compared to a standard DDM. By incorporating sequential and interdependent decisions, S3DMs offer a framework that is arguably both more realistic and more biologically relevant. Our research contributes to integrating functional and mechanistic explanations of behaviour and suggests a promising direction for future studies in behavioural ecology and neuroscience.

Keywords: drift diffusion model, state-dependence, sequential decision-making

Cooperation and Competition Under Environmental Harshness: Evidence of Evolution Through Agent-based Simulations

Pedro Ravelo[1]; Germán Gutierrez[1]; Juan Camilo Higuera[1], Juan Camilo Cely[1]

Universidad Nacional de Colombia

Cooperation is one of the most significant challenges in evolutionary theory due to its apparent paradox: behaviors in which an individual incurs costs to benefit others seem to oppose natural selection. Although cooperation has been associated with environmental harshness, the specific mechanisms explaining this relationship have not been elucidated. This research evaluates whether cooperation can evolve as an adaptive strategy in adverse contexts, identifying the principle that mediates this relationship. Using agent-based simulations, framed within evolutionary game theory and life history theory, we hypothesize that environmental harshness—understood as an increase in the cost of living—favors cooperation through a trade-off between survival and reproduction The results indicate that as the cost of living increases, cooperators prevail, displaying life-history profiles with greater longevity and a lower net reproductive rate. This pattern provides direct evidence for the proposed evolutionary mechanism. Finally, these findings are analyzed in light of historical perspectives such as the 19th-century Russian tradition of mutual aid, which questioned intraspecific struggle as the main driver of evolution and highlighted the role of cooperation in harsh environments.

Keywords: agent-based models, environmental harshness, evolution of cooperation

Thursday

Session 3

Lecture Hall 406

Approaching the Interrelations of Subcortical Units in Classical Conditioning

Leonard Nigrini[1]; Sergio Ramos Solís[2]; Miquel Llorente[1]; Ricardo Pellón[2]

[1]Universidad de Girona; [2]UNED

The essence of dialectical approaches to neuropsychology is their developmental perspective towards psychological processes. Phylogeny represents an important moment of this development and has been considered by many as a key to understanding psychic processes. In the present study, we investigate the role of phylogenetically old units of behavioural control located within Anokhin's (2016) 'collateral pathway' as a unit and possible incipient form of classical conditioning in mammals. Hereby, rats of the experimental group were conditioned with a biologically significant conditioned stimulus (CS) and others associated either with a neutral CS or omitted learning in a first experimental block. In a second block, animals were then conditioned with a new CS that coincided in its biological significance, but not in physical features, with the experimental group's previous CS. Confirming our hypothesis, we found that animals of the experimental group showed an initially superior tendency to react to the novel stimulus, which we interpret as the result of learning processes occurring along the collateral pathway, supporting its potential role as a unit of classical conditioning and indicating a conservation of this system in the course of evolution.

Keywords: classical conditioning, evolution, subcortical learning

Sex Differences in the Reinstatement of a Conditioned Taste Aversion

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After conditioning and extinction of a conditioned stimulus (CS), the unpredicted presentation of the unconditioned stimulus (US) provokes the return of the extinguished conditioned response (CR). This reinstatement effect has been relatively well established in animal studies. However, the possibility that males and females might differ in the reinstatement effect still has not been tested. Here, we present two experiments aimed at testing sex differences in the reinstatement of a conditioned taste aversion. After a single conditioning trial consisting of a paired presentation of a flavor and an induced illness, in both experiments, male and female rats received 8 extinction trials. Experiments 1 and 2 differed only in the moment at which the US was presented again. In E1, the reinstatement trial was conducted at the end of the extinction trials, while in E2, it was conducted after the third extinction trial. E1 found slower extinction for males and a reinstatement effect only for females. However, the presentation of the US during the extinction seems to reverse this sex difference in extinction. In such a case, extinction proceeded faster for males after the reinstatement trial. These surprising results are discussed within the framework of the associative theory of learning.

Keywords: classical conditioning, reinstatement, sex differences

Aversive Conditioning and Extinction in Amphibians: Insights into Ancient Fear Circuits

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Fear and anxiety rely on the interaction between evolutionarily ancient brain structures and more recently developed ones. To explore the role of these ancient systems, we studied aversive responses in the toad *Rhinella arenarum*. Our laboratory developed protocols based on hypertonic saline solutions while monitoring heart rate as a physiological marker. With implanted electrodes, we recorded reliable changes in cardiac activity during conditioning and extinction. Initially, the aversive solution produced tachycardia as an Unconditioned Response. Across training, this response was progressively triggered by the neutral solution paired with the aversive one, indicating the emergence of a Conditioned Response. During extinction, replacing the aversive solution with a neutral one led to the gradual disappearance of conditioned tachycardia. After validating this protocol, we examined neural activation with the AgNOR technique. Preliminary evidence indicates increased activity in brain regions involved in fear, particularly the amygdala, suggesting functional similarities between amphibians and mammals in aversive memory organization.

Keywords: acquisition, amphibians, aversive learning, extinction, tachycardia

Days of Fear: Behavioral Retention of Aversive Memory in Toads

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The study of fear and aversive learning in non-mammalian vertebrates offers insight into the evolutionary origins of emotional memory. Amphibians, with relatively simple yet homologous nervous systems, provide a valuable model for these processes. Here, we investigated long-term retention of an aversive memory in the toad Rhinella arenarum using a classical conditioning paradigm with heart rate as the physiological variable. Subjects were chronically implanted with dermal electrodes and trained for six days with a neutral saline solution (300 mM NaCl, CS) paired with an aversive saline solution (800 mM NaCl, US). Controls received only neutral solutions. Anticipatory tachycardia to the CS was taken as evidence of learning. Retention tests at 1, 4, 8, 16, and 32 days after acquisition revealed significant differences between paired and control groups at all intervals, demonstrating robust memory retention for at least 32 days. Preliminary AgNOR histochemical analyses further suggest engagement of brain regions linked to aversive memory. These findings show that toads can form long-term emotional memories and support the idea that mechanisms of fear learning are evolutionarily conserved.

Keywords: amphibians, aversive memory, aversive saline solutions, retention

Session 4

Auditorium SFF

Is there Superstition? Effects of Response-Independent Stimuli on Behavior in Children

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Skinner dubbed the idiosyncratic responses of pigeons exposed to non-contingent accidental or adventitious reinforcement superstitious. The response rate should be higher under richer, non-contingent schedules (e.g., FT15s) than under leaner schedules (e.g., FT30s). Children's response rate in replications of Skinner's superstition experiment did not show a clear difference between FT15s and FT30s schedules. This study evaluated whether the response rate was higher during an FT15s or an FT45s schedule by replicating Wagner & Morris' (1987) methodology using a tablet application with 5-year-old children who received virtual balls independently of behavior. According to Skinner, the response rate should be higher under the FT15s schedules as accidental reinforcement frequency is higher than under the FT45s. Our findings do not confirm Skinner's prediction, while an approach based on stimulus control and Pavlovian conditioning explains our results better.

Keywords: pavlovian conditioning, response-independent, superstition,

The Conjunction Fallacy in Rats and Humans

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In 1983, Tversky and Kahneman reported the now famous Linda Problem as an example of a logical fallacy in which the conjunction of two independent events or traits were judged by human participants to be more likely than either alone. This logical fallacy has been heavily studied in humans over the past 40 years. I report a series of experiments showing a similar type of fallacy in rats using a trial-wise contingency learning procedure. This fallacy is surprisingly robust to manipulations of trial-type base rates. I next show the same fallacy in humans using a similar trial-wise contingency learning procedure. In humans, the fallacy was not as strong and was easily eliminated by manipulating the trial-type base rates during acquisition. I end with a discussion of the evolutionary basis of the fallacy and propose a foundational theoretical framework that places the conjunction fallacy in a broader context of learning and behavior principles.

Keywords: comparative, logical fallacy, reasoning

Porting Open-Source Operant-Conditioning Technologies to Natural Settings

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Operant conditioning chambers are standard in most comparative cognition lab settings. We became curious about the possibilities of taking the functionality of an operant conditioning system into an animal's natural habitat. Our prototypes integrate machine learning and automation technologies yet with designs that are open-source and affordable. The goal is to be of service to existing researchers and citizen scientists. Citizen scientists have traditionally not been participants in operant conditioning chamber-based animal studies. We started by creating two different apparatuses for use with tree squirrels common to the Los Angeles area, including the Western Grey Squirrel (Sciurus griseus) and the Eastern Fox Squirrel (Sciurus niger). We chose tree squirrels because they are diurnal, commonly available, and they are a popular subject of internet videos. We showcase two devices. One device has an audio source, light cue, and food-dispenser that can all be manually controlled through a nearby computer. A second device can operate completely autonomously and uses computer vision to identify when a squirrel is near the apparatus and can even differentiate between individual squirrels in the wild and distribute a food reward based on researcher preferences.

Keywords: learning, natural setting, operant conditioning, squirrels,

Session 5

Lecture Hall 406

A Few Reasons to Doubt That Dogs Understand Humans When They Point at an Object

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Humans use pointing gestures to communicate with dogs. However, efforts to study of how dogs receive this communicative signal have produced ambiguous results. Studies that present dogs with a choice between two locations have shown that dogs choose an option that a human points to above chance levels, but just barely. After replicating the 2-option task, we changed the task's parameters by presenting dogs with six options, while pointing to one. Depending on how one models errors affects the drop in success rate expected. Dogs chose the location pointed to at barely above chance rates in both the 2-choice and 6-choice versions of the task. The effect size was similar in both cases. This pattern is discouraging of the belief that dogs interpret human pointing as a communicative act. In a series of experiments, some designed to rescue the referential communication hypothesis, the consistent conclusion is that the small effect sizes observed in dog point-following studies provide no support for claims that dogs interpret human pointing as referring to an object. Rather, the modest success rates observed appear to be wholly explained by dogs' sensitivity to the pointer's direction of attention. The pointing gesture simply draws the dogs' attention subtly to one side of the arena.

Keywords: domestic dog, intentionality, point following

Disgust Sensitivity and its Effect on Attitudes Toward Obesity: An Experimental Approach

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Fatphobia, or obesity bias, refers to a set of negative attitudes and prejudices toward overweight people (Gallardo, 2021). This socially accepted discrimination negatively impacts the lives of those who experience it. From an evolutionary perspective, it is proposed that atypical physical appearance, such as obesity, can activate the behavioral immune system, a mechanism that promotes avoidance of potential sources of infection (Schaller & Park, 2011). Based on this hypothesis, an experimental study is proposed to analyze the effect of disgust sensitivity priming on implicit and explicit attitudes toward obesity in a Colombian population aged 18 to 35 years. The central question is: What is the effect of activating the behavioral immune system on attitudes toward obesity? Four instruments will be used: a sociodemographic survey, an implicit association test (IAT), the pathogen disgust subscale (Tybur et al., 2009), and the Anti-Fat Attitudes Scale (AFA; Magallares & Morales, 2014; Torres et al., 2024). Participants exposed to disgust-inducing images are expected to display greater bias. Furthermore, we will explore whether variables such as height, weight, and body satisfaction moderate these attitudes.

Keywords: behavioral immune system, disgust sensitivity, fatphobia

The Role of the Permanent Environment in the Perception of Horizontal and Vertical Self-motion

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According to ecological theory, the perception of both object movement and self-motion occurs in relation to a permanent environment. The present study examined the role of the permanent environment in the perception of horizontal and vertical self-motion. In a dark room, visual scenes were projected onto a 2 x 2 m screen, consisting of a dotted line of LED lights on a black background. The lights were either continuously on or flashing, representing a permanent or changing environment, respectively. The dotted line of lights moved laterally forward or backward (Exp. 1) and vertically upward or downward (Exp. 2). In a control condition, the dotted line remained stationary but was either continuously on or flashing. Participants were asked to verbally report the perceived direction of their own movement. The results of both experiments showed that, regardless of the direction of the moving line of lights, the percentage of correct responses was higher when the environment was permanent compared to when it was changing. In the stationary line condition, the highest number of correct responses was found in the permanent environment, while the lowest number was observed in the changing one, suggesting that the flashing lights induced the perception of self-motion.

Keywords: horizontal and vertical self-motion, perception

Session 6

Auditorium SFF

String Pulling and Nest Building: Do Male and Female Zebra Finches Learn Differently?

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[1]University of Alberta

Physical cognition enables animals to understand properties of their environment and use that knowledge to solve problems such as nest building. In zebra finches, males primarily gather and place nesting material. We tested whether sex differences in nest-building behaviour reflect sex differences in physical cognition. Male and female zebra finches were trained on one of two tasks, then transferred to the other. In the barrier task, birds pulled a string to access a food tray, with only one tray fitting through a wider gap. In the tray task, both gaps were the same size, but only one tray was small enough to fit through. There were no sex differences in learning rates in either task. However, birds learned the tray task significantly faster than the barrier task, and they did not transfer knowledge between tasks. This suggests they did not learn about relational properties (e.g., tray-to-gap ratio), but instead applied simpler rules, selecting based on gap size (barrier task) or tray size (tray task). These results indicate no sex difference in physical cognition and support rule-based, rather than relational, problem solving in zebra finches.

Keywords: nest building, sex difference, zebra finches

Training African Giant Rats for Scent-detection of Illegal Wildlife Products

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[1]APOPO, Sokoine University of Agriculture

Giant African pouched rats (*Cricetomys ansorgei*) are trained to use their olfactory skills to detect illegal wildlife products like pangolin scales, rhino horn, elephant ivory, and giraffe (bone and pelt). The rats are capable of searching using four different searching strategies: free search, inside the container, sniffing from the container's ventilation, and sniffing a specific object using a mobile stroller. Our goals were to test their performance under deployment conditions and calculate their precision and level of false alarms. Results indicate that all the rats' precision was 88%, with 8% of false alarms. Data analysis using a deployment (two rat agreement) increases precision. Under this procedure, rats can improve the detection to 94% with 4% of false alarms. Based on the strategy, the targets detected by the rats were: 100% on free search, 100% on container ventilation, 100% on the stroller, and 75% inside a container. Rats were able to detect 100% of pangolin scales, rhino horn, and elephant ivory, while they only detected 75% of the giraffe planted. These results demonstrate that rats can be a solution for detecting smuggled wildlife products, making them a promising tool for preventing wildlife crime.

Keywords: animal training, scent discrimination, operant conditioning

Social Learning of a Behavioral Sequence Between Demonstrator and Naïve Rats

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Cooperation and social learning are key phenomena for the transmission of behavioral repertoires in social species. This study analyzed the role of cooperation in solving a complex problem by rats, as well as the possibility of social transmission across generations through interactions between demonstrators and observers. A problem-solving task was designed, requiring two functional responses, digging and pulling a cable, to access a reinforcer. In the first phase, rats trained in separate repertoires successfully solved the task together, demonstrating interlocked behavioral contingencies. Subsequently, rats that had acquired both repertoires were paired with naive observers to assess whether social learning would occur. After three collective sessions, the observers were able to solve the problem independently, suggesting the acquisition of repertoires through direct social interaction. Behaviors such as following, sequential coordination, and mutual sniffing functioned as potential discriminative stimuli and social reinforcers. These findings support the idea that cooperation may serve as a basic functional unit for the transmission of behavioral repertoires, contributing to the experimental analysis of cultural processes in non-human animals.

Keywords: problem solving, rats, social learning

Session 7

Lecture Hall 406

A Preliminary Study of Human Exogamy: Preferences for International Partners

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[1]Universidad Nacional de Colombia

Choosing a romantic partner is one of the most important decisions in life. Research suggests that partner selection is not random but guided by specific criteria. One under-explored process is human exogamy, defined as the tendency to choose partners outside one's own community or nationality. Historically, exogamy has been a global practice, and its prevalence has increased in the context of modern globalization and the growing use of digital technologies, such as online dating. This preliminary study seeks to explore the evolutionary foundations behind this phenomenon, drawing data from university students from Bogotá, Colombia. Using a descriptive approach, participants completed a novel instrument measuring preferences for local/foreign partners, while also evaluating external factors that would moderate these preferences (e.g., intrasexual competition, economic status, perceived vulnerability to disease). Preliminary results indicate generally positive attitudes toward mating foreign potential partners; however, it is necessary to collect additional data from international samples to establish robust comparisons and to examine basic evolutionary predictions. In the near future, this project aims to provide deeper insights into the dynamics of international relationships.

Keywords: human exogamy, international relationships, mate preferences

Attraction and Attitudes: The Body's Innate Signals and Their Role in Shaping Brand Preferences.

Danilo Zambrano Ricaurte[1]

[1]Fundación Universitaria Konrad Lorenz

In this study I investigated the effects of female body shape on attitude formation towards fictional brands through evaluative conditioning. Building on evolutionary psychology, I hypothesized that the waist-to-hip ratio (WHR), a biological signal of health and fertility, would serve as a powerful unconditioned stimulus (US). In the experiment, 114 heterosexual men were randomly assigned to one of three conditions: conditioning with a low-WHR (0.7) female body, conditioning with a high-WHR (0.85) female body, or a randomized control group. Participants were repeatedly exposed to a novel brand (conditioned stimulus) paired with the respective US. Results showed that the brand associated with the low-WHR body was rated as significantly more positive in attitude, sentiment, and purchase intention compared to the high-WHR and control conditions. Furthermore, the high-WHR body generated a significant negative conditioning effect. These findings provide empirical support for using biologically-based unconditioned stimuli to influence consumer attitudes, overcoming methodological limitations of prior research.

Keywords: attractiveness, consumer psychology, evolutionary psychology, evaluative conditioning, waist-to-hip ratio

Adaptation and Validation of Instruments for Studying Human Mating in Evolutionary Psychology

Laura Trejos Moreno[1]; Sara Lucia Rivera Quiroga[1]; Laura Sofia Diaz Forero[1]; Danilo Zambrano Ricaurte[1]

[1]Fundación Universitaria Konrad Lorenz

The present instrumental study aims to validate and adapt the Mate Value, Mate Retention, and Evolutionary Mismatch scales to the Colombian context, in order to contribute to future research in evolutionary psychology, given that most questionnaires have been developed in an American context. It also seeks to broaden social research on romantic relationships in contemporary Colombia. This validation will be carried out through a process of translation and back-translation of the scales, conducted by expert judges. Subsequently, the validity of these scales will be evaluated by administering them alongside other instruments that measure human mating. The scales are expected to demonstrate a high percentage of reliability and internal structural validity for their application in the Colombian context.

Keywords: evolutionary mismatch, mate retention, mate value

Friday

Session 8

Auditorium SFF

Adolescent Social Isolation and Sucrose Reward Sensitivity

Diana Milena Cortés-Patiño[1]; Evelyn Freire Melo[1]; Caio Medeiros[1]

[1]Universidade Federal do Pará

Adolescent social isolation is a stressor linked to behavioral changes, including heightened stress responses and vulnerability to drug dependence. Preclinical studies show that isolation increases the reinforcing effects of drugs such as alcohol, cocaine, and amphetamines, likely due to altered reward sensitivity. Whether similar effects occur with non-pharmacological reinforcers remains unclear. In this study, male rats were reared in isolation or groups during adolescence, and adult reward sensitivity was assessed using sucrose as a reinforcer. Quantitative models evaluated whether isolation altered behavior under increasing operant requirements (demand analysis) or varying reinforcement rates (matching law). Although isolated rats consumed more sucrose in restricted-access tasks, they did not differ from group-reared rats in their sensitivity to sucrose prices or reinforcement rate differences. These findings suggest that the effects of isolation depend on the type of reinforcer and highlight the value of quantitative models in clarifying how adolescent isolation shapes behavior.

Keywords: adolescence, reward sensitivity, social isolation

Evidence of Emergent Patterns of Female Dominance and Affiliation in Norway Rats

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[1]Universidad de San Buenaventura

Patterns of social organization are often attributed to animal species with complex cognitive abilities, mainly primates. However, there is increasing evidence of such patterns in species with more limited cognition. Studies in complexity science have shown that these patterns of social organization can emerge by self-organization, implying that complex patterns result from local interactions between agents with simple rules of behavior. Here, I present evidence of emergent patterns of (i) dominance hierarchies, (ii) dominance of females over males, and (iii) patterns of affiliation in Norway rats (Rattus norvegicus). By using computational models, plausible hypotheses were generated and then contrasted with observational data of rat colonies in a semi-natural environment. Results show that (i) dominance hierarchies emerge in rat colonies via a self-organization mechanism known as the “winner-loser effect”; (ii) females show dominance over some males despite being half the size; and (iii) rats show patterns of affiliation, namely reciprocity, exchange and reconciliation, probably due to spatial proximity. These results are the first evidence of emergent patterns of social organization in rodents in a purely observational setting, without the use of an experimental design.

Keywords: dominance hierarchy, female dominance, self-organization

Constraints and Opportunities for Behavioral Variability in Locomotion

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The study of behavior from an ecological view entails principles related to the perception and action of the organisms in their interaction with the environment. The organism-environment interaction, though broadly used in psychology, is understood as resources encountered by the animal in the environment. The animal deals with constraints as well as opportunities for the actions to obtain resources. This presentation shows the findings of an experiment where the modes of action are involved in the process of subjects’ reaching a goal with some environmental constraints in mazes. The rats’ performance in two mazes was contrasted: The Gengerelli (1930) maze and the Dashiell (1930) maze. The differences in spatial layout afford fixed or variable performances, but always minimizing the excess of effort. We conclude that organisms are sensitive to the different affordances in spatial layout by reducing or incrementing path variability

Keywords: mazes, orientation, spatial layout

From Escape to Conflict: Ethological Analyses Reveal Defensive Strategies in Gerbils on the Elevated Plus Maze

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The elevated plus-maze (EPM) is widely used to assess anxiety-like behavior in rodents, but its application to Mongolian gerbils (Meriones unguiculatus) is challenging due to species-specific defensive responses. Unlike rats and mice, gerbils frequently show high open-arm activity with escape attempts and vertical exploration, limiting the validity of conventional measures such as open-arm time. We examined the effects of diazepam (DZP; 0.5 mg/kg) and the anxiogenic compound pentylenetetrazol (PTZ; 10 mg/kg) in EPM-naïve and EPM-experienced male gerbils, emphasizing ethological indices. Standard spatiotemporal measures failed to detect drug effects, whereas ethological analyses revealed distinct and opposing behavioral profiles. In naïve animals, DZP increased head-dipping and head-out postures, suggesting enhanced escape-oriented risk assessment. In experienced animals, DZP reduced vertical exploration and increased closed-arm approach, while PTZ induced the opposite pattern, promoting vertical exploration. These results provide the first demonstration of PTZ-induced anxiogenic-like behavior in gerbils, expressed not as open-arm avoidance but as intensified vertical exploration.

Keywords: anxiety, EPM, gerbils

Session 9

Lecture Hall 406

Interaction Between Timing, Exteroceptive Stimulus, and its Effects on Anticipatory Responses in Multiple and Mixed Fixed-interval Schedules in Rats

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This study analyzed timing in rats under mixed and multiple fixed-interval (FI) schedules with short and long intervals to assess whether pauses are anticipatory and how behavior patterns under stimulus control facilitate timing. In two experiments, rats were exposed to sessions with short and long components (FI 60, 240, 30, and 120) in semi-random sequences, including peak trials (Experiment 2). Results showed differences in response rates between FI intervals, with stimulus control in multiple schedules (interaction of time and sound/light) and mixed schedules (by time). Using an analysis of pause types, the results showed that anticipatory pauses occurred: long pauses were found before long components, and short pauses were found before short components, regardless of the previous component in the multiple schedule. Response gradients showed two peaks corresponding to each FI, and precise timing. In conclusion: 1) the pause is an anticipatory phenomenon; 2) rats use elapsed time as a signal to anticipate reinforcement; they combine such information with the stimulus to more effectively time durations. The deep learning analysis enables us to visualize the rats' movements in the chamber, providing a first step in quantifying how such patterns may function as an embodied clock.

Keywords: discriminative stimuli, fixed intervals, timing

Effect of Timeout Punishment on the Resurgence of Operant Behavior

Paulo Soares-Filho[1]; Ana Vanderley-Cardoso[1]; Gabriel Henderson[1]; Diana Cortés-Patiño[1]; Marcus Carvalho-Neto[1]

[1]Universidade Federal do Pará

Two experiments evaluated the effect of punishing the target (Experiment 1) or the alternative (Experiment 2) response, using a timeout procedure, on the resurgence behavior using rats as subjects. Both experiments had three phases. In the target response training phase, lever presses were reinforced according to a variable-interval schedule. In the Alternative-Reinforcement phase, pressing the opposite lever was reinforced according to a variable-interval schedule, and the target response was extinguished. To half of the subjects, the target response also produced a 20-second timeout (i.e., blackout with no reinforcement at all) (Experiment 1). During the Resurgence-Test phase, all contingencies (reinforcement and timeout) were interrupted (Experiment 1) or the alternative response produced a timeout (Experiment 2). The results showed that subjects who had the target response punished resurged more than without punishment (Experiment 1), and that punishing the alternative response using timeout, during the test phase, reliably induced resurgence (Experiment 2). These results pointed out the role of timeout removal on resurgence and that timeout punishment may devalue the alternative response, without changing the local rate of reinforcement.

Keywords: punishment, resurgence, timeout

Renewal of Response Location in Rats and Humans

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Operant renewal is a procedure that examines the recurrence of previously eliminated behavior because of changes in the experimental context. Understanding renewal and spatial response patterns has applied relevance for relapse prevention. Most studies on the topic focus on the assessment of recurrence of a single response in a specific location. The present study evaluated renewal of response location through a five-button or lever arrangement in rats and humans using a three-phase procedure. In Phase 1, subjects were divided into two groups: in the All group, responses emitted on any location were reinforced and signaled, whereas in the Center group, only responses on the central location were reinforced and signaled. Variable interval schedules were used both for rats and humans. In Phase 2, all responses were exposed to an extinction procedure in an alternative context. Finally, in Phase 3, the context from Phase 1 was reinstated while extinction was maintained. The results showed a renewal effect, as well as a correlation between variability levels in the first and third phases, suggesting that the principles governing the recurrence of spatial response patterns share systematic properties across species.

Keywords: humans, operant renewal, rats,

Posters

Lecture Hall 406

1. Meet the Editor-in-Chief of the International Journal of Comparative Psychology.

Charles I. Abramson[1]

[1]Oklahoma State University

The International Journal of Comparative Psychology was founded in 1987 by Ethel Tobach and is the official journal of the International Society for Comparative Psychology. Consistent with the activities of the Society, it publishes studies on the evolution and development of behavior, broadly defined, and in all animal species; on the use of the comparative method for understanding behavioral processes; and on the examination of the adequacy of psychological and evolutionary theories. It accepts articles that deal with historical and contemporary relationships between humans and other animals, that elucidate problems of homology of processes between human and non-human species, that explore the relationship between animals and changing environments, that provides an historical perspective on human evolution, that explicate fundamental concepts about human evolution, and that present research results and develop theories about the development and evolution of behavior. We also accept video articles that describe comparative methods and those that focus on teaching comparative psychology. Papers are open source and free of charge, without the requirement of a journal subscription. This is invaluable for faculty and students at institutions with limited financial resources.

Keywords: Abramson, about, IJCP

2. A Microstructure Behavior Approach to Measure the Effects of Ethanol Consumption Acquisition in Progressive Ratio in Young CD1 Mice.

Génesis Aranza Galindo-Siller[1]; Tania Campos Ordoñez[2]; Jonathan Buriticá[1]

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Fixed-Ratio performance is characterized by a pause after reinforcement, followed by a bout of responses until the contingency requirements are met. The Progressive Ratio (PR) is a dynamic presentation of FR; however, the trial-by-trial performance has been less studied. Nonetheless, the Mathematical Principles of Reinforcement suggest that the pause should increase, and response should occur in bouts as in other ratio schedules. We exposed young female and male CD1 mice to a PR using milk, water, and milk again in successive phases, and a second group to the same substances combined with ethanol. A microstructure analysis was conducted to examine how responses and reinforcers were distributed throughout the session. Males in phase 3, when milk contains ethanol, responded more and with shorter Inter-Response Times compared to control males. Females exhibit this same pattern in both phases (1-3) when milk and ethanol are combined. It can thus be concluded that the water, milk, or their combination with ethanol impacts the subjects' motivation to respond in the PR. This analysis may yield a new quantification of performance, inspire new analysis (IRT), and enable the measurement of ethanol consumption acquisition during a pure (without sensitization) self-administration protocol.

Keywords: adolescence, ethanol, mice, motivation, progressive ratio, sugar

3. Understanding Stress Reactivity Through Tinbergen's Four Questions: An Integrative Evolutionary-Developmental Framework.

Andrés Carrillo-González[1]; Felipe Forero Castillo[1]; Leonardo Augusto Ortega Murillo[1]

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Stress reactivity is an adaptive system that has supported vertebrate survival for over 500 million years. However, classic and contemporary research often examine it through isolated theoretical frameworks. This review employs Tinbergen's four questions to integrate mechanistic, developmental, functional, and evolutionary perspectives on stress reactivity, thus uncovering insights obscured by reductionist approaches. We propose a Dynamic Evolutionary-Developmental Model that conceptualizes stress reactivity as an emergent property arising from continuous, bidirectional interactions among phylogenetic constraints, ontogenetic programming, real-time physiological processes, and ecological demands. Within this integrative framework, stress-related pathologies can be reinterpreted not as system failures, but as adaptive responses expressed in mismatched or novel environments. This synthesis may result in important implications for understanding stress-related health disparities, designing interventions aligned with evolutionary constraints, and acknowledging the trade-offs inherent in stress system design. Overall, this framework advocates moving beyond narrow stress-reduction paradigms toward strategies grounded in the evolutionary heritage and adaptive functions of stress systems.

Keywords: dynamic evolutionary-developmental model, stress reactivity, Tinbergen's four questions

4. Numerosities in the Birdbrain: Pigeons' (Columba livia) Judgments of Sequential Light Flashes from Counting and Fibonacci Sets.

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This study examined pigeons' (*Columba livia*) discrimination of sequentially presented numerosities. Two stimulus sets were tested on different birds: counting numbers (1, 2, 3, 4, 6, 7, 8, 9) and Fibonacci numbers (0, 1, 2, 3, 8, 13, 21, 34), with 5 excluded to serve as a categorical boundary (<5 vs. >5). Pigeons performed a two-alternative forced-choice (2AFC) task in which center-key light flashes were followed by side-key choices, with reinforcement contingent on correct classification. All birds learned to reliably discriminate between larger and smaller values. Across all Fibonacci set birds, categorization errors scaled systematically with a discrimination ratio relative to the anchor value 5. A logarithmic (Fechner) model accounts for greater variance than a linear fit, suggesting that pigeons compress numerical magnitudes along a mental number line. Responses to 5 light flashes in probe trials demonstrated a choose-low tendency for ambiguous stimuli. After learning, to investigate possible anchoring effects, houselight flashes preceded center-key test stimuli but reinforcement remained contingent only upon the center-key flashes.

Keywords: comparative cognition, pigeons (*Columba livia*), sequential quantity discrimination

5. Early Social Exposure Boosts Copulatory Efficiency and Sexual Conditioning.

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Early exposure to sexually mature conspecifics may influence the development of sexual behavior, though it remains unclear whether different types of exposure have distinct effects on behavior and learning in this domain. We tested 33 sexually naïve male quail (40 days postnatal) assigned to no exposure, visual exposure, or female interaction groups. Later copulatory tests showed increased sexual behavior in all groups, but only the female interaction group improved copulatory efficiency, suggesting a specific effect of direct female experience, independent of sexual maturation. Groups were further divided into control and learning conditions and exposed to a sexual conditioning task using a quail-shaped terrycloth (CS) followed by access to a female (US) across 24 trials. Conditioning occurred only in the female interaction and learning group, indicating that such learning can emerge before adulthood but depends on prior experience. This result highlights that early social experience provides a crucial foundation for the acquisition of sexual conditioning, while limited or purely visual exposure is insufficient to support such learning. These findings provide novel evidence linking early exposure, sexual behavior, and associative learning in quail.

Keywords: japanese quail, sexual conditioning, sexual development

6. The Role of Common Stimulus in Perceptual Learning: Variations on its Characteristics.

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Hall (2021) highlight about the role of common stimulus (X) in perceptual learning has been underestimated. We had pre-exposed to students with two composed target stimulus (Color and Position) into common stimulus. These targets could change their position across the trials in pre-exposition phase, which produced changes in X (Lugo y Cabrera, 2020). In three studies we varied characteristics of common stimulus. The aim of present contribution is to compare the effect of modify the stimulus common characteristics on the facilitation to discriminate compound visual stimuli in undergraduates. Study 1: the A (p.e. blue color in upper position) and B (p.e. red color in lower position) target stimuli were showed into X, which was a square with white background. Study 2: the same targets were showed into X, it was a white square with a 36 square grid, the square lines were black. Study 3: the common stimulus was the same grid with white (X) or gray (Z) background. The discrimination test show in Study 1 was 80% of correct responses, whereas that the percents in Studies 2 and 3 were upper to 90%. This results show that X has an active role in the perceptual learning process; it isn´t a neutral stimulus that only go with to target stimulus. Granted DGAPA-PAPIIT IN301223

Keywords: common stimulus, discrimination, perceptual learning

7. Escape From Fich-to-lean Transitions in Rats

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Pauses during the transition from rich-to-lean reinforcement conditions can be understood as a form of escape responses. In the present experiment, six male Wistar rats were exposed to a multiple FR-FR schedule, in which components had the same response criterion for reinforcer delivery. Each component differed in the magnitude of reinforcement associated with it. The rich component delivered 5 reinforcers while the lean component delivered 1 reinforcer, and they were presented in a quasi-random manner based on four types of transitions (rich-to-lean, rich-to-rich, lean-to-rich, and lean-to-lean). When the median value of the post-reinforcement pause (PRP) in the rich-to-lean transition was twice that of the other transitions, an escape lever was provided on half of all transitions, which allowed the rats to enter at a time-out for 30 seconds. Preliminary results of interest will be discussed in terms of the proportion of escape responses, escape initiation latency, and spatial distribution of behavior and topographic characterization during PRP.

Keywords: escape behavior, operant behavior, rats, rich-to-lean transition, time-out

8. Preliminary Assessment of the Dual Behavioral Systems in a Punishment Procedure

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Decision-making can rely on two systems: one based on reward value (goal-directed) and another independent of the reinforcer's value (habits). Although studied in reinforcement and avoidance, their role in punishment learning remains unclear. Method: Eight female Sprague-Dawley rats were trained on an RI-60 schedule to press two levers for sucrose over nine sessions. Next, during 15 sessions, one of the levers was paired with a punishment schedule such that, if the rat continued responding at the same rate as in the last training session, it would receive 10 shocks. Half of the rats then underwent five sessions of counterconditioning to devalue the electric shock, pairing it with three chocolate pellets. Goal-directed behavior was assessed via extinction and reacquisition tests. Results: Rats reduced responding on the punished lever over the sessions. During counterconditioning, head entries increased after CS offset. Extinction test showed no group differences, suggesting habitual responding. However, the reacquisition test also showed no differences, questioning the effectiveness of our counterconditioning manipulation. Discussion: Findings suggest inconclusive evidence for habits and a possible role for contextual learning in counterconditioning.

Keywords: dual-system theory, habits, punishment

9. Timing and Impulsivity: A Comparative Approach from Animal Models to Children with ADHD

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Impulsive choice refers to preferring a smaller, immediate reward over a larger, delayed one. It has been extensively studied in animal model. Some findings suggest that greater temporal precision may reduce impulsive choice, particularly in intervention studies with animal models. However, this hypothesis has not been systematically tested in humans. Children with ADHD often display heightened impulsive choice and reduced accuracy in temporal estimation. This study aims to bridge animal and human research by assessing children aged 7–12 years, with neurologist-confirmed ADHD, on tasks commonly used in comparative research: temporal bisection, time reproduction, temporal discounting, and probability discounting. Procedures include a pre-test before medication, a caregiver adherence survey after one month, and task repetition two months later. By paralleling paradigms developed in animal research, this project seeks to directly compare mechanisms across species. Findings are expected to clarify how timing processes modulate impulsive and risky decision-making in ADHD, and to determine whether pharmacological treatment influences these behaviors, thereby advancing translational insights and informing more effective interventions.

Keywords: comparative psychology, impulsive choice, timing

10. Learning History Shaped by Payoff Matrix Influences Cooperation in the Prisoner's Dilemma

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The prisoner's dilemma is an economic game in which two agents choose independently between cooperating or defecting, with outcomes determined by the combination of the agents' decisions according to a payoff matrix. In non-human animals, such matrices often bias choices toward one option, yet few studies have explored how prior training with different matrices affects later behavior. This study examines how quantitative differences in payoff matrices influence decision-making in rats. Subjects were trained in operant chambers, each with two levers, a light, and a food dispenser. In Phase 1, rats played against a tit-for-tat strategy in an iterated prisoner's dilemma and were assigned to one of three groups: "strong" (defection always reinforced), "neutral" (both choices always reinforced), or "weak" (defection reinforced only in one condition). In Phase 2, rats from different groups played against each other using the neutral matrix to evaluate the impact of reinforcement history. It is expected that rats from the "weak matrix" group will show a higher tendency to cooperate, as defection was not consistently reinforced during training. These findings may clarify the role of reinforcement magnitude and learning history in decision-making within social dilemmas.

Keywords: prisoner's dilemma, rats, reinforcement history

11. Implementation of an Environmental Enrichment Programme for Giraffes to Reduce Stereotypical Behaviour

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In September 2023, the Madrid Zoo Aquarium reported that five giraffes were exhibiting stereotypical behaviors, such as pica toward non-nutritive materials and aimless wandering, among others. The general objectives of the research are: 1) to measure the behavior of the giraffe group; 2) to quantify stereotypical behaviors; 3) to implement an environmental enrichment program and cognitive stimulation tasks to improve animal welfare. In the first part of the research, an observation tool with 36 behaviors is developed to measure the latency, frequency, and duration of giraffe behaviors (Giraffetogram). The implementation of the Giraffetogram begins with the observation and recording of the behaviors of the giraffe group before stimulation. Next, an environmental stimulation guide is proposed as enrichment, which is created and implemented in July 2025. Subsequently, the videos are edited and coded with BORIS 9.7.6 software. As a result, the giraffes' behaviors are analyzed to obtain measures of duration, latency, and frequency. It is hoped that the Giraffetogram will make it possible to measure changes in giraffe behavior and learn how they behave individually and in groups.

Keywords: environmental enrichment, giraffe, stereotypical behaviors

12. Cognitive Challenges and Their Influence on Cortisol Levels in Ateles Geofforyi

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Cognitive processes involve energy expenditure and a cost to the individual's homeostasis. Spider monkeys have developed complex cognitive abilities. This allows us to propose that salivary cortisol levels in spider monkeys increase when they perform high-complexity cognitive tasks (TCA). Therefore, low-complexity tasks (TCB) and medium-complexity tasks (TCM) would decrease it. To test this, salivary samples were taken from seven previously trained monkeys. The samples were collected when the monkeys were at rest and after performing the tasks. ELISA tests were used to determine the concentration of cortisol in saliva. Non-parametric statistics were used to verify the differences. Spider monkeys have a baseline salivary cortisol level of 308.694 ng/ml with an IQR of 185.787–384.093 ng/ml. When they performed the tasks, the results were: TCB: 384.216; TCM: 358.980; TCA: 337.266. No statistical differences were found in salivary cortisol concentrations between each of the stages, but the dispersion of the data did vary. This may imply a high physiological regulation of cortisol in spider monkeys, allowing them to cope with acute stressors. It is associated with individual differences, mediated by factors such as behaviour, coping strategies, and previous experience.

Keywords: acute stressor, hormonal regulation, memory task, neuroendocrinology, salivary samples

13. Behavioral Effects of a Psilocybin Mushroom Infusion on Escape Responses in Acheta Domesticus

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Psilocybin, a psychoactive metabolite found in Psilocybe mushrooms, acts on serotonergic receptors and alters defensive behaviors across taxa. In crickets (*Acheta domesticus*), the serotonin-regulated cercal system mediates escape responses to environmental stimuli. This study evaluated psilocybin mushroom infusion effects on these behaviors. Twenty-eight adult crickets were tested in a crossover design across three exposures (MVM group: mushroom–vehicle infusion–mushroom; VMV group: vehicle infusion–mushroom–vehicle infusion). Psilocybin was orally administered (12 mg/kg), and trials began 1.5 h post-administration. Wind stimuli from multiple angles evoked escape responses, which were video recorded. Behavioral measures included distance traveled, locomotor speed, jumps, immobility, and grooming. Psilocybin-treated crickets showed a significant reduction in distance traveled during the first exposure ($p<0.05$). Treatment also reduced jumps and increased grooming, with stronger effects upon re-exposure. Findings indicate psilocybin decreases defensive responses and locomotor activity in A. domesticus. Results highlight invertebrate models potential for studying serotonergic modulation of behavior. This is the first report describing psilocybin's behavioral effects in this species.

Keywords: Acheta domesticus, invertebrate model, Psilocybin

14. The Role of the Inertia Tensor in the Radial-tangential Haptic Illusion

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This work addresses haptic perception from an ecological perspective, particularly a phenomenon known as the radial-tangential illusion, which consists of differentially perceiving a vertical rod (involving radial arm movements) and a horizontal rod (involving tangential arm movements), both of equal length. Gibson proposed that perception is based on the detection of invariant information. The inertia tensor has been proposed as a crucial invariant for the haptic system, as it allows for the description of the force dynamics generated during object manipulation and how they relate to the properties of the objects. Our study is based on these assumptions to explore the radial-tangential illusion phenomenon. In the first experiment, the distance and angle of the stimulus were manipulated. The results showed that the overestimation of the stimulus length increased as the stimuli were placed further away from the participant. Furthermore, the overestimation occurred in angles that promoted radial movements (i.e., 90°, 10° and 170°), extending previous findings. In the second experiment, the effect of adding weight to the wrist was explored. Although the effects of distance and angle were replicated, the added weight did not produce a significant increase in overestimation.

Keywords: haptic perception, invariants, radial-tangential illusion

15. MAGL Inhibition: Sex-specific Modulation of Sensory and Affective Responses to Hyperalgesic Priming in Mice

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Chronic pain is currently a problem frequently associated with affective disorders such as depression and anxiety. In the search for more effective analgesics, the endocannabinoid system has garnered attention for its potential role in pain modulation and the development of sex-specific analgesics. Considering sex differences in pain transmission, this study investigated the impact of enhanced endocannabinoid neurotransmission on sensory and affective-emotional responses induced by a hyperalgesic priming protocol in female and male mice. This study investigated the effects of monoacilglicerol lipase (MAGL) inhibition using (JZL184) on mechanical hypersensitivity (Von Frey test), facial pain expression (grimace scale), anxiety (elevated plus maze), and depression (coat condition). The results revealed that intraperitoneal (i.p.) treatment with JZL184 showed decreased mechanical hypersensitivity in both sexes and attenuated grimace scale only in males. These findings highlight MAGL inhibition's therapeutic potential as an analgesic with distinct sex-dependent effects influenced by intervention timing. Further exploration of these differences may guide the development of a new and specific treatment for chronic pain conditions.

Keywords: anxiety, depression, endocannabinoid system, pain, sexual dimorphism

16. Variability and Stereotypy in a Virtual Dashiell Maze: Reinforcing Different Levels of Variability Routes in a VDM

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In a comparative study using the Dashiell Maze (Zepeda & Cabrera, 2021), it was reported that the use of a virtual maze provides information that explains spatial behavior and its variability in humans. The Dashiell Maze is a device whose shape allows for multiple equidistant routes to reach the goal; thus, there is no optimal route to exit the maze. This feature enables variability to be assessed through multiple 'response' options. However, variability has not been directly reinforced. Therefore, the objective of this research was to train varied and stereotypical routes in human participants by providing verbal feedback (correct route or incorrect route) or points that participants could be exchanged for a reinforcer at the end of the procedure. Two groups were formed, each with one type of feedback (verbal or earning points). College students and schoolchildren participated. The results showed better performance for the group that received verbal feedback than for the group that received points for varying or repeating. Thus, the importance of the compatibility of the reinforcer with the response is discussed.

Keywords: stereotypy, variability, Virtual Dashiell Maze

17. Impact of Early Maternal Stress on Maternal Care and Offspring Behavior in Rats

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Maternal stress during lactation is a critical factor shaping offspring development. This study investigated the impact of maternal social instability stress (SIS) on maternal care and the prepubertal behavior of Sprague-Dawley rats. Sixteen lactating females were assigned to control or SIS groups, the latter exposed to daily brief encounters with a virgin female intruder from postnatal days 2–8. Maternal care was assessed through undisturbed observations and pup retrieval tests, while offspring were evaluated in a battery of behavioral assays, including social dominance, sucrose preference, open field, and social interaction. Preliminary findings show that stressed mothers displayed reduced efficiency in pup retrieval compared to controls. Offspring exhibited sex-dependent alterations: SIS-males showed a trend of lower sucrose intake, whereas SIS-females spent more time in the central area of the open field, indicating altered anxiety-related responses. Additional analyses of ultrasonic vocalizations and social play behavior are ongoing to clarify further maternal stress effects on offspring. These results highlight maternal stress during early postnatal life as a potent modulator of maternal behavior and offspring socioemotional outcomes.

Keywords: maternal care, offspring behavior, rats, social stress

18. Vocalization, Contact, and Experimenter Bond as a Modulator of Anxiety-like Behaviors in Female Rats

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Despite the constant proximity between researchers and laboratory animals, little evidence exists on how experimenter characteristics, such as vocalization, affect behavior and welfare. High-pitched vocalizations may influence subjects' behavior, reducing anxiety-like responses, but the extent remains unknown. This project aimed to evaluate the impact of experimenter vocalization on social and anxiety-like behavior in rats. An experimental design was conducted with 12 female Wistar rats, 30 days old, divided into three groups: Group 1 received soft high-pitched female vocalizations combined with affective tactile stimulation ("tickling"); Group 2 received only vocalizations; and Group 3 served as the control, with neither. The procedure included pre-test and post-test assessments for all groups, using an open field test and a novel object recognition test, to evaluate possible attenuating effects of vocalizations with tactile stimulation. Partial data are presented from these tests, including time spent in the center of the open field, locomotor trajectories, grooming duration and topography, and time spent interacting with or near objects.

Keywords: affective tactile stimulation, animal welfare, anxiety-like behavior, rats, vocalizations

19. Dominance Relations in Norway Rats in Pairs Versus Groups

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Several experimental studies with animal species have used isolated, dyadic observations of individuals to determine the dominance hierarchy of a group. However, increasing evidence shows that dominance hierarchies differ when tested in groups versus socially isolated pairs. In this study, I compared the dominance hierarchies observed in a colony of Norway rats (*Rattus norvegicus*) when observed in groups in a Visible Burrow System, versus isolated pairs in the classic Tube Test. The results show that hierarchies observed in groups are structurally different to those observed in isolated pairs. This difference is explained by the presence of bystanders in groups, which can influence the dominance relation of pairs of subjects and therefore change the emergent hierarchy of the group. This suggests that hierarchies are not reliably inferred when testing isolated pairs, and the classic Tube Test should be reconsidered as a standard protocol for dominance assessments in rats.

Keywords: dominance, social structure, tube test

20. Differences in Behavioral Traits of Norway Rats When Measured for Dominance Hierarchies

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In species with steep dominance hierarchies, dominants and subordinates exhibit differential behaviors. For instance, rats exhibit two behaviors that are associated with individual's dominance status: patrolling for dominants, and tunnel guarding for subordinates. It is expected that the frequency of these behaviors correlates with rank in a dominance hierarchy. However, recent evidence has shown that not all ways to determine dominance hierarchies correlate with each other and, therefore, such behaviors would not be predictors of hierarchy rank in certain techniques. In this study, we observed the frequency of patrolling and tunnel guarding in a colony of Norway rats, and we tested whether these behaviors are correlated with the rank of individuals using two methods to determine hierarchies: by groups versus pairs in isolation. Our results indicate that a higher frequency of patrolling is related to a higher rank in the hierarchy when measured with groups, whereas a higher frequency of tunnel guarding is related to a higher rank in the hierarchy when measured with isolated pairs. This suggests that hierarchies determined by pairs in isolation may be misleading, as winners of contests in isolated pairs exhibit behavioral traits of subordination when observed in groups.

Keywords: dominance, hierarchy, subordination

21. When Dominance Fails: Shifts in Male Hierarchies and Unexpected Patterns of Reproductive Success in Japanese Quail

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Sexual selection theory posits that male-male competition and dominance hierarchies strongly influence access to mates. To investigate these processes, we conducted a seminatural study with Japanese quail. In Phase 1, four males were gradually introduced into an experimental arena, and in Phase 2, once the males were established, eight sexually mature females were introduced sequentially. Behavioral observations were collected through 10-min focal samples per male. Aggressions were used to construct daily dominance hierarchies. Analyses revealed that male rank positions shifted between Phase 1 and Phase 2, indicating instability of dominance when females were introduced. Generalized linear mixed models showed that aggression increased with the number of males present but tended to decrease as the number of females increased, suggesting that social context modulates competitive behavior. Contrary to predictions from sexual selection theory, dominance measures were not associated with reproductive success. Notably, the highest-ranking male achieved the lowest number of observed copulations. These results highlight that female behavior may also play a critical role, and future studies should examine female receptivity and related behaviors to better understand reproductive outcomes.

Keywords: dominance, Japanese quail, sexual selection

22. Do Dogs Prefer Strangers Synchronized With Their Owner? A Proposed Experimental Study

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According to Duranton and Gaunet, behavioral synchronization can be categorized into three forms: activity, location, and temporal synchrony. This phenomenon has been shown to play a critical role in shaping social preferences, not only in human interactions or within other species but also in interspecific relationships, such as those between humans and pet dogs. This project aims to examine whether synchronization between a dog's owner and an unfamiliar person influences the dog's affiliative behavior toward that individual. For this, an experimental design with two conditions will be implemented. In the experimental condition, the owner will synchronize their behavior with one unfamiliar person across the three types of synchrony. In the control condition, the owner will deliberately desynchronize their behavior with another unfamiliar person, while the dog is present and observing. Then, in a preference test, the dog will be allowed to choose between the two strangers. It is expected that dogs will show greater affiliation toward the individual with whom their owner previously synchronized.

Keywords: behavioral synchronization, dogs; social relationships

23. Effects of Dog Interaction on Academic Stress in University Students: An Experimental Study

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Academic stress is a growing concern in higher education, affecting both mental health and academic performance. Animal-assisted interventions have shown potential to reduce stress, but controlled experimental designs are still limited. This study aims to evaluate the effects of pet dog presence and interaction on perceived stress in undergraduate students during exam periods. Participants will be divided into three groups. The control group will spend 15 minutes in a classroom without a dog. Experimental Group 1 will spend 15 minutes in a classroom with a dog present but without physical interaction. Experimental Group 2 will spend 15 minutes in a classroom with a dog, with opportunities to pet, play, and reward the animal. Stress will be assessed using the Perceived Stress Scale (PSS-14) at three time points: baseline (weeks before an exam), during a first exam, and during the second exam after exposure to the conditions. This design allows comparison between passive dog presence and active interaction, relative to a control condition. We hypothesize that active interaction will lead to the strongest stress reduction. Findings will contribute to understanding the comparative role of interspecific affiliative contact in coping with academic stress.

Keywords: academic stress, animal-assisted activity, dogs, university students

24. A Psychological Model of the Cognitive Processes Regulating Exploratory Behavior in Animals

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This paper proposes a conceptual model of animal exploratory behavior that integrates principles from modular cognition and affordance theory. It distinguishes between fixed action patterns, novelty-driven exploration, and affordance-seeking, highlighting the cognitive mechanisms underlying each. Central to the model is a system that integrates modules, such as key-stimulus detection, novelty detection, and affordance analysis, each functioning as an autonomous yet interconnected unit. These modules mediate behavioral responses through sequential decision-making influenced by internal drives and affordances. The paper emphasizes the model's empirical testability and relevance across species, linking behavioral flexibility to evolutionary adaptation and environmental complexity. By integrating sensory, cognitive, and motivational components, the model contributes to understanding how animals adaptively regulate exploratory actions. This approach supports the development of experimentally verifiable hypotheses and bridges cognitive, ecological, and ethological perspectives. Moreover, the model provides a robust framework for comparative and general psychology, offering insights into the evolution and architecture of cognition across species.

Keywords: animal exploration, behavior regulation, cognition, comparative psychology, ethology, theoretical model

25. Preference and Behavioral Effects of Different Enriched Environments in Female Wistar Rats

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Environmental enrichment (EE) refers to the incorporation of physical, social, and cognitive stimuli that contribute to the health and well-being of animals. Previous research has demonstrated that such environmental manipulations enhance brain plasticity and learning processes. Nevertheless, few studies have examined the long-term effects of EE or the preferences animals may develop for environments offering different types of stimulation. The present study aimed to compare different levels of EE on behaviors related to anxiety and to analyze the temporal distribution of activity in female Wistar rats. Eighteen rats were randomly assigned to three groups: continuous EE (physical, social, and cognitive stimuli available 24 hours a day), limited EE (1 hour per day), and social EE only. Anxiety-like behaviors were assessed using the open-field test, and in the continuous EE group, the number of entries into the enriched cage was additionally recorded. Results indicated a marked preference for the enriched cage over the food box, as evidenced by a significantly greater number of entries. Moreover, group comparisons revealed notable differences in anxiety-like behaviors depending on the type and duration of enrichment provided.

Keywords: anxiety, behavior, environmental enrichment, preference, rats

26. Effects of Environmental Enrichment on the Stereotypical Behavior of a Sapajus Apella

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In captive settings, environmental enrichment has been incorporated as a strategy to ensure and improve the welfare of animals under human care. It is understood as a procedure involving modifications to the environment and animal management practices aimed at enhancing behavioral opportunities and biological functioning by keeping animals actively and variably engaged with their surroundings. The present study aimed to evaluate the effects of personalized environmental enrichment strategies on the expression of a stereotypic behavior in a Sapajus apella individual housed at the Wildlife Rescue and Rehabilitation Unit of the National University of Colombia. A pre-post enrichment design was used. Three independent observers recorded behaviors from video footage using 30-second interval sampling during 45-minute sessions. Behavior was recorded before, during, and after the implementation of enrichment strategies. Descriptive data from the pre- and post-enrichment phases indicate a decrease in stereotypic behavior. In addition, reports from the Unit's professionals indicated an increase in general activity and in the primate's welfare.

Keywords: environment enrichment, *Sapajus apella*, steretipic behaviour

27. Stimulus Equivalence and the Directionality of Conditional Relations

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The stimulus equivalence paradigm has been widely studied by behavior analysts as a model to explain human symbolic behavior. The paradigm consists of the training of some arbitrary conditional discriminations and the observation of the emergence of new conditional discriminations that accomplish the formal properties of a mathematical equivalence relation: reflexivity, symmetry, and transitivity. Sidman believed that stimulus equivalence is a direct consequence of reinforcement contingencies and should therefore also be observed in non-human animals. However, the observation of stimulus equivalence in non-human animals has been limited to some specialized procedures involving explicit training of one or more emergent relations. This suggests that the spontaneous emergence of equivalence according to Sidman's criteria constitutes behavioral discontinuity. Some studies with non-human subjects demonstrate the reliable emergence of transitivity under the many-to-one structure compared to the one-to-many structure. This suggests that the temporal directionality of the conditional relations may play a role in the difference in the emergence of equivalence between humans and non-humans.

Keywords: humans and non-humans, stimulus equivalence, symbolic behavior

28. Relation Between Discrimination Index and Eye Tracking in Perceptual Learning with Non-static Stimuli

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The continuous variations in the stimuli in perceptual learning has been few explored despite they permit to evaluate the role as target stimuli as common stimulus. The aim of present experiment is to evaluate the effects of ordered versus random changes in the position of stimuli during pre-expositions on the discrimination index and eye tracking. Undergraduate were pre-exposed to composed stimuli AX/BX shaped as asterisk. A (couple thin lines) and X shaped by 3 couple lines of medium thickness. B (couple thick lines) and same X. The test was simultaneous Same-Different task. Eye tracker was on. In pre-exposition, Group Ordered (n = 10) observed asterisk rotating 45° from left to right across the trials (8 positions). Group Random (n = 10) observed asterisk which rotated in random order (8 positions). The Discrimination index in Group Ordered was 82% and the heat map showed that participants were following the target stimuli in pre-exposition and they fixed their eyes on both stimuli in the test. The Group Random was 71% and the heat map showed that the participants fixed their eyes in upper and central zone of stimuli during pre-exposition; during test the participants were alternating between comparative stimuli. Data replicate the previous experiment (Jiménez, et al., 2020) and showed a relation between discrimination and eye tracking.

Keywords: eye tracking, discrimination index, learning