Hits and Misses: Digital Contact Tracing in a Pandemic
Maryanne Garry et al.

Contact tracing is one of the most powerful weapons against a pandemic, but its effectiveness hinges on its ability to find infected people quickly and obtain accurate information from them. Thus, digital contact tracing—an unobtrusive and accurate recorder of danger—should outperform manual contact tracing, which inherits the challenges associated with the fallibilities of memory. During COVID-19, digital contact tracing appears to have reduced the incidence of COVID-19 cases by at least 25% in many countries. Yet digital contact tracing likely delivered on only a fraction of its potential because its use almost completely ignored the relevant psychological science. Garry and colleagues discuss the strengths and weaknesses of digital contact tracing, its hits and misses in the COVID-19 pandemic, and its need to be integrated with the science of human behavior.

Learn much more about contact tracing in this recording and recap of a 2022 webinar by the APS Global Collaboration on COVID-19.

Interpersonal Distance Theory of Autism and Its Implication for Cognitive Assessment, Therapy, and Daily Life
Kinga Farkas, Orsolya Pesthy, Karolina Janacsek, and Dezső Németh

Farkas and colleagues propose the interpersonal distance (IPD; the physical space between persons) theory as a novel approach to studying autism spectrum disorder (ASD). The authors review recent findings on the neurobiological underpinnings of IPD regulation that are distinct in individuals with ASD. They discuss the influence of environmental factors on IPD and suggest that different IPD regulation may influence cognitive performance in experimental and diagnostic settings as well as the effectiveness of training and therapy. Farkas and colleagues propose a methodological approach to study IPD systematically, arguing that taking IPD into account may result in different interpretations of previous ASD findings.
Asakawa and colleagues explore the relationship between age-related hearing loss (ARHL) and cognitive impairment (CI). They highlight two key unaddressed questions: (a) whether ARHL can cause CI and (b) whether treatment of ARHL can ameliorate CI. In their review, they discuss methodological problems in the existing research (e.g., potential confounding bias, inaccurate assessments of CI and ARHL). They also identify potential solutions for each problem from the viewpoints of clinical epidemiology, suggesting that the use of more objective behavioral assessments and new computerized technologies may improve experimental designs for studying the relationship between ARHL and CI.

With a better understanding of the algorithms deployed by social media platforms and search engines, researchers can support the development of algorithms with greater benefits and fewer risks to the public. Lewandowsky and colleagues emphasize that technology users’ interactions with algorithms shape their experiences in the moment but shape the algorithms as well, potentially causing longer-term effects by modifying the underlying social-network structure. Understanding these mutually shaping systems is challenging because researchers lack access to relevant platform data. The authors argue that increased transparency and more data sharing are required to help researchers better understand the entanglement between humans and algorithms.

Mazrekaj and De Witte review the literature on the impact of school closures during the COVID-19 pandemic on children’s learning and mental health around the world. They found that the scale and length of school closures likely resulted in a substantial deficit in children’s learning and a deterioration in children’s mental health. The authors provide policy recommendations on how to ensure children’s learning and psychosocial development in the future: (a) Provide more attention to students from marginalized groups, (b) implement evidence-informed and personality-tailored mental-health and social- and emotional-learning programs in schools, and (c) avoid generational labels.

To better understand human emotions, Hoemann and colleagues present observations from an inductive, qualitative analysis of interviews conducted with the Hadza, a community of small-scale hunter-gatherers in Tanzania, and juxtapose them with data from Americans. Although American event descriptions largely conformed to the assumptions of eurocentric psychological theory—emotions as internal mental states centering on individuals’ subjective feelings and evaluations—Hadza descriptions emphasized action and bodily sensations, the physical environment, immediate needs, and the
experiences of social others. These observations suggest that subjective feelings and internal mental states may not be the only organizing principle of emotion.

**Homo temporus: Seasonal Cycles as a Fundamental Source of Variation in Human Psychology**
*Ian Hohm, Alexandra S. Wormley, Mark Schaller, and Michael E. W. Varnum*

Hohm and colleagues encourage a greater appreciation for and more systematic study of seasons as a fundamental source of variation in human psychology. Providing a summary of empirical evidence indicating that seasons impact a wide range of affective, cognitive, and behavioral phenomena, they articulate a framework that outlines causal mechanisms through which seasons can influence human psychology—mechanisms that reflect seasonal changes not only in meteorological variables but also in ecological and sociocultural variables. This framework may be useful for integrating different seasonal effects that have been empirically documented and for generating new hypotheses about additional effects.

**The Strengths and Weaknesses of Crowds to Address Global Problems**
*Stephen B. Broomell and Clintin P. Davis-Stober*

Broomell and colleagues argue that many societal problems (e.g., pandemics, misinformation spreading) can be framed within a “wisdom of crowds” perspective, which allows researchers to recast complex problems within a simple framework and leverage known results on crowd wisdom. The authors present a model of the strengths and weaknesses of crowd wisdom that easily maps onto many societal problems. Their model treats the judgments of individuals as random draws from a distribution representing a heterogeneous population, and they use a weighted mean of these individuals to represent the crowd’s collective judgment. Using this setup, they show that subgroups have the potential to produce different judgments and affect a crowd’s ability to generate accurate judgments about societal problems.

**Three Challenges for AI-Assisted Decision-Making**
*Mark Steyvers and Aakriti Kumar*

Artificial intelligence (AI) has the potential to improve human decision-making by providing decision recommendations and problem-relevant information to assist human decision-makers. However, the full realization of the potential of human-AI collaboration continues to face several challenges. First, we must understand the conditions that support complementarity, i.e., situations in which the performance of a human with AI assistance exceeds the performance of an unassisted human or the AI in isolation. This task requires humans to be able to recognize situations in which the AI should be leveraged as well as to develop new AI systems that can learn to complement the human decision-maker. Second, we need to accurately assess human mental models of the AI, which contain both expectations of the AI as well as reliance strategies. Third, we need to understand the effects of different design choices for human-AI interaction, including both the timing of AI assistance and the amount of model information that should be presented to the human decision-maker to avoid cognitive overload and ineffective reliance strategies. In response to each of these three challenges, we present an interdisciplinary perspective based on recent empirical and theoretical findings and discuss new research directions.

**Group Formation and the Evolution of Human Social Organization**
Humans operate in groups that are oftentimes nested in multi-layered collectives like work units within departments and companies, neighborhoods within cities, and regions within nation states. With psychological science mostly focusing on proximate reasons for individuals to join existing groups and how existing groups function, we still poorly understand why groups form ex nihilo, how groups evolve into complex multi-layered social structures, and what explains fission-fusion dynamics. Here we address group formation and the evolution of social organization at both the proximate and ultimate level of analysis. Building on models of fitness interdependence and cooperation, we propose that (i) socio-ecologies can create positive interdependencies among strangers and pave the way for the formation of stable coalitions and groups through (ii) reciprocity and reputation-based partner selection. Such groups are (iii) marked by in-group bounded, parochial cooperation together with (iv) an array of social institutions for managing the commons, allowing groups to scale in size and complexity while avoiding the break-down of cooperation. Our analysis reveals how distinct group cultures can endogenously emerge from reciprocal cooperation, that social identification and group commitment are likely consequences rather than causes of group cooperation, and when intergroup relations gravitate towards peaceful co-existence, integration, or conflict.

Flexible Cultural Learning Through Action Coordination
Mathieu Charbonneau, Arianna Curioni, Luke McEllin, and James Strachan

The cultural transmission of technical know-how has proven vital to the success of our species. The broad diversity of learning contexts, social configurations, and the various kinds of coordinated interactions they involve speak to our capacity to flexibly adapt to and succeed in transmitting vital knowledge within varying learning contexts. While often recognized by ethnographers, the flexibility of cultural learning has so far received little attention in terms of cognitive mechanisms. We argue that a key feature of the flexibility of cultural learning is that both the model(s) and learner(s) recruit cognitive mechanisms of action coordination to modulate their behavior contingently on the behavior of their partner, generating a process of mutual adaptation supporting the successful transmission of technical skills in diverse and fluctuating learning environments. We propose that the study of cultural learning would benefit from the experimental methods, results, and insights of joint action research and, complementarily, that the field of joint action research could expand its scope by integrating a learning and cultural dimension. Bringing these two fields of research together promises to enrich our understanding of both cultural learning and its contextual flexibility, and (joint) action coordination.

The Sins of the Parents Are to Be Laid Upon the Children: Biased Humans, Biased Data, Biased Models
Merrick Osborne, Ali Omrani, and Morteza Dehghani

Technological innovations have become a key driver of societal advancements. Nowhere is this more evident than in the field of machine learning (ML), which has developed algorithmic models that shape our decisions, behaviors, and outcomes. These tools have widespread use, in part, because they can synthesize massive amounts of data to make seemingly objective recommendations. Yet, in the past few years, the ML community has been raising the alarm on why we should be cautious in interpreting and using these models: they are created by humans, from data generated by humans, whose psychology allows for various biases that impact how the models are developed, trained, tested and interpreted. As
psychologists, we thus face a fork in the road; Down the first path, we can continue to use these models without examining and addressing these critical flaws, and rely on computer scientists to try to mitigate them. Down the second path, we can turn our expertise in bias towards this growing field, collaborating with computer scientists to mitigate the deleterious outcomes associated with these models. This paper serves to light the way down the second path by identifying how extant psychological research can help examine and mitigate bias in ML models.

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