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Introduction to the Special Issue: Tutorials on Novel Methods and Analyses in Social Cognition, Part 1

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As many good ideas do, the idea for this special issue started over drinks. Weaving his way through a crowded and lively post-dinner session at the 2023 meeting of the Person Memory Interest Group (PMIG), Jimmy Calanchini fell victim to the cocktail party effect. However, it was not his own name that caught his ear, but rather the phrase "special issue on novel methods" that pulled him toward a conversation between Colin Smith and *Social Cognition* Editor Keith Maddox. *Person memory* is the original term for what is now known as *social cognition*—an area of study that investigates the processes underlying the perception, judgment, and memory of social stimuli; the effects of social and affective factors on the processing of information; and the behavioral and interpersonal consequences of cognitive processes. Much of social cognition's foundational work was inspired by methods adapted from experimental cognitive psychology, and the annual PMIG meeting (as well as other similar meetings such the European Social Cognition Network meeting) draws researchers who share these substantive interests, which they interrogate with a wide variety of theoretical and analytic approaches.

Maddox's insight, formed over the course of a day of listening to wide-ranging talks, was that the time was right for a new influx of inspiration—in part because he saw a theoretical versus methodological divide growing in recent years among social cognition researchers. For some, methods are are used to advance theoretical aims that are often situated in broader social and cultural contexts (e.g., reducing biases, mitigating disparities). For others, methods are the very focus of their science, perhaps especially so for researchers who prioritize psychometrics and statistical rigor. And for yet others, theory and method are inextricably linked: theoretical advancements can lead to methodological developments, and methodological developments in turn can inspire previously inconceivable theories.

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As the complexity of each of these conceptual pieces increases, the possibility for them to fit into the same social cognitive puzzle decreases. As such, Maddox proposed an issue of *Social Cognition* dedicated to cutting-edge statistical methods and data collection techniques that show great promise to move the field forward. Importantly, this special issue would not duplicate the good work already being done by methods-focused journals such as *Behavioral Research Methods*, the *Journal of the Psychonomic Society*, or *Advances in Methods and Practices in Psychological Science*. Instead, this special issue would consist of user-friendly tutorials with social cognitive applications as working examples. Calanchini and Smith were persuaded on the spot and Juliane Degner joined the newly formed editorial team soon after. The product of their work, as well as the efforts of dozens of authors and reviewers, is the special issue you are now reading.

To illustrate the gap that this special issue aims to fill, put yourself in the shoes of a beginning doctoral student choosing to study social cognition today. You must learn the basics of the psychologist's statistical toolkit, which likely means learning a statistical programming language like R. You also must learn best practices in experimental research design, which likely includes learning another language or two for programming experiments. And finally, but perhaps most dauntingly, you need to get up to speed on a vast and evolving literature. These are the bare minimum requirements for anyone who aspires to do PhD-level work in our field, and they are moving targets. The scientific literature is huge and growing by the day. Statistical and experimental methods are advancing faster than our standard core of graduate seminars can keep pace. These issues pose real and significant barriers not just for junior researchers who want to apply cutting-edge techniques in their own work, but also to researchers who seek to understand and evaluate the work of others who are using such techniques.

The goal of this special issue is to lower some of these barriers. To do so, we solicited papers aimed to help nonexperts discover and use novel and/or complex methodological and analytical techniques to address substantive social cognitive research questions. In total, we received 40 letters of intent from author teams who proposed a wide variety of novel statistical and methodological techniques. The core editorial team—Calanchini, Degner, and Smith—read each proposal carefully and scored it on the following four criteria: (1) it provided an active tutorial of a novel and/or complex technique; (2) it elaborated the strengths and weaknesses of the technique in comparison to potential alternatives; (3) whenever possible, it directed readers to existing or newly developed tools to apply the technique; and (4) it highlighted potential domains of social cognition to which the technique can be applied, including applications that emphasize ecological validity. The proposals that scored highest on these criteria were invited for full submission, which then went through the standard review process involving at least two external referees. We intentionally solicited reviews from a mix of experts that crossed international borders and career stages. For full disclosure, we invited two proposals for full submission that had members of the editorial team as co-authors (Calanchini, Smith). To ensure

that these papers were reviewed as impartially and rigorously as the others, we reached out to Bertram Gawronski, who rose to the call and handled both of those papers. We are grateful to him for his efforts.

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The first seven papers to make their way through the full review process appear in this issue, with the remaining set to be published in the October 2025 issue. The papers in this first issue can be loosely organized into two categories: revealing mental contents through computational approaches, and exploring the influence of contexts and communities. This thematic division mirrors what we feel are two zeitgeists that have consistently characterized the historical development of social cognition: yoking ourselves to the latest statistical advances to isolate the contributions of basic cognitive processes to social perception, judgment, and memory, and at the same time broadening our focus to better understand the downstream effects of those processes on behavior.

REVEALING MENTAL CONTENTS THROUGH COMPUTATIONAL APPROACHES

As a counterpoint to behaviorist perspectives that dominated psychological science in the mid-20th century, the cognitive revolution brought renewed interest in identifying, quantifying, and understanding mental contents. Four tutorials in this special issue introduce methods that provide insight into cognitive constructs that might otherwise remain unobservable: Artificial neural networks, unsupervised machine learning, and representational similarity analysis can assist researchers in interpreting patterns in complex data, and directed acyclic graphs offer a framework for articulating assumptions about causal relationships in correlational data. Together, these methods position social cognition researchers to articulate theory more explicitly and test it more rigorously.

Artificial Neural Networks. Singh and colleagues (2025; this issue) contribute a tutorial on how to design an artificial neural network (ANN), with an emphasis on how to make theoretical assumptions explicit in the model. ANNs consist of a series of nodes (i.e., information processing units) that are organized into groups and connected with weights that correspond to the network's knowledge. The values of these weights are adjusted by training the network on existing data, and the fitness of the network is then tested on new data. Computational modeling approaches such as drift diffusion modeling and multinomial processing tree modeling, among many others, have been extensively and fruitfully used in social cognition research, and ANNs are positioned to fit nicely in this toolkit. For example, researchers can specify a series of ANNs, each configured to reflect specific competing assumptions, and test which one reproduces data that are more in line

with observed behavioral data. In this way, ANNs would seem to be especially well positioned to advance social cognitive theory.

Unsupervised Machine Learning. Doriscar and colleagues (2025; this issue) introduce unsupervised machine learning (UML) to social cognition researchers. "Unsupervised" in this context means that a target variable is not chosen to be predicted (that would be "supervised" ML), but instead the algorithm groups a given set of variables based on shared features. In doing so, UML can reduce highly complex data to a potentially more manageable set of factors. Of note, the UML methods that are the focus of this tutorial (e.g., K-means clustering, principal component analysis) reveal patterns in data, but do not imbue these patterns with meaning. Instead, a researcher who is well versed in relevant theory is necessary to interpret the relationships revealed by the grouping of factors. As such, UML joins ANNs as another example of how advanced analytic tools can position a theoretically inclined scholar to create new knowledge.

Representational Similarity Analysis. Many methods that are now commonplace in social cognition research were imported from other disciplines or areas of study where they first enjoyed widespread use. Xie and colleagues' (2025; this issue) tutorial on representational similarity analysis (RSA) is written in this spirit. RSA is a tool that can be used to compare relationships between different types of measures using a common set of elements. Whereas social cognition researchers often employ data-reduction techniques to summarize cognitive mechanisms along a few dimensions, RSA can model relationships among many variables simultaneously—thereby retaining the richness that emerges in examining patterns of relationships. RSA has been used extensively in neuroscience, but to date it has been used only sparsely in social cognition. This tutorial aims to bridge this gap, offering hands-on guidance in conducting RSA using first impression formation as a social-cognitive working example.

Directed Acyclic Graphs. From very early in their academic training, most psychological scientists learn not to make causal claims from correlational data. However, Primbs and colleagues' (2025; this issue) tutorial introduces a method to do exactly that: to make causal inferences in the context of nonexperimental designs using directed acyclic graphs (DAGs). Like RSA, DAGs are commonly used in other fields, but to date are relatively unknown in social cognition. DAGs begin with an independent and a dependent variable of central interest. With that relationship as a starting point, researchers must articulate based on theory all other variables that they expect to be related to either the independent or the dependent variable. Then, researchers must rule out some variables but retain others according to a logical set of principles—with a graph depicting only plausible causal relationships as the final result. This tutorial proves working examples linking the geographic distribution of Confederate monuments with regional variation in racial bias. Like other formal modeling approaches, DAGs are positioned to advance social cognitive theory by

providing a framework for researchers to explicitly articulate theoretical assumptions that may otherwise have remained tacit or unacknowledged altogether.

EXPLORING THE INFLUENCE OF CONTEXTS AND COMMUNITIES

Social cognition focuses on the processes underlying the perception, judgment, and memory of social stimuli—things that happen inside minds. But minds are located in bodies, and those bodies occupy physical space. Three articles in this special issue provide tutorials to help social cognition researchers better understand the contexts where social cognition takes place, leveraging streetscape images, a paradigm to study crowd placement preferences, and methodologies that enhance the diversity, ecological validity, and relevance of our research to the communities we study.

Streetscape Images. Camp and Jo (2025; this issue) propose streetscapes—the images captured by popular mapping platforms such as Google Street View and Apple Maps—as a resource for studying the psychology of places. In contrast to previous research that often relied on highly curated stimulus sets, stimuli sampled from streetscapes depict diverse and ecologically valid representations of most of the developed world. This tutorial includes scripts for interfacing with application program interfaces (APIs) that help to scale stimuli selection, thus positioning researchers to sample thousands of streetscape images in short amounts of time for little to no monetary cost.

Crowd Placement Paradigm. Social cognition, and social psychology more broadly, focuses on relationships among people in contexts. A significant portion of social interactions take place in crowded locations such as stadium corridors, city sidewalks, and school classrooms—environments that can be challenging to recreate in a laboratory environment. Haddad and colleagues (2025; this issue) provide a tutorial on the crowd placement paradigm, a tool to study the sociospatial dynamics that guide people's behavior in navigating space occupied by other people. In the past, researchers have often relied on observational field studies to study proxemic preferences, which maximize ecological validity at the expense of experimental control. More modern methods rely on advanced technology such as virtual reality or digital tracking, which come with high costs. In contrast, the crowd placement paradigm is implemented as a repeated-measure computer task in which participants indicate their preferred location in a series of simulated environments. In doing so, the crowd placement paradigm balances ecological validity with statistical precision and experimental control. This tutorial includes a ShinyApp to assist researchers in customizing the paradigm in a wide variety of ways, which in turn can provide valuable insight into understudied contextual dimensions of social cognition.

Participatory Action Research. Stimulus creation and validation is also a major topic of the tutorial by Oswald and colleagues (2025; this issue), which introduces

participatory action research (PAR) methodologies to social cognition. A major focus of PAR methodologies is to enhance the diversity, relevance, and ecological validity of stimuli, especially in intergroup cognition research. The authors challenge conventional unspoken power dynamics that often privilege researchers' viewpoints over those affected by the psychological phenomena we study. PAR methodologies empower participants, particularly those from marginalized backgrounds, to contribute actively to the research process, thereby capturing stimuli that genuinely reflect their lived experiences and perspectives. This approach ensures that the stimuli align more closely with social realities, addressing reasonable critiques of representational biases and lack of ecological validity in existing research. Oswald and colleagues propose actionable steps to incorporate more inclusive and representative practices in research design. Their tutorial highlights the importance of valuing participant input, thus fostering research that is not only methodologically robust but also ethically responsible and socially impactful—and aims to bridge the gap between social cognition research and real-world applications.

CONCLUSION

We are thrilled to see the first part of this special issue published and are truly impressed by the high quality of the papers. We appreciate the care and focus with which reviewers supported this special issue and how responsive the authors were to their feedback. The resulting contributions are both insightful and meticulously crafted, and we are confident they will inspire researchers across the field. We eagerly look forward to hearing about future research that employs these innovative measures and techniques. We are also grateful to Guilford Press for its support, which has enabled us to prepare a second part of this special issue to be published later this year. This upcoming installment promises another exciting and thought-provoking set of tutorials, so stay tuned!

In closing, it is worth noting that, in these trying times for science and scientists, community is more important than ever. Innovative scientific ideas often emerge from casual conversations among friends and colleagues, and it is critical that we continue to find the space and energy to have these conversations, and to welcome more people into them. But of course, in the end, ideas are nothing without the follow-through. What started as a conversation over cocktails resulted in the special issue you are now reading, and we are happy to share the results of this communal effort with you.

REFERENCES

Camp, N. P., & Jo, E. (2025). Streetscapes at scale: Mapping platform APIs as a tool to sample space. *Social Cognition, 43*(3), 257–275. https://doi.org/10.1521/soco.2025.43.3.257

Doriscar, J., Mamakos, M., Perry, S., & Charlesworth, T. (2025). Data to discovery: Unsupervised machine learning's role in social cognition. *Social Cognition, 43*(3), 194–216. https://doi.org/10.1521/soco.2025.43.3.194

Haddad, R., Auger, V., & Gautier, L. (2025). The crowd placement paradigm: Introducing a novel tool to study sociospatial

dynamics. *Social Cognition, 43*(3), 238–256. https://doi.org/10.1521/soco.2025.43.3.238

Oswald, F., Paganini, G., & Winegar, A. (2025). Diversifying social cognition through participatory action research methods for stimulus development and validation. *Social Cognition, 43*(3), 276–295. https://doi.org/10.1521/soco.2025.43.3.276

Primbs, M. A., Bijlstra, G., Holland, R. W., & Thoemmes, F. (2025). Causal inference for dummies: A tutorial on directed acyclic graphs and balancing weights. *Social Cognition, 43*(3), 217–237. https://doi.org/10.1521/soco.2025.43.3.217

Singh, S., Benton, D. T., & Lei, R. F. (2025). Using artificial neural networks to simulate social category learning: A tutorial. *Social Cognition, 43*(3), 152–166. https://doi.org/10.1521/soco.2025.43.3.152

Xie, S., Zheng, R., Hehman, E., & Lin, C. (2025). A tutorial on representational similarity analysis for research in social cognition. *Social Cognition, 43*(3), 167–193. https://doi.org/10.1521/soco.2025.43.3.167