


Moving beyond social categories by incorporating context in social psychological theory

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Abstract | Across phenomena and areas of inquiry, social psychology often emphasizes social categories as the unit of explanation. However, the primacy of categories often leads social psychologists to neglect contextual features that might shape people's psychologies and behaviour, limiting social psychology theories and their real-world applications. In this Perspective, we urge researchers to move beyond categories and incorporate context more deeply into their theorizing. To make this call actionable, we introduce social constructionism, assemblage theory and dynamic systems as alternative frameworks and present examples of how these frameworks already inform social psychology research. The work featured is not an exhaustive review of research emphasizing context in psychological theorizing, but rather serves to highlight the importance of alternatives to category-based or pseudo-universal frameworks. Social science that considers context must focus on psychological, structural and material features (rather than classifications), their interconnections, and temporal dynamism.

Social psychology encompasses phenomena ranging from low-level social perception through third-order thoughts and associated behaviours among individuals, dyads and collectives. Across phenomena and constructs, social psychology often emphasizes social categories as the unit of explanation. For example, gender and racial or ethnic categories are often treated as purposive social groups^{1–3}, as though tagging a person with a category comprehensively captures their thoughts, feelings and perceptions, and how others will treat them and why^{4–6}. These categories reflect folk constructs that people use to make sense of the world. However, repeatedly relying on categories in research gives rise to illusory essences⁷ — the notion (even among experts) that these categories represent objective, definable and fixed constructs^{7,8} — which, in turn, reifies the categories.

Here we focus on another hazard of using categories as explanation. Thinking in terms of self-contained categories allows researchers to sidestep considering local and broader geographic, historic or macro-social

contexts^{9–12}. Everything researchers need to know seemingly exists inside the category. Social psychologists frequently invoke Lewin's equation (which states that an individual's behaviour is a function of the person and their environment) to argue that behaviour is a function of people and their contexts¹². However, the primacy of categories often leads social psychologists to neglect deep engagement with contextual features that could elucidate how situations shape people's psychologies and behaviour. This neglect undermines the advance of social psychological theory and its real-world relevance^{10,13,14}.

Conducting research in which psychologists allow categories to act as placeholders for context-based explanations also obscures the role of researchers as co-architects of these categories. Invoking categories to explain individual psychologies or behaviours actively constructs the categories as psychologically real. This active construction might have drastic consequences when it is imbued with the authoritative power given to science to shape truth and

knowledge. For example, psycho-behavioural classification of people or 'races' with respect to IQ or other traits is ongoing and has long been marshalled as justification for racist policies and practices including eugenics¹⁵, stop-and-frisk policies in policing¹⁶, and employment discrimination¹⁷.

Regardless of the intentions of researchers, collapsing the richness of people's experiences and environments into categories is a choice that has real-world impacts. Treating social categories as purposive groups can reinforce stereotypes and the belief that these categories are social monoliths^{1–3}. Furthermore, marking context as being beyond the purview of psychologists' interests or expertise underestimates the power psychologists wield in shaping social reality, including the relationship of researchers and science with disciplinary state power and larger social power dynamics that classify people and restrict their life opportunities^{14,18,19}. The call to consider context has been made before within psychology^{20–25} and other disciplines (such as neuroscience²⁶ and machine learning²⁷) but has not taken root as a central tenet of social psychology training.

In this Perspective, we lend our voices to an ongoing conversation within social psychology to prompt an examination of methodological practices, inferences and assumptions, and researchers' roles in creating and maintaining social categories. Specifically, we argue that a reliance on categories and a lack of accounting for context impedes theory-building, and is potentially an important contributor to why some social psychology results and theories fail to replicate over time or generalize across situations. First, we discuss the pitfalls of prioritizing categories over context for theory-building and the field's broader impact. Then we review several alternative ways of thinking about constructs and phenomena that reduce essentialism and shift explanatory weight away from categories themselves towards the social processes that manifest those categories. Finally, we highlight social psychology research that already incorporates these alternative frameworks and provide recommendations for future research.

We note that by 'context' we do not mean only the physical space (such as the

computer laboratory²⁸) or time of day in which a study takes place (although these features may matter, depending on the inquiry). Instead we emphasize the context that participants bring to and encounter within the laboratory and beyond⁹: their cognitive architecture that automatically integrates context into information processing, intrapersonal context (for example, personal identities, experiences and artefacts, such as clothing or legal documents) and macro-structural context (for example, the physical environments they inhabit, the demographic politics of their community, and local legal, political and research institutions or actors that produce social meaning, reality and control).

Perils of neglecting context

The response of some researchers to the global COVID-19 pandemic provides some examples of how a failure to consider context limits theoretical advances and the practical relevance of social science research. Over 540 new papers about the psychology of COVID-19 were written and posted to PsyArXiv (the primary psychology preprint server) within the first six months of the pandemic²⁹. Although many of the ideas and theories written about during that period were relevant to the pandemic in an abstract sense, the concrete implementation of these findings required attention to contextual factors that are often omitted from psychological theorizing^{14,30}.

For example, some social psychologists suggested using principles of normative social influence to persuade people to engage in a variety of pandemic-relevant health behaviours³¹. Social norms certainly matter for health behaviours³². However, the process through which normative interventions influence health behaviours is more nuanced than is often specified in the existing literature for two reasons.

First, the knowledge-generation processes used to develop the literature¹² have relied on a narrow sampling frame (in many cases US college students), and have focused on getting participants to change a limited set of behaviours (for example, reducing their alcohol consumption^{33,34}). Although it is interesting to know how norms influence a specific group (even when that group is unrepresentative of broader humanity³⁵), that knowledge has limited utility for understanding whether interventions apply to more diverse populations across a broader range of behaviours and contexts³⁰.

Second, reporting practices in the field³⁶ limit the ability of research consumers to apply research findings. For example,

a scoping review of psychological interventions conducted and published between 2000 and 2018 found that psychology papers report at most 64% of the information that implementation science suggests is needed to apply research findings. Thus, the field underreports contextual information that is essential for translating research into action³⁶.

Without clarity about who needs to say what to whom in different contexts, it is difficult to know how useful normative interventions are outside the laboratory settings in which most of them are studied²³, and whether using them to target particular groups will be helpful or harmful²⁶. When policymakers and practitioners — and the researchers collaborating with them — do not know these things, they might adopt well meaning but ineffective strategies owing to a misunderstanding of the underlying processes.

For instance, a common response to evidence of racial disparities in vaccination rates is to superficially target vaccine uptake messages based on people's perceived race and ethnicity. However, superficial targeting along demographic dimensions has limited success, and can even backfire, owing to the message of essentialist judgment that it conveys³⁷. Instead of messaging around a racial or ethnic category, it can be more productive to unpack the underlying dimensions associated with the category (for example, a history of medical exploitation) to understand the thought and behavioural patterns of the people who are not engaging in the desired behaviour (for example, not getting vaccinated). Those insights can then be used to address the contextually driven underlying issue (historical and contemporary marginalization²⁷). More broadly, it is important to map the dimensions of context onto axes of influence to both understand and effectively change behaviours³⁸.

Approaching contextual analyses in this way is not just a matter of application; it is also essential for advancing theories^{14,39}. Contextual analyses provide insight into theoretical mechanisms and their boundary conditions⁴⁰. For instance, when a descriptive norm is invoked, it might matter whether those said to be engaging in the advocated behaviours are 'like me' or 'not like me'⁴¹. Understanding those parameters enables more precise predictions about whether, when and how theories will generalize, and when there are important constraints^{42,43}. For example, one approach that has been used to try to increase Black Americans' attention to health information

and engagement in health behaviours is to develop 'culturally tailored' messages that include a diverse cast of actors. However, when those messages are used in real-world settings (for example, health clinics) Black patients' willingness to pay attention to them depends on the behaviour of other Black patients who are present at the same time⁴⁴. Studying how these messages influence behaviour in a real-world context reveals that theories are incomplete when they focus on depicting norms only by manipulating the message content, but not by considering the broader context in which the message is delivered.

Making scientific advances in this context-driven way also informs understanding about how initial conditions set the stage for stability or change in psychological and broader social systems^{45,46}. This can be useful for learning about what can be conceptualized as dose-response functions in psychological processes (how much of the psychological process needs to be activated to produce a behavioural response of a given magnitude). In other words, the field can learn what percentage of people's peer groups or social networks need to engage in a health behaviour before those who are 'hesitant' are willing to engage as well. Practically, this can inform when a light touch is enough to initiate a change (for example, sending a message that a percentage of your friends have been vaccinated) versus when a more heavy-handed approach (that is, structural change, such as implementing a vaccine mandate) is needed^{47,48}. But the answers to such practical questions also reveal a tremendous amount about the strength of associations between contextual and psychological variables. This knowledge increases the predictive validity of psychology models^{9,49,50}. Without attending to these factors, researchers might generate bodies of literature that offer explanations that are parsimonious but nevertheless invalid^{51,52}.

Alternative frameworks

Here we review several alternative ways of thinking about constructs and phenomena that challenge static social categories as units of explanation in social psychology. Just as stimuli are perceived in context, participants bring their own psychological contexts to bear on the perceptions and responses to study stimuli. Similarly, researchers construct context either through their experimental design choices (for example, selecting one stimulus set relative to another; BOX 1) or their expectations, assumptions

Box 1 | Experiments as context and reference dependence

Many important decisions (such as hiring, voting, college admissions and medical decision-making) are made for sets of people. In theory, people could have consistent preferences between any two options irrespective of the number or quality of other options^{195,196}. In reality, people's preferences for each option in a set of choices shift as a function of the available alternatives (reference dependence)^{197,198}. For example, consumers' preferences between two products changes when a third, inferior option is introduced (the decoy effect)¹⁹⁹.

The same dynamics operate within social psychology experiments that assess evaluations of individuals or groups. Participants are shown a target, asked for a categorization response or rating along some dimension, are then shown the next target and rating, and so on. Thus, the experiment itself is a 'joint evaluation' context that shapes how participants respond; ratings for any individual or group will change depending on what other individuals or groups are rated in the same study session^{200,201}.

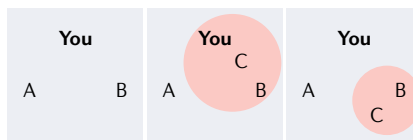
This context sensitivity is domain-general and arises from human information processing systems that reliably scale inputs by other nearby inputs to reduce redundancy in signal processing (normalization)^{202,203}. Consequently, a social stimulus is never inherently defined; it is defined by contrast to the stimuli around it (either in memory or in the world). These influences remain largely unaccounted for in psychological theorizing, which instead (explicitly or implicitly) assumes independence in respondents' judgements across stimuli within an experiment.

For example, the finding that competence judgements of the faces of politicians positively predicts their electability²⁰⁴ was used to develop a model of reference dependence in electoral outcomes over past three-way US Congressional elections²⁰⁵. Replicating previous results, the most competent-looking candidate won most often; however, this advantage varied as a function of the difference in face-based inferences of competence between the second- and third ranked competitors, consistent with predictions made by the theory of divisive normalization in decision-making. In this framework, highly valued third options made decision-makers less discriminating between first- and second-ranked options because the choice set is scaled by the summed value of all the options in the set. When all three options are high-value the distance between the first- and second-ranked is less pronounced, making it relatively more likely that the second-ranked option will be selected. In the context of electoral outcomes, as the inferred competence of a third candidate increased, the likelihood of the most-competent-looking candidate being elected decreased²⁰⁵.

As another example, classic social psychological theories posit that identity salience and self-categorization are largely determined by who else is around, meaning that they consider reference dependence as a key driver of identity^{206,207}. However, these theories do not specify precisely how identity salience will shift over time and different environments; they neglect the construction and dynamic process aspects of identity. By contrast, according to a dynamic and process-based social-structure-learning approach⁷⁷, agents rely on current information to infer (and update) latent group structures based on the behaviours of the other people in their immediate environments.

Experimental evidence supports this hypothesis. When Agent A and Agent B's choices were equally similar to participants' choices, participants' decisions were influenced by the presence of a third agent C who altered the inferred group structure by creating a latent group that included the participant and only one of the first two agents²⁰⁸ (see figure). Specifically, participants were more likely to align themselves with Agent B than with Agent A when Agent C's placement created a cluster that put the participant in the same group as Agent B. These groupings had downstream consequences for trait attributions (participants judged Agent B as more competent, moral and likeable than Agent A when Agent B clustered with the participant versus not) and continued to influence ally-choice behaviour even when participants had explicit group labels that contradicted the latent structure (such as a team colour that always put Agent B in the explicit outgroup).

The figure is reprinted from REF.¹¹⁰ with permission, Elsevier.



categories are confused for discrete, agentic groups¹. In these frameworks categories are consequences, not antecedents, of social processes. Once categories become “understood as expressions not of objectified social relations but of the struggle to objectify them”⁵⁶, it follows that they can only operate as an indication of the background social processes forcing those categories into social life. Locating explanations in categories allows categories to act as scapegoats for the social practices (such as racism, racialization or gendering) that are actually producing the consequences and illusory naturalness of categories in the first place^{2,57–59}. FIGURE 1 presents a case study that illustrates how different components of context influence social categorization, and how these can be understood through social constructionism, assemblage and dynamic systems frameworks.

Social constructionism. Reliance on categories as explanations can lead to theorizing that categories are entities that transcend context¹. Without a consideration of how categories develop and are maintained, categories become taken-for-granted units of analysis⁶⁰. Social constructionist thinking^{61,62} challenges the self-evidence of social categories⁶³ and perceived inevitability of the status quo⁶⁴. For example, psychology commonly construes the individual as a bounded entity: a singular body with an internal cognition that meaningfully separates the individual from the world it inhabits⁶⁵. Social constructionism critiques psychology's theoretical reliance on and production of contextless individuals^{66–70}. Instead, people are characterized as relational phenomena that develop and evolve within the meanings of discourse and language^{71,72}, which are embedded in power structures and negotiated via interactions with others and with their environments^{70,73,74}. For instance, displaced people must repeatedly negotiate their personhood against nations' legal structures for controlling human movement, for example, by masking their accent when navigating discriminatory environments such as airports or adopting the category of 'refugee' in order to be recognized as legal. For instance, in FIG. 1, Sarah is aware of how she might be perceived by police as Muslim or not American and therefore potentially suspicious, so she attempts to steer the perceivers' construction process by changing her accent.

The categories people use to characterize individuals are frequently described as socially constructed, yet the constructing

and roles (for example, as members of elites or authorities) that they bring to the study.

Participant-driven and experimenter-driven context can be addressed by considering social constructionism, assemblage theory and dynamic systems frameworks (TABLE 1). We explore only a limited range of implications of these frameworks (specifically, those related to using categories as a unit of analysis in social psychology). A more complete consideration of the implications

of these theories would further elaborate on how psychological science as an enterprise and its methods (for example, classification) often seek to objectively describe the world, but are instead implicated in co-constructing the phenomena they study. After all, psychologists and their research activities are also embedded within the world and its historical and ideological contexts^{11,53–55}.

Throughout this section we use the example of the fallacy of groupism, where

Table 1 | **Alternative frameworks, the aspect of categories they challenge, and related insights**

Framework	Challenges to categories	Critical insights	Example operationalizations
Social constructionism	Inevitability or naturalness of social categories; social categories as explanations.	Categories are products of conferrals, language, discourse and social practices. Categories cannot be causal. Researchers must look towards the processes creating and maintaining the category.	Tracking how changes in institutional guidelines or taxonomies influence who belongs to a category (for example, changing census definitions ³ or medical classifications ¹⁷¹).
Assemblage theory	Ontological division of human versus non-human and material versus discursive worlds; bounded understandings of 'individuals' and their environments.	The material world is also dynamic, and helps to manifest categories. People are in a constant process of becoming and co-constructing with the surrounding world. Rather than accept human versus non-human divisions as given, researchers can instead ask what 'the subject' or category is composed of at any given moment, what processes connect those elements, and what they could do or become instead. To understand psychological phenomena, researchers need to map shifting flows of relations or disconnection between heterogeneous elements in the world that produce such phenomena.	Creating dynamic maps (such as field diagrams) of static or shifting relations that produce social entities over time. For instance, mapping connections between clothing, artefacts (such as cars), organisms (such as animals), terrain (such as climate change), technologies and messages that enable, constrain and signal agents' capacities, self-understanding, coalitional grouping, social categories and cultural or political events ^{137–139} .
Dynamic systems	Static and isolated conceptions of phenomena, people and environments.	Behaviour arises through dynamic encounters and relationships with environmental affordances. Categories are inherited as environments that become embodied experiences, catalysing an action–reaction cycle that modifies all elements involved. Interconnectedness makes it difficult to think that anything can be static and isolated.	Ongoing role of social network position and ties as mutually reinforcing or inhibiting mechanisms for norms, social influence and persuasion ^{45,194} .

processes involved often go unspecified. A promising theoretical direction suggests that tracking specific features (for example, clothes, anatomy, dialects, identification documents, social affiliations or niche knowledge) is used to confer a status upon people (for example, domestic or foreign traveller), which subsequently enables or constricts the targets' modes of living in the world (being allowed into an airport terminal versus being subject to further questioning)⁷⁵. Institutional authorities or social actors with high standing (such as customs and border control agents) can confer a highly consequential status to a target. The conferrer's authority, the specific features being tracked, the social significance of these features, and the consequences of the conferred status are all extremely dependent on context — in a different country, the target's and the authoritative conferrer's roles might be reversed. Categorization rules are constantly negotiated within and across situations. From this perspective, there are no context-independent ways to investigate any category. Attempts to do so propagate the illusion that a category manifests identically wherever and whenever it operates⁷⁶.

Thus, a social constructionist framework suggests that researchers should attend to the relevant features being tracked when assigning people or things to categories within specific contexts^{77,78}. The context-specific features, the process of how and why social significance is placed upon them (and by whom), and the consequences of being perceived to have those features can better explain the impact of categories on psychological experience than the categories themselves. In the case of Sarah (FIG. 1), how she is categorized and the consequence of that process changes as each feature gains relative importance in different settings: her name and appearance can lead to differential classifications, just as she might use or hide her accent to control how she is perceived by those around her.

This framework requires a different analytic treatment of categories. For example, researchers could change the category from an independent to a dependent variable to identify the relevant features and processes used in its construction^{79–81}. Interpreting a category as a self-contained variable occludes its construction⁸²; researchers can instead replace the category with its more

informative contextually constructive features as predictors (for example, by considering race as a construction of features including religion, phenotype and ancestry⁵). Last, investigating within-category variation in outcome or dependent variables can highlight the heterogeneous ways a category is experienced or manifested and therefore constructed⁸³.

Assemblage theory. Because modern psychology developed from European scientific traditions that prioritize detachment, linearity and universality¹², psychology's individuals (including its researchers) are often theorized as detached observers acting upon a predetermined and passive world of inanimate matter^{70,84} (BOX 2). Of course, this is not the only way of doing science or of generating knowledge more broadly. Other areas, including indigenous^{85,86} and new materialist understandings of social life^{54,87–90}, consider matter as a dynamic force that can also influence its surroundings⁹¹, and are therefore interested in the activity of matter.

Assemblage theory holds promise as a de-essentializing framework that takes

both materiality (matter and its physical properties) and discourse (such as societal scripts, stereotypes, norms and discussions) seriously^{88,92,93}. An assemblage is an emergent collection of heterogeneous and autonomous components; each component could be detached from the whole and reconnect with other accessible components to produce new assemblages⁸⁸. Assemblages are therefore ongoing processes that fluidly manifest through ever-shifting connections between available components within a context. Of course, assemblages can become stable, producing a homogeneous identity with specific boundaries and properties, but they are always subject to change^{88,94}. An assemblage could refer to an institution (for example, fluid interactions among people, buildings, regulations and markets), an individual (for example, interacting organs, natural and artificial objects, bacteria, water and social norms), or even a social category (for example, a dynamic construction formed by various social practices and material artefacts).

Each assemblage gains emergent properties produced from interactions between its components and relies on those interactions to continue existing. For instance, a tight-knit neighbourhood can build a collective memory about the reputation of all of its members and develop norms to promote prosocial behaviour. Different neighbours might take turns shovelling snow from an elderly neighbour's driveway. It matters little which particular neighbour does it, just that it gets done and that the norm is preserved. However, any set of neighbours can move away or new neighbours can move in, altering the continuity of the neighbourhood, its collective memory and its norms⁸⁸.

The function of each autonomous component in an assemblage is not pre-determined but emerges from its particular connections within a particular assemblage for a certain time. For instance, the same mouth can eat, vocalize, smile or kiss to produce a unique outcome depending on what it is connected to at the moment. Thus, an assemblage perspective shifts thinking from essences (what is) towards potential functionalities (what can occur): given a certain effect, what assemblage is capable of producing it? Given a certain assemblage, what can it be used for⁹⁵? Moreover, asking what processes have produced and continue to produce a certain assemblage highlights that assemblages are idiosyncratic events and continuous processes operating on various temporal scales^{94,96–98}.

Similar to social constructionism, assemblage theory reframes psychology's individuals as inseparable from their surrounding world. Individuals are assemblages of their own, and components of larger assemblages that constantly evolve. For example, while Sarah (FIG. 1) is co-constructed by the many features she has or takes on, she is herself a component

of larger entities — sometimes a sustained component such as being a Muslim woman or inhabitant of the Earth, sometimes a temporary one such as being one of many people at a park.

Refining and building on social constructionism's implications for the analytic use of categories, an assemblage approach invites researchers to expand their unit of

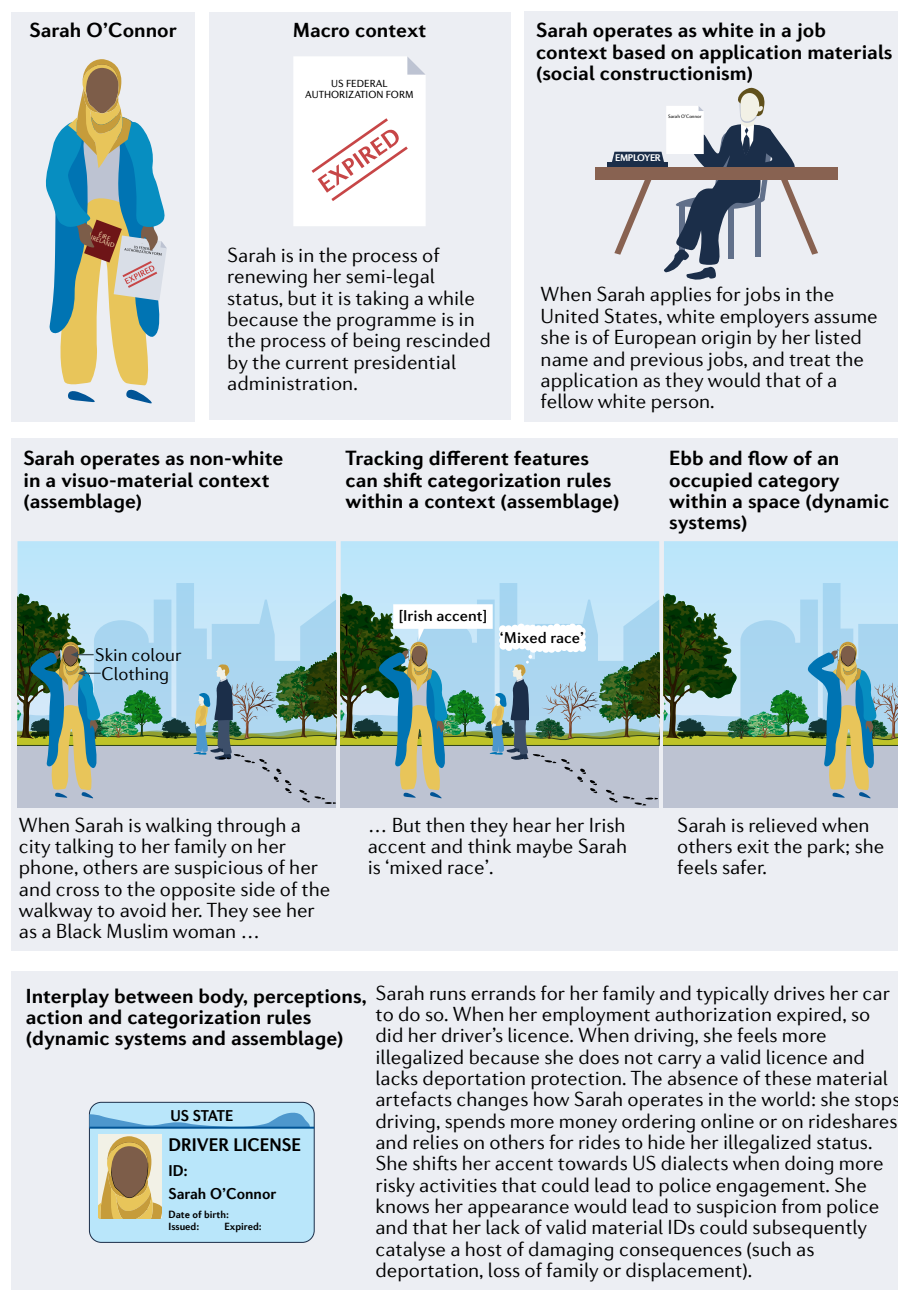


Fig. 1 | Case study. Sarah O'Connor is an illegalized immigrant from Ireland living in the USA, who has dark skin, follows the Islamic religion, wears traditional clothing (hijab), and has received employment authorization through a US federal programme that grants her legal status — although it has expired. The figure illustrates how social categorization is contingent on context, as Sarah is being remade and remakes herself through the discursive and material elements around her. The top middle panel represents a macro context. The other panels depict micro contexts. All the examples relate to all three frameworks; drawing attention to specific features for given panels is for illustrative purposes only and frameworks are not mutually exclusive.

Box 2 | Past barriers and paths forward

Historically, many psychologists have searched for efficient ways to categorize people (for example, intelligent versus unintelligent; normal versus abnormal) so that the field could have an impact in guiding decisions and policies for structuring society (for example, how to set up schools and other social institutions; who should or should not have various rights in society; who could justifiably be tortured when suspected of terrorism)^{209,210}. Systems of classification helped (largely heterosexual white male) psychologists to project an image of the field as impartial and objective^{211,212}. This hypothetico-deductive scientism gave psychology and other behavioural sciences tremendous status within academia and among policy experts that value academic evidence²¹². However, once this became the dominant approach, these tools and their associated epistemic priorities became ‘the way’ to conduct ‘good science’, even if that meant marginalizing other approaches and people.

For social psychology to be more robust, effective and inclusive, we need to broaden the concept of what we consider ‘good science’¹⁴. This shift will not be without its challenges, but we want to address two possible reactions. First, it might seem that this call to place greater emphasis on context somehow narrows or constrains what questions social psychologists can ask or what phenomena they can seek to explain. On the contrary, we would argue that engaging more deeply with context makes the science of social psychology more flexible. It allows researchers to identify more readily which features of a context are required or sufficient to produce an effect (which then makes it clearer if and when a finding ought to be replicated). It also aids in assessing whether a given explanation might apply to a different group or context. For example, if two groups are both associated with a feature that is theorized to be the critical lever for explaining whether or not they will receive help, neglect or harm under unstable social conditions, observations of the outcomes for one group should extrapolate to future outcomes for the other group²¹³.

Second, it might seem that the frameworks we introduce here are only (or more) applicable to qualitative analysis. For this reason, we included a survey of quantitative social psychological research that already reflects considerations of context. That said, it is likely that incorporating context more deeply into theorizing will make conducting research more challenging, and potentially slow researchers down. Centring context might require researchers to test a greater variety of stimuli, recruit more diverse samples (and not just online), and test across a greater variety of contexts. However, these are practices that have already been proposed in the service of complementary methodological improvements in psychological science^{187,200}.

More concretely, we are not suggesting that social psychologists scrap everything we have learned thus far, nor are we advocating that people include dozens of covariates to control for all possible contextual variables in their analyses. Instead, we suggest that researchers consider alternative approaches to measurement and analysis that are already being developed. These include Markov blankets, which are composed of the variables carrying all information about the category of interest³⁰, constructivist econometric approaches that focus on identifying features that act as inputs into a perceived category (but are not decision-relevant themselves)²¹⁴ and statistical decomposition of structural and direct sources of discrimination^{215,216}. Social psychologists can also repurpose current tools (including statistical tools) to improve understanding of the underlying social processes that seem to give categories their explanatory power (see REFS.^{43,217,218}). Like any methodological advance, the more that researchers account for context in their theorizing and empirical analysis of category effects, the more comfortable researchers and readers will become with these analytic frameworks.

investigation to include frozen and fluid relations among various elements (from physical artefacts to historical events to symbolic structures to researchers themselves) in the study of psychological life^{71,99–101}. For instance, race is not a static illusory product of racist practices^{2,57,58}. Instead, contextually shifting sets of materials (such as phenotype, genetic lineages, property and speech) have an active role in race’s conceptual construction and the subsequent racialization of people^{102–105}. Likewise, rather than treat putative groups as stable entities, they can be thought of as events that become temporarily instantiated through specific arrangements of symbolic (norms, languages, representations and laws) and material

(physical environments, technologies and phenotypes) components¹⁰⁶.

For instance, Sarah (FIG. 1) could be classified as a member of multiple ‘groups’ such as illegalized immigrants and Black people. It takes a combination of laws that illegalize immigrants, identification documents to mark people as legitimate, aggressive enforcement of immigration laws that create shared experiences of fear in illegalized immigrants, and avenues by which illegalized immigrants can connect with each other such as physical proximity or technology to instantiate a momentary and emergent community of illegalized immigrants for which Sarah might feel an affinity or be compelled to join (or not). This ‘group’ did not exist before the interactions

between these components; it emerged afterwards. Moreover, this ‘group’ does not necessarily define a homogeneous set of people because the shared experiences come from the context: migrations being marked as illegitimate through documents.

Racism’s creation of shared experiences and its potential for emergent groupings operates similarly to create a ‘group’ of Black people, by marking people through various features such as skin colour and accents, which were given social meaning through colonial practices^{104,107}. Importantly, emergent groupings ebb and flow: people move away, the conditions that facilitated classifications and shared experiences dissipate or redistribute who they target, life and world events can influence the motivation or ability to stay connected, or the group category can take on various meanings as it manifests across contexts, thereby changing the way people who are assigned to that category relate to each other.

The implication is that investigations into individual and group psychology must account for the fact that the material world is also changing and with it the meaning of categories^{11,108}. This concept is not new to psychology. Indeed, a then-infamous paper from the 1970s argued that psychological phenomena are bounded in their historical contexts, and theorizing about them must be updated as histories — and the contexts they bring with them — change⁹.

What assemblage theory adds is a process for specifying important contextual dimensions. From an assemblage perspective, social categorization is the end product of larger infrastructural arrangements (or rearrangements) where relations between different components (such as authorities, social movements, political and economic institutions, symbols, discourses, bodies, territories, histories and objects) are newly made, disrupted or blocked. The categories available to shape social life are therefore manifested dynamically, depending on how they are constructed in a particular moment and space. For instance, although Sarah is an illegalized immigrant (FIG. 1), that category does not affect her when she is at home. It becomes most salient and consequential when she is in situations that potentially require documents proving legal immigration status, such as being in proximity to law enforcement. Even then, the tracking and consequences of her immigration status are dependent on the officer and the available social representations the officer uses to guide

enforcement of immigration laws (such as identifying illegalized immigrants by profiling appearances or prioritizing other non-immigration issues for enforcement).

Assemblage theory therefore reverses psychological accounts (such as social identity and social categorization theories^{109,110}) that posit dynamic mental categorization as the causal source of social conflict. Consider the classic minimal group studies whereby people sorted into arbitrary groups develop an ‘us versus them’ dynamic¹¹¹. The assumption in these studies is that categories are the causal variable predicting, for example, biased resource allocation. By contrast, an assemblage approach would implicate the experimental context (that is, the experimenter, laboratory room and the monetary interdependence between participants) and researcher’s choice to treat experimentally created groups as cohesive, homogeneous entities (reifying minimal group ‘boundaries’ and constraining what other potential relations could occur)¹⁰⁸ in creating both the categories and biased behaviour. Indeed, several researchers have suggested that the resource allocation task used in the classic minimal groups paradigm¹¹² activated more than mere categories, because each participant’s payout was determined by other participants’ behaviour¹¹³.

This theorizing emphasizes that researchers are deeply entangled within the assemblages they investigate and, in the process, help to construct. Assemblages do not pre-exist, waiting to be discovered apart from our observation; researchers act within assemblages. For instance, demographic measures directly draw from and bolster the political processes that classify people³. When Sarah (FIG. 1) is asked to record her race, ethnicity or gender in a study without any context regarding how or why she is classified as such (within and outside the study context), the researcher plays an active part in transforming Sarah’s life into evidence for the reality and importance of the category itself. This decision, coupled with psychology’s analytic prioritization of category averages⁸³, creates caricatures that flatten contextual variability, overlooks the construction of the category, and also engages in the construction process by reifying and prioritizing the category within the scientific literature to unforeseen consequences. Researchers therefore have an ethical responsibility for the authoritative classifications they reinforce in the social fabric and the consequences they produce in and for the future^{54,55}.

Dynamic systems. Like assemblage theory, dynamic systems frameworks emphasize the importance of relations among elements, while offering an understanding of how linked elements self-organize through mutually reinforcing actions that unfold over time¹¹⁴. Psychological processes are entangled with the systems in which an individual is embedded⁹. These systems include evolving interconnections between environments that are both immediate and distant in time and space (for example, dyads, families, schools, institutions, ideologies and historical events). Disturbances in any of these contexts ripple across the system and combine with people’s construals of the events and contexts to influence behaviour and development. For example, a baby’s motor and cognitive skills emerge from ongoing interaction and feedback between complex physical, biological and social systems¹¹⁵. In exploring physical spaces, the baby’s height brings certain environmental features into perceptual focus while occluding others; its weight restricts which physical movements are possible; and socioeconomic conditions influence what kind of actions or opportunities for action (for example, books or toys), are available in an environment. Throughout development, the baby also begins to act on their environment (for example, exploring the relationships between two objects by putting them on top of each other, or one inside the other) which provides new inputs and learning opportunities.

Similarly, examining the phenomenological experience of inhabiting interconnected contexts can illuminate how people and categories become entwined as dynamic systems. Rather than thinking of categories as what people are or possess, they can be conceptualized as environments that people inherit, inhabit and change¹¹⁶. Category-constructing environments (just like motor-development environments) comprise materials (for example, food, property or clothing) within a location and are maintained via repeated social practices (for example, targeted policing and surveillance). The initial encounter with an environment’s constraints (such as imposed categorization rules and associated consequences) can start a cascade of psychological processes, including changes in belongingness and identification^{117,118}. For instance, when Sarah goes to a city park (FIG. 1), she enters a cascading social system where her perceived categories shift as people gain more information about her and leave to avoid her, which leads to

an increase in Sarah’s own sense of safety. This cycle of mutual interaction modifies people, environments and categories over time. For example, shifts in person categorization can occur. How one racially identifies or gets racially classified can change after being incarcerated or becoming unemployed^{119,120}. This could occur over short time spans. For instance, Sarah’s racial or ethnic classification by others due to her appearance changes the moment they hear her voice (FIG. 1). Similarly, one’s political affiliation (and therefore surrounding political environment) can change how one identifies in terms of gender, class and ethnicity, shifting one closer to the presumed prototype of the favoured political party¹²¹.

Struggles to change or maintain the environment and its rules can also occur. For instance, marginalized people use population politics (including construction of demographic categories and size projections) to gain recognition and rights³. By contrast, counter-forces attempt to keep status quo environments intact, such as when white supremacist nationalists stormed the US Capitol in an attempt to overturn election results¹²². These dynamics change the meanings of categories and how they are manifested. They also result in an ebb and flow of category salience within and across environments⁴¹, such that categories are not permanently inhabited. For instance, Sarah feels unsafe when she is surrounded by people who treated her with suspicion because they categorized her as Black, but feels much safer once they leave the park (FIG. 1). As Zora Neale Hurston famously observed, “I feel most colored when I am thrown against a sharp white background”¹²³.

Centring context in research

Deprioritizing categories in favour of dynamic processes and constitutive features makes it easier to think of context — including the experiment, participants’ social ecology and associated legal and political structures — as features on the same level of analysis (formerly) considered to be intrinsic to the person, category or construct. Researchers might be hampered by the dominant methods of social psychology and therefore unaccustomed to thinking about different ways to ask these questions¹²⁴ (BOX 2). Other psychology subfields (such as neural and cognitive science^{125,126} and health and clinical psychology^{127–131}) and fields outside psychology (such as cultural¹⁰⁷ and feminist^{54,132} studies, geology¹³³ and geopolitics^{103,134,135}, architecture¹³⁶, science and technology studies^{137–139}, and

sociology^{96,140}) already incorporate these frameworks. In this section we highlight social psychological studies that already centre context in their design, hypotheses and theorizing. This is not an exhaustive list, and many of these papers continue to rely on categories as organizing frameworks. However, these papers also serve as concrete examples of how social psychology can go beyond essentializing frameworks by emphasizing the role of constituent features, assemblages or dynamic processes across relationships, time and places. These papers demonstrate that these research questions and approaches are tractable and well within the purview of social psychology.

Identities as context. Social identities are reference-dependent (BOX 1), and they are assembled and updated over time and environments. However, for any given point in time or place, once these groupings are established, they act as features in an assemblage, through which people experience everything from sensory experiences¹⁴¹ (for example, the way chocolate smells when someone's identity as Swiss has (or has not) been activated¹⁴²) to values and how societal challenges are construed⁴¹. For example, lay perceptions of what counts as an environmental issue differ as a function of self-identified race and ethnicity (which are, admittedly, categories), and socioeconomic status¹⁴³. In one study, survey respondents indicated the extent to which they considered a range of issues to be 'environmental', including pollution, and broader social and public health issues such as poverty, unemployment, diabetes and racism. Driven in part by minoritized and low status communities' greater exposure to environmental threats, members of minority and lower-income groups indicated that they considered a broader range of issues to be 'environmental' than did white and higher-income respondents¹⁴⁴. In other words, how different groups of Americans conceptualize environmental issues depends on their racialized experiences, which either make connections between environmental issues and other social issues salient or render these connections invisible. Moreover, it is not only the identities or categories which act as a lens, it is the unequal distribution of risk that shapes which problems are construed by individuals as belonging to a class of issues¹⁴⁵. The unequal risks are elements that accumulate over time and shape how people dynamically construct the linkages in their minds between themselves and the environmental issues that surround them.

Relationships as context. It is self-evident that beliefs and behaviours change depending on with whom we are interacting. Yet these differences often remain separated by subfields that focus on specific types of relationships or interactions (friendship and close relationships research, family processes, intergroup dynamics and organizational behaviour). There are few direct comparisons of the same phenomena across relationships, as would be emphasized by a social constructivist lens: specifically, how different relational contexts construct the meaning and evaluation of a given behaviour, and how that behaviour, in turn, influences perceptions of individuals' relationships¹⁴⁶.

As a counter-example, relational models theory¹⁴⁷ has been applied to compare how moral reasoning¹⁴⁸, language¹⁴⁹ and emotion¹⁵⁰ vary depending on whether people are in the presence of loved ones, authorities, acquaintances or negotiation partners. This is an old idea — in the 1950s Asch¹⁵¹ argued that what matters for moral values is how people construe meaning in specific contexts, including interaction partners (see REF.¹⁵² for a review of more recent work on contextualized moral judgements and behaviours). However, this idea continues to prompt new discoveries. For example, in one investigation, a first group of participants generated ratings of relational norms among different kinds of dyads (for example, whether cooperative functions, such as care or reciprocity, should be observed among mother–child, stranger–stranger, or boss–employee dyads). These ratings yielded four-dimensional relational norm profiles. These profiles, in turn, predicted what people judged as morally acceptable behaviour in those dyads in a separate sample¹⁵³ (see also REF.¹⁵⁴). Thus, the moral acceptability of behaviour is constructed in context — in this case, in relational contexts that generate consensus across judges about the evaluations of those behaviours. The power of relational models theory more broadly is that it emphasizes the underlying functions of different classes of relationships, making it flexible enough to characterize how different relationship contexts influence basic psychological processes.

Social ecology as context. For a field that often defines itself as the study of psychology in the actual or implied presence of other people, a surprising amount of contemporary social psychology research focuses on participants in isolation¹⁰ (although there are subfields that constitute exceptions, such as intragroup processes).

Nevertheless, there is also exciting work examining how social ecology (that is, which people or groups are present) shapes thoughts, feelings and behaviour. For example, in Asch's conformity experiment from the 1950s people gave blatantly incorrect answers to a simple question because several other people had just publicly given the same incorrect answer¹⁵¹. However, more recent work shows that rates of conformity depend on the classification of the confederates in the group. Specifically, white participants exhibit greater conformity when all the confederates appear white than when the groups appear racially heterogeneous¹⁵⁵. Importantly, the mutual racialization of participants and confederates as similar or distinct is not inherent in themselves but constructed within the experimental context (presumably through skin colour, affective signals, speech patterns, clothing style or even the conforming behaviour itself).

The moderating forces of social ecology are not confined to classic social psychology demonstrations in the laboratory. In the field, Black patients are less likely to pay attention to HIV-prevention information in the presence of other Black (but not white) patients, unless those Black patients are also paying attention to the information⁴⁴. This finding illustrates how the ability to explain behaviour is limited by essentialist approaches; it is insufficient to ask whether Black patients will pay attention to HIV-prevention information. Willingness to pay attention is not a function of an essential category of Black people, but is instead a function of how that category is constructed in a health clinic where other Black people are present. As another example, in an experience sampling study using smartphones, participants rated moral values as more important when they were in the presence of close (versus distant or no) others, especially for values related to loyalty, sanctity and authority relative to care and fairness¹⁵⁶. Again, the importance of a given moral value is constructed and reconstructed based, in part, on who is around.

Effects of social ecology can also unfold over long time periods. For example, historical heterogeneity (ancestral diversity) within a given region is positively associated with self-reports of smiling, laughter and positive emotions in the Gallup World Poll when controlling for gross domestic product (GDP) and present-day population diversity¹⁵⁷. That is, psychologies and behavioural patterns are constructed not only by who is around now, but who has been around, for generations.

Finally, social ecology effects also scale up to the group level in predicting prejudice¹¹⁰. By one dominant account, specific categories (for example, nationalities) have specific stereotypes associated with them, which elicit specific prejudices¹⁵⁸. But a social constructionist approach also emphasizes group-invariant features predictive of prejudice, such as group size (which can operate in tandem with category-related discrimination). Indeed, there is a tendency for majority groups to be more prejudiced against larger minoritized groups within their communities¹⁵⁹. A reference dependent account further predicts that rather than being sensitive to the absolute size of any one minority group, majority group communities will be sensitive to minority groups' relative rank in size. In other words, majority groups might be most discriminating against whichever group represents the largest local minority. The prediction can be further enriched to account for dynamic processes: as demographics shift and groups change in relative size, discriminatory behaviour and attitudes should change accordingly.

These hypotheses were tested by exploiting variation in group size rank across counties for four minority groups (Black, Hispanic, Asian and Arab) between 1990 and 2010 in the USA¹⁶⁰. This is a case where race/ethnicity was treated as a category, but importantly it was not treated as the predictive variable — instead, group-sized rank was. As predicted, members of the largest (first ranked) minoritized group in a county were more likely to be targeted with hate crimes relative to when their group ranked second or lower in the group size distribution in the same county, controlling for that group's share of the population and many other possible confounders¹⁶⁰. In line with the frameworks described above, this study prioritizes an understanding of the driving features and consequences of a generalized coalitional psychology rather than specific instances of two-group intergroup conflict and discrimination.

Physical objects and environment as context.

Perhaps the most obvious manifestation of context, and at the heart of materialist theorizing, is the physical spaces people occupy and move through¹⁶¹. Although other subfields have already begun to tackle local spaces, geography and climate as consequential inputs to political psychology^{162–164}, willingness to engage in violence¹⁶⁵, and psychological well-being¹⁶⁶, contemporary social psychology

has lagged in its consideration of these factors. However, more research is starting to integrate space, including the presence of material artefacts, in accounting for social psychological phenomena^{167,168}.

For example, physical objects that carry cues to status shape how perceivers racialize targets. Specifically, phenotypically ambiguous faces that are paired with clothes that appear 'low-status' (blue coveralls) are more likely to be categorized as Black, whereas those paired with clothes that appear 'high-status' (business suit) are more likely to be categorized as white¹⁶⁹. Thus, clothing acts as a signal that becomes transformed into a component of a racializing assemblage. Moreover, understanding how sexual assault manifests on college campuses (and how to reduce it) requires an understanding of relevant mental processes (such as goals and person perception) but also physical environmental features such as lighting (dark versus well lit streets) and the configuration of social spaces (individual bedrooms versus shared social space) that become linked to sexual norms and expectations¹⁷⁰.

By expanding the investigation towards features of the environment, these studies develop better taxonomies of the heterogeneous elements that assemble to facilitate the emergence of racist or sexually violent events. In this way, assemblage and constructionist analyses highlight how effective psychological interventions will need to consider material and environmental configurations as important targets of intervention in addition to people's psychologies.

Political, legal, research and regulatory institutions as context. Social constructionist and assemblage accounts emphasize that political, legal, research and regulatory institutions play a central role in producing (or reproducing) many social categories^{1,2,171–174}. Institutional actions and actors (such as politicians and researchers) can shift the existence, experience and boundaries of social categories and how people come to understand, occupy or reject them¹. Yet this remains underappreciated in social psychological studies. Study designs need to account for the connections between social stimuli and their historical and ongoing construction from institutional activity (including in research laboratories)^{53,140}. The same forces will influence observers' and group members' construals of social categories¹⁷⁵ that either align with or depart from the researchers' conceptions¹⁴⁰.

Consistency in category construals can arise from ongoing institutional forces¹⁷⁶, such as the continuing impact of colonialism^{23,177}, slavery's legacy^{178,179}, and widespread stigmatization of minoritized populations¹²⁹. Shifts in construals can follow from new laws or changing norms that modify the consequences of occupying a category. For instance, the legalization of gay marriage in the USA changed implicit and explicit attitudes towards lesbian and gay populations¹⁸⁰ and perceptions about how tolerant other people are of gay marriage¹⁸¹. As another example, neighbourhood stratification and the language that court systems use in legal proceedings influence how Black (versus white) jury-eligible Americans judge the warmth and competence of police officers¹⁸².

Field studies and studies that incorporate non-laboratory data sources have been at the forefront of documenting the institutional impact of laws, social policies and research activities on prejudice against marginalized populations' and how those populations are defined and redefined. However, laboratory experiments have also captured institution-driven changes in the meaning of social stimuli. Participants' immigrant schemas showed different organizations when they were presented with immigrant narratives sourced from criminal descriptions shared by the US government (US Immigration and Customs Enforcement) versus achievements shared by immigrants on social media¹⁸³. Achievement narratives homogenized representations of immigrants from different nationalities, whereas criminal narratives organized the same immigrants into racialized groupings¹⁸³. That media propaganda can shift participants' understanding of immigrant groups and their relations to each other reveals that the meanings of each group are not self-contained but are assemblages contingent on contextually activated groups and political discourses. These political and institutional discourses produce salient categorization rules, which can change over time, reflecting a dynamic constructive process. Within criminalizing discourses, nationality becomes a tracked feature that is used to differentially racialize immigrants^{79,184}. Achievement narratives shift the relevant feature and its significance towards coalitionary motives that de-emphasize nationality (other than US American) and racialization. Similarly, institutional actors can build connections between threat discourses, political allegiances and nativist laws into assemblages that influence

Box 3 | Questions for researchers

Here we use the case study presented in FIG. 1 to highlight questions researchers could ask to account for the role of context better.

- Does a categorical race, ethnicity or documentation status variable fully capture Sarah's experiences of those categories? Categories manifest differently depending on the features Sarah is perceived to have (or that she modifies herself) at any given moment. Thus, a categorical variable lacks contextual resolution (variability in category construction and experience based on dynamics of macro and micro contexts that she has more or less agency over and variability in experience based on other categorization rules present, such as ethnicity–gender–migrant intersections). A category variable also lacks temporal resolution (the salience or expression of each category ebbs and flows, even in the same location) and affective resolution (how Sarah feels about embodying some or all of these categories or being placed within them).
- What do you need to measure about Sarah that is relevant for your inquiry? Researchers need to think about the contexts experienced by the study participant and how those relate to the experimental context. Which assemblages are (or could be) in operation in each context? Might there be overlap in components or processes that connect relevant contexts to each other?

Contextual reframing of categories into assemblages invites interrogating categories as products of forces rather than essences. This suggests the following questions:

- What is Sarah's experience of learning to move through or within an environment shaped by exclusionary versus inclusive social practices?
- How are category-constructing environments manifesting in Sarah's life and where are they encountered in space and time?
- How often is a category-constructing environment forced upon Sarah? How often does Sarah seek them out?
- What life restriction or enablement does Sarah feel or encounter when occupying a category-constructing environment?
- What role do we as researchers have in creating or constraining who Sarah is and how institutions and other people consider her?

whether people agree (or disagree) that anti-immigrant discourse is racist⁸³. How people interpret, relate to, or become implicated in the active assemblage and the features of anti-immigrant discourse that become imbued with significance (for example, the affective resonance of aggression in messages), influences how racism is perceived and constructed within that context. However, assemblages and their constitutive discourses and material foundations can shift, requiring continued monitoring of how the social patterning of perceptions shift accordingly¹¹.

Conclusions

In this Perspective, we have argued that researchers should move beyond social categories and incorporate context more deeply into their theorizing. To make this call actionable, we introduced a subset of implications that come out of social constructionism, assemblage and dynamic systems theories. We also presented examples of how these frameworks are already appearing in social psychology research. The work featured here is not an exhaustive review of research emphasizing context in psychological theorizing. However, it communicates the recent uptick in excitement about, and urgent need for, integrating alternatives to category-based

or pseudo-universal frameworks. More generally, this work highlights new questions and methods for social psychologists and the necessity of focusing more on psychological and material features (rather than classifications), their interconnections and temporal dynamism in conducting science that considers context.

Conversations regarding the challenges of categories-as-explanation have a long and academically productive history in other research areas. For example, there has been debate about whether modes of thought should be categorized as deliberative versus reflexive or as a more continuous gradient¹⁸⁵, and whether emotions are discrete natural kinds or constructed from elements such as core affect and language¹⁸⁶. This Perspective contributes to a growing chorus of scholars who have already begun this conversation about social categories^{1–6,8,60}, considering how to reduce analytic essentialism, reflect on researchers' roles as creators and reinforcers of categories, and shift explanatory weight away from social categories themselves towards the social processes that manifest those categories.

Our goal is to encourage researchers to stop using categories as explanations. This does not mean that researchers have to model every feature of a context. Rather, researchers should consider the richness

of people's experiences and environments and make study design and analysis choices accordingly. Concretely, researchers should identify the behaviour (what do we want to understand or change?), identify the targets of investigation (who are we targeting?), identify context-specific moderators (what affordances increase or decrease likelihood of this behaviour?), and be explicit about the scope of the investigation with regard to the stimuli¹⁸⁷, samples¹⁸⁸, and social and political contexts. BOX 3 provides example questions for researchers drawn from the case study in FIG. 1. As many have said before, social psychologists should also endeavour to test a greater variety of stimuli, recruit more diverse samples^{189,190}, and test across a greater variety of contexts.

Social psychologists should also broaden their collaborative networks to include experts who have deep knowledge of relevant contexts (such as educators, practitioners and activists³⁰), scholars in data science, who have access to massive datasets that quantify different aspects of context, researchers who have invested specifically in understanding the effects of physical space^{191,192}, and researchers who are already in dialogue with practitioners (such as those at professional schools and in industry¹⁹³). Social psychology should also develop stronger relationships with the humanities and sister disciplines within the social sciences — scholars who are well practiced in integrating and understanding context and the richness of human existence. Rather than revealing that psychology is redundant with these other pursuits, such collaborations will allow social psychologists to better define our central role in understanding people and groups in context.

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