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Review

The process of gendering: gender as a verb

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Gender is important to the social and cognitive sciences, as evidenced by hundreds of meta-analyses, thousands of studies, and millions of datapoints that examine how gender (as an independent variable) shapes cognition and behavior. In this expansive literature, gender is often understood as a noun – a social category that separates 'men' from 'women'. However, gender can also be studied and understood as a verb – a cognitive process used to conceptually divide both human and non-human entities by masculinity and femininity. In this review, we outline the cognitive process of gendering and propose a framework to understand gender as a verb that enables a better understanding of how gender operates, why it is important, and how it can change.

Highlights
Gender can be studied as a verb – a cognitive process used to conceptually divide entities by masculinity and femininity.

We outline the cognitive process of gendering and propose a framework to understand gender as a verb.

Studying gender as a verb enables a better understanding of how gender operates, why it is important, and how it can change.

Gender: beyond differences between men and women
Human beings have long been captivated by gender differences. What makes being 'male' different from being 'female'? Where do these differences stem from? Are they large, and are they meaningful? How do such differences shape cognition, behavior, and outcomes (e.g., hiring, achievement, bias, discrimination)? Thousands of studies have been devoted to questions such as these.

Within this literature, gender is almost always used as a proxy for biological sex, defined as a noun, and operationalized as an independent variable. For example, over a hundred meta-analyses, summarizing thousands of studies and millions of datapoints, have examined whether and how men and women differ from one another in terms of abilities, personalities, preferences, behaviors, and more [1–5]. While this work is important, it is increasingly clear that gender is also more than a noun, more than an identity or social category, and more than a predictor of our thoughts, actions, and outcomes: gender is also a verb. Gender is a cognitive process used to conceptually divide entities by masculinity and femininity [6–8]. Cognitive processes can be defined as mental actions or activities that relate to the interpretation, storage, and retrieval of information (e.g., categorization, attention, memory [9]). Although gender is a widely studied category, it is also an activity of categorization in and of itself, one that extends beyond the categorization of people as male or female (Box 1).

To 'gender' (verb) is to perceive something through the lens of gender (noun). Specifically, we define gendering as the process of: (i) dividing people or entities into male and female categories; and (ii) ascribing levels of masculinity and femininity to those categories. Past work has extensively studied how the first part of this process – gender categorization – affects evaluations of other people (e.g., [10–13]). However, as we review, gender categorization extends to many non-human entities (e.g., shapes, sounds), and gender ascription affects how those categories, too, are understood.

To highlight the phenomenon of gendering, consider the following questions. Is a flower masculine or feminine? What about a rottweiler? Despite the fact that these entities have no obvious connection to human biological males and females, participants have no difficulty reaching consensus on the gender of these non-human entities [6,8]. Indeed, this process (of gendering) is so

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Box 1. Gender as a verb: a brief conceptualization

A noun is a word used to identify any of a class of people, places, or things (common noun), or to name a particular one of these (proper noun). Among other definitions of gender (see Table 1 in the main text), one definition of gender is 'classes of nouns and pronouns into which other nouns may be divided'[i]. However, more commonly in psychology, gender (noun) is defined as 'the social meaning ascribed to male and female social categories within a culture (i.e., what it means to be a 'man' or 'woman' [100]), 'a term to describe those non-physiological components of sex that are culturally regarded as appropriate to males or to females' [27], 'the state of being male or female as expressed by social or cultural distinctions and differences rather than biological ones'[i], or 'an individuals' self-concept, based on their membership in (or exclusion from) a gender group, together with the significance attached to that membership' [43]. In any of these cases, gender describes a class of nouns and pronouns into which other nouns may be divided, usually two forms of people: men and women (cf. [29]).

Research studying gender as a noun has in large part examined physiological, psychological, and behavioral differences between men and women or judgments and evaluations of, as well as bias and discrimination towards, men and women.

Verbs, by contrast, are used to describe actions, states, occurrences, or relationships; they describe an action that someone or something can do. If you look in the *Oxford English Dictionary*[j], no such conceptualization of gender exists; however, within psychology it does.

Gender (verb) or 'gendering' is the process of: (i) dividing people or entities into 'male' and 'female' categories; and (ii) ascribing levels of 'masculinity' and 'femininity' to those categories. Gender categorization involves defining a boundary, which is usually expressed in the form of a discrete binary category (i.e., male and female). Gender ascription involves ascribing that category with levels of masculinity and femininity to enhance understanding and create meaning. Both categorization and ascription are based on factors such as perceived biological sex, gender-associated features (e.g., phenotypes, angularity), or environmental context (e.g., masculinity/femininity of surrounding stimuli).

These processes are used in basic components of cognition, such as categorization, attention, encoding, association, memory and recall, and comprehension among others. For example, gender (noun) is a basic category through which people categorize (verb) stimuli (e.g., a person as a man, a utility knife as masculine). While a person might associate a knife (a noun) with men (a noun) due to an existing conceptual network, a knife does not fall into the gender binary (e.g., male or female): it is not human, nor does it have the properties required to be defined as male (e.g., XY chromosomes). Instead, classifying a knife as masculine is to gender (verb) the knife. In other words, while the cognitive processes implicated in gendering (verb) depend on our gender (noun)-based knowledge, the categories that make up gender (noun) are distinct from the process of placing entities into these categories (verb). Yet, the act of placing entities into categories can shape our understanding of gender categories, themselves. For example, a singular instance of seeing a girl interact with a table or a woman being identified as an 'over-estimator' can lead people to think that all girls like tables and all women are over-estimators [101,102], or the same stimuli can gain inclusion into masculine and feminine categories, depending on the context (e.g., circles when presented beside squares vs hearts [8]). Entities do not always require a basis for inclusion in gender categories; the process of gendering can both create an understanding of gender (noun) and sustain it.

effortless and mundane that the peculiarity of this phenomenon can almost slip by one's attention, yet a growing body of work is shining light on it [6,14–19]. People can – and do – gender shapes, sounds, colors, movements, species, and even other social categories (race, sexual orientation, age). That is, people both divide these entities into 'male' and 'female' categories and ascribe varying levels of masculinity and femininity to them. Such associations shape how stimuli are perceived, processed, remembered, and understood [6,8].

In this review, we dedicate attention to this form of gender. We first review how gender has been defined and understood, for the most part, in psychology: as an independent variable (a noun) that predicts a variety of cognitions, behaviors, and outcomes. We then describe gender as a verb, and in particular the cognitive process of gendering. See Table 1 for definitions. By linking the (historical) importance of gender (in human biological and social roles) to fundamental cognitive adaptations that underlie social cognition and information processing, we explain why gender functions as an expansive schema that is used to perceive and process the world around us.

The active nature of creating and maintaining gender underlies much feminist scholarship (e.g., [20–22]), yet little research has explored this phenomenon from an empirical or psychological standpoint [23]. The cognitive sciences may be a fruitful path to answer critical questions

Table 1. Definitions of gender

Term	Definition	Conceptualization	Refs
Noun			
Gender	Meanings ascribed to male and female social categories within a culture (i.e., what it means to be a 'man' or 'woman')	Societal or personal classification as 'man' or 'woman'	[100]
Sex	Either of the two main categories (male and female) into which humans and many other living things are divided on the basis of their reproductive functions	Biological profile classified as 'male' or 'female'	[100]
Gender identity	Individuals' self-concept, based on of their membership in (or exclusion from) a gender group, together with the significance attached to that membership	Understanding of, and strength of relationship to, one's sense of being a man, a woman, or another gender category	[43]
Psychological gender	One's identification with gendered traits and characteristics (e.g., masculinity and femininity), independent of their gender or sex	Identification with culturally defined masculine (e.g., dominant, bold) and feminine (e.g., nurturing, kind) traits	[14]
Verb			
Gendering	The process of dividing people or entities into 'male' and 'female' categories and ascribing levels of 'masculinity' and 'femininity' to those categories	Any mental process that divides people into 'male' and 'female' or by which 'masculinity' and 'femininity' are ascribed to entities	
Gender categorization	Categorization of stimuli into 'male' and 'female' categories	This division is based on perceived biological sex, gender-associated features (e.g., phenotypes, angularity), or environmental context (e.g., masculinity/femininity of surrounding stimuli)	
Gender ascription	Ascription of masculinity and femininity to gender-categorized stimuli	The content and strength of gender ascription is based on preceding gender categorization and context (e.g., masculinity or femininity of surrounding information)	
Gendered processing	The attention, encoding, understanding, recall, and associations of information as a function of gender	Gendered processing is based on one's gender schema, target features, and gendered context	

about how gender (noun) is created and maintained through the process of gendering (verb). Thus, we review past work on gendering and propose a research agenda that moves beyond gender as an independent variable and noun and towards gender as a verb, a process that facilitates social cognition – and cognition more broadly. This framework moves beyond 'explaining differences between men and women' and moves the study of gender towards new spaces of psychology and cognition, ranging from categorization to (de)humanization to artificial intelligence and beyond.

Gender as a noun

To understand gender as a verb, it is useful to review gender as a noun. The term gender was introduced (in psychology) to differentiate culturally constructed differences between males and females from biological ones [24,25]. The term was initially meant to signify all those things that distinguish a boy from a girl or a man from a woman [24]. It became popular in the 1970s, largely because feminist scholars sought to distinguish socially constructed aspects of male–female differences from biological ones [25,26]. However, outside the halls of academia (and often within them) the terms sex and gender are typically treated synonymously [25–27]. As Haig (2004) noted, 'the distinction [between sex and gender] is now only fitfully respected and gender is often used as a simple synonym of sex' (p. 87) [25]. A decade earlier, Gentile (1993) argued 'nothing has been gained by the use of the term gender except confusion' (p. 120) [26]. Indeed, the term gender/sex is often used to reflect the biological and social aspects of sex and gender that cannot be sourced to sex or gender independently (e.g., [28,29]). While prior scholars have argued that this distinction has added little to the understanding of gender (as a noun), it is critical to understanding gender as a verb.

Although gender is often used as a proxy for biological sex, it does not need to be. Biological sex is often perceived as a dichotomy and thus a binary (cf. [28,30]). Gender (as a psychological construct), however, comprises the cultural attributes that distinguish men from women. While these attributes are often dichotomized, their formulation and introduction serve to explain gender as the continuous dimensions of 'masculinity' and 'femininity' [8,14,31–33]. Most simply, masculinity represents a cluster of traits involving action-orientation, self-interest, goal pursuit, and achievement, whereas femininity involves a cluster of traits around other-focus, social orientation, and desire for acceptance, connection, and community [7,34–36]. The continuity of each dimension has allowed psychologists to capture people's psychological gender; that is, people's self-rated endorsement of masculinity and femininity, where masculine and feminine traits can be held by both men and women.

This understanding of masculinity and femininity as existing along continua not only allows a continuous identification of gender (as a noun), but also allows a continuous application of it. For example, while two males may both be identified and categorized as 'men', a man with a wider face, more angular features, and a larger jaw will be considered as having a more 'masculine' appearance compared with a man who is considered 'baby faced', who will be considered as having a more 'feminine' appearance [15,37]. Even when looking at the same face, people may categorize it as male or female depending on context or surrounding stimuli, and this categorization affects judgement and evaluation; masculinity and femininity take on different meanings depending on the gender of the target [15,37] (Figure 1). Thus, the separation between gender (spectra of masculinity and femininity) and sex (a biological category) allows 'gender' (i.e., masculinity and femininity) to be applied to sex categories (e.g., male, female) themselves and shapes the way in which people (inside and outside the gender/sex binary) are evaluated.

Stimuli	Gender categorization	Gender ascription		Associated features		Example descriptions
		Masc	Fem	Height	Weight	
	1 = male, 2 = female	(1 - 5)	(1 - 5)	in	lbs	
	Male (54%)	3.42 (0.76)	2.38 (1.02)	69.73 (2.16)	163.85 (24.26)	• He tends to be quiet. he feels awkward in social situations. • Jim is a sensitive white male. Jim is homosexual. He is kind and considerate. • He would be a caring and timid person. He would be hesitant to say anything that bothers anyone. • He has homosexual tendencies and is somewhat feminine in his mannerisms. He is pretty friendly to everyone.
	Female (46%)	2.00 (1.20)	3.91 (0.75)	64.36 (6.34)	138.05 (20.35)	• She is a smart, but edgy woman that borders on aggressive. • She is mannish. She is lesbian. She is vegan. • This is a tom boy type of woman who enjoys the outdoors. • She seems assertive, very confident in her capabilities. I imagine she is pretty independent.

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Figure 1. Gender categorization versus gender ascription. This figure presents data made available by Martin (2023) [8] – see pretest data and Study 5 – which distinguishes gender categorization from gender ascription: that gender ascription (masculinity and femininity) takes on distinct meanings as a function of gender categorization. In Martin (2023), participants viewed an androgynous face; however, it was not evaluated gender neutrally: participants were split on whether they thought it was 'male' or 'female'. Although participants saw the same face, their gender categorization shaped their subsequent perceptions. Participants who categorized the face as male imbued it with more masculinity and less femininity than those who categorized it as female, yet masculinity and femininity also took on distinct meanings as a function of this categorization. When categorized as female, despite being seen as more feminine and less masculine than the face when categorized as male, still as a function of being near the perceptual line between male and female, she was described in masculine terms (e.g., mannish, tomboy, aggressive), whereas the face categorized as male was described in more feminine terms (e.g., feminine, caring, timid).

Curiously, however, gender is not only applied to sex categories. It is also applied to other social categories, such as race, age, and sexual orientation [15,38,39]. For example, despite the fact that lesbians are categorized as female and gay men as male, people apply gender to sexual orientation, seeing lesbians as masculine and gay men as feminine [15]. Gendering is applied to many other entities as well: from shapes to sounds, from numbers to colors, from cultures to animals to sensations (Table 2). All of these entities have little to do with human biological sex.

Not only can gender be applied broadly, but it is also applied broadly; nearly all human traits fall onto two primary dimensions of social perception: masculinity and femininity. For example, Abele and Wojciszke (2007) [40] asked participants to rate 300 human traits on a number of dimensions (e.g., favorability, utility), and two factors (representing masculinity and femininity) accounted for 90% of the variance in ratings. These two factors are psychologically and psychometrically redundant with the 'Big Two' dimensions through which people perceive and process their social realities [7,40]. That is, many different areas of psychology have converged on the idea that, when it comes to understanding ourselves and others, there are two dimensions that people use: one revolves around independence, goal pursuit, and achievement and the other around other-focus, social orientation, and desire for connection. These two dimensions, regardless of their nomenclature (e.g., agency/communality, instrumentality/expressiveness, competence/warmth; [32,40,41]), are what we already call 'masculinity' and 'femininity'. The reason that some gender scholars prefer to label these dimensions as 'agency' and 'communion' is to help nudge the reader to understand that any person can express these traits to different degrees, regardless of their biological sex (e.g., [42,43])

There are multiple hypotheses for why these two dimensions form the basic structure of social cognition based on our personal and social needs; however, a parsimonious and compelling hypothesis for why masculinity and femininity look the way they do comes from social role theory, and in

Table 2. Examples of concept gendering

Category	Masculine example	Feminine example	Refs
Shapes	Square Jagged shapes	Circle Rounded shapes	[19]
			[8][a]
Countries	Japan, USA	Sweden, Thailand	[90]
Sounds	Voiced phonemes	Unvoiced phonemes	[18]
	(e.g., 'Br', 'Gr')	(e.g., 'Sh', 'Fe')	
Touch	Hard/rough	Tender/soft	[18,91]
Colors	Blue, green	Pink, purple	[92]
	Bold	Pastel	
Numbers	Odd	Even	[93]
Food	Meat	Vegetables	[94]
	Unhealthy	Healthy	[95]
Races	African American	Asian	[38]
			[17]
Sexual orientation	Lesbians	Gay men	[15]
Movement	Swagger	Sway	[16]
Species	Gorilla, eagle	Nightingale, butterfly	[14,96]
Size	Big	Small	[97,98]
Brightness	Bright	Dull	[99]

[a]For an additional demonstration, see[ii].

particular the biosocial construction of gender differences [44,45]. A key difference between human males and females is that females can bear a child and males cannot; furthermore, males tend to be physically stronger and larger than females. As a result, historically speaking, women have taken on roles that involve child-bearing and child-rearing, while men have taken on roles involving hunting and defending [45]. These roles require different traits. Hunting and defending requires traits like competitiveness, aggressiveness, and risk-taking (i.e., masculinity) and child-rearing requires traits like nurturance, affection, and care (i.e., femininity). Men, therefore, tend to be associated with masculine traits and women tend to be associated with feminine traits, which represent the modern-day schema of how we perceive and process our social words.

The primacy of the gender schema

Although multiple theories exist as to why the Big Two dimensions of social cognition look the way they do [46,47], one theory explains why there are exactly two primary dimensions: gendered cognition [7]. Decades of research reveal that people perceive two primary ways of behaving in our social words. The theory of gendered cognition suggests that this widely held perception exists because the pervasive gender schema divides the social world into male and female, which today is often labeled as masculine and feminine (to clarify that these are psychological continua), or as agentic and communal (to clarify that these are separate from biological sex).

By this line of thinking, because the Big Two takes primacy in social cognition, the gender schema is applied broadly to understand our social worlds [7]. For example, people tend to classify non-human stimuli as masculine or feminine [6,14], remember gender-related words better than gender-neutral words [48], and in many cases process gendered language more quickly than non-gendered language [49]; and they do so because, as we review later, the gender schema is a primary schema humans use to understand their social worlds. Thus, males and females can be (and are) associated with a number of gendered traits and entities that are dissociated from, or indirectly related to, human beings (see Table 2 for a summary).

Given the close links between sex (in both senses of the word) and reproduction, being able to distinguish male from female has been vital, and many scholars posit that social cognition developed to process information in a way that maximizes survival and reproduction [50]. Research on information theory [51–53] – which explains how the brain encodes and uses information – is also consistent with this idea. Information theory argues that our minds seek to reduce entropy (i.e., the amount of uncertainty associated with information content) and maximize mutual information (i.e., the information one variable holds about another [54]). Thus, humans create 'efficient codes' – a representation of information that minimizes redundancy and maximizes clarity – about information content [51]. As it relates to person-perception, gender provides the most information: it is both easily detectible, categorizing human beings into two categories with discernible differences, and diagnostic, where the information one receives from this categorization provides a wealth of information that is relevant to core features of human survival. In other words, gender tells us who we can reproduce with, who we should be threatened by or compete with, and what roles someone might occupy.

From an efficiency perspective, gender would be an 'efficient code' people use to categorize people and information. If this is the case, an understanding of gender should be functional, foundational, and universal. Indeed, it seems that it is: gender is the primary category people use when ascribing 'humanness' [55,56] and one that exists across cultures [57]. It is also the first social category that children learn, perceive, and believe to be relevant [14,58]. This is not to say that other social categories – and their intersections – are not important in processes of categorization and perception [13,59,60]. Gender, however, is particularly potent, such that people use gender

to categorize phenomena that are not distinguished according to other social categories. For example, although people distinguish shapes by gender, they do not bifurcate shapes by age or race [8]. Culturally, gender pervades many aspects of categorization that other social categories do not: across many cultures, pronouns, honorifics, and suffixes are assigned by gender, and many institutions – from sports, to schools, to retail – are divided by this distinction. Gender is even at the core of our humanity, where gender is the only social category (compared with race, age, sexual orientation, religion, and disability) that is consistently ascribed when humanizing and the only social category that is uniquely predictive of perceived 'humanness' [55–57].

Given its importance in identifying and understanding ourselves and others, gender has become a primary schema that we use and apply to many entities, including those far removed from human males and females (see Box 2 for a history of gender schema research). This use of gender as a cognitive schema allows it to be applied to many entities, providing an organizing framework that facilitates encoding, association, recall, prediction, and inference.

Gender as a verb

As reviewed earlier, gender is a primary schema through which people form a network of associations that facilitate cognition. With ease and consensus, people can classify species, colors, textures, sounds, shapes, and more by gender, which reveals that the gender schema is applied broadly, frequently, and often unconsciously. Studies demonstrate that people reach a high degree of consensus in classifying human and non-human entities as masculine and feminine (Table 2). In these studies, people engage in the process of gendering; thus, gender here is not a predictor or a noun, but a process, a verb. This gendered processing underlies the active nature of gendering. That is, if gender is a 'lens' through which we process information (including non-human stimuli), gendering is a process of seeing, and one that extends well beyond the binary classification of 'men' and 'women'. To articulate this point more precisely, to 'gender' (verb) is to perceive something through the lens of gender (noun). Gendering – or dividing entities by, or ascribing traits along continua of, masculinity and femininity – is a pervasive process extending beyond male and female persons (e.g., anatomy, personality) to concepts metaphorically related to sex (e.g., shapes, sounds [6,14,48]).

Gender as a category involves defining a boundary, which is usually expressed in the form of a discrete binary category (i.e., male or female). Gender as ascription involves imbuing that

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Box 2. Gender as a schema: a brief history

The idea of gender as a schema stems from research about cognitive schemas more broadly. A schema is a cognitive framework we use to encode, organize, process, and recall information [103,104]. In essence, it is a cognitive structure containing knowledge about a particular domain that enables the perceiver to identify stimuli quickly, fill in information that is missing, simplify complex information, understand what is happening, and predict how to behave [104]. It can be thought of as a pyramid structure, hierarchically organized with more abstract or general information at the top and more specific information at the bottom.

We are not the first to suggest that the gender schema is the primary schema through which humans understand their social realities [14,96,105]. In her pioneering work on gender schema theory, Bem [14] proposed that gendering – or what she called 'sex typing' – is derived from schematic processing: the readiness to encode and organize information, including information about the self, in terms of the cultural definitions of masculinity and femininity that constitute the society's gender schema. This theory was originally developed and used to understand how individuals develop a gendered self and how that self-concept interacts with social realities. Bem was interested in the extent to which sex typicality (i.e., men who identified with masculine traits and women who identified with feminine traits) affected participants' recall and clustering of stimuli, including those that were clearly gendered (e.g., clothing, names), potentially gendered (e.g., verbs), and not clearly gendered (e.g., species). She then examined whether recall of the words was clustered by gender. What she found was that all participants, to some degree, clustered information on the basis of gender, including those that were not clearly gendered (e.g., gorilla, nightingale), suggesting that gendered processing may be a broader phenomenon than was otherwise acknowledged.

category with levels of masculinity and femininity to enhance understanding and create meaning. The sheer breadth of the two dimensions by which people naturally perceive their social world – the Big Two – has the consequence that non-human entities can be easily placed along the two dimensions. Qualities associated with men – such as independence, roughness, and angularity – explain why certain numbers ('1'), sounds ('gr'), and shapes ('square') are typically classified as masculine. Qualities associated with women – like relationality, softness, and roundness – explain why other numbers ('2'), sounds ('sh'), and shapes ('circle') can easily be classified as feminine.

Thus far, we have summarized research on the breadth of the gender schema (e.g., [7–10]) and its many gendered associations (Table 2). We next discuss the consequences of gendering. That is, gendering not only has the potential to affect the way we see men and women but can also change the way we see our social realities, more broadly. Because gender is a category applied to many non-human entities, applying this gendered lens shapes how we engage with those entities. Grammatical gender provides a nice example. Some languages assign a gendered pronoun to objects (e.g., French, Spanish). While these pronouns are supposedly semantically arbitrary – such that a feminine pronoun ('la', 'une') can be assigned to a masculine object (e.g., saw, axe) and vice versa [61,62] – they can shape cognitive processes. This type of gendering, under certain conditions, can affect semantic meaning, cognitive associations, memory, categorization, and imagination [62,63]. For example, people are more likely to remember names assigned to objects when a given name has the same gender as the object's grammatical gender (i.e., pronoun [64]), see objects as similar when they share the same gendered pronoun [65], and assign names to objects that are consistent with the objects' grammatical gender [66]. These processes extend to how people interpret people, behavior, and events [67,68].

Further, when objects are given a gender, they are also more likely to be seen as 'human-like', changing the way we understand and connect with non-human things. For example, when virtual assistants, autonomous vehicles, and products are given a gender, people are more likely to describe them as having intentions, emotions, and mental capacities, and indicate that they feel more connection to these products [55,56]. In addition, the gender given to non-human entities changes the way we describe and interact with them, as well as the purpose for which we use them [56,69]. Such gender ascriptions to everyday objects can reinforce gendered associations and amplify bias [68,70,71] in a manner similar to the way in which gendering humans can amplify and reinforce gender stereotypes [8,72,73]. However, gendering does not need to reinforce gender stereotypes.

For instance, when participants were asked to classify human-related attributes by gender (e.g., emotions, personalities), they indeed later showed greater endorsement of gender stereotypes relative to participants in a control condition who did not engage in any gendering. However, when participants instead applied gender to content that was not directly related to human beings (e.g., nature, sounds), they were less likely to endorse traditional gender stereotypes. This is because the process of gendering non-human entities highlighted the social construction of gender: if gender can be applied to shapes, colors, and sounds far removed from human biology, to some degree it must reflect psychological beliefs about, rather than essential properties of, men and women [6].

It may not be the fact that we gender entities that confines us to gendered roles and gendered futures but the way in which we gender that informs stereotyping and bias. Although gendering can reify stereotypes, it also has the potential to disrupt them.

Gender as a verb: implications and applications

We have outlined the idea that gender is more than a noun: it is also verb. We have also explained why and how gender became a primary schema through which we process our social realities.

Next, we discuss how understanding gender as a verb can help to advance the field of psychology. We outline several generative paths for future research and highlight a number of others later (see Outstanding questions).

Gender neutrality

One of the more notable changes in identity politics over the past decade has been the movement towards (and reaction against) gender neutrality. From gender-neutral pronouns, names, bathrooms, and clothing, the topic of genderlessness or gender neutrality has proliferated.

Gender-neutral categories may be useful in promoting gender inclusion [74,75], but they have gained little traction in eliminating gender from people's minds [76–78]. Our work here, which suggests that the gender schema is widely applied and used even when not explicitly on the mind, reveals that gender and social perception go hand in hand. Recent research has found that the process of humanization is inextricably linked to gender [55,57]. For example, when participants are asked to make non-living things 'come alive' (e.g., creating a pet rock, imagining a product as a friend), they inherently attribute it a gender, and the extent to which they do not, they see someone – or something – as less human [55,56]. This research suggests that well-intentioned attempts to remove gender may be dehumanizing.

Further, other work has shown that gender-neutral names, labels, faces, and toys are still perceived through a gendered lens [8,77,79]. This work is important because much of psychology research assumes that removing gendered information (e.g., by using gender-neutral names, unspecified targets) allows a controlled, precise, and independent understanding of 'humans' (see [80]). If gender, however, is bound to a cognitive process that extends far and wide, participants are likely to still use and attribute a gender even when none is explicitly provided.

Gender in context

Importantly, using gender as a verb also allows gender to be used and understood as a dependent variable. That is, when gender is studied as a noun, researchers assume that gender – and gender differences – are stable and predictive of a variety of outcomes. While we agree that there are stable differences between men and women that exist across culture and time, a fruitful avenue of research is to understand what shapes our understandings of gender. For example, recent work has examined how context affects our notions of gender, such that a 'gender-neutral' word is seen as 'masculine' when placed beside a feminine comparison word, but the same word is seen as 'feminine' when placed beside a masculine one. This finding carries implications: when gender-neutral names are evaluated after a clearly female name, they are assumed to be male, whereas when they are evaluated after a clearly male name, they are assumed to be female, which has implications for perceptions of competence, status, and salary expectations [8]. This research speaks to how gender (noun) is created and maintained (i.e., socially constructed [21]): through the active nature of gendering (verb).

Other work has examined how identity, belief systems, and motivations shape a number of outcomes relating to categorization of and reaction to potentially gendered stimuli. In terms of identity, gender-diverse participants (e.g., non-binary, gender fluid) show more conceptual flexibility in sorting gendered stimuli [81]. In terms of motivations, the need for certainty is related to greater gender stereotyping and negative views towards androgynous targets (because these individuals cannot be easily categorized by gender [82]). Thus, understanding gender as a verb, as an active way of perceiving the world, allows scholars to study gender as a dependent variable – one that is subject to context, affected by motivations, and thus open to change.

Gender interventions

Finally, interventions that seek to remove gender may run afoul of their intentions. Many people, for example, assume that removing names and gendered information on resumes and in evaluations can increase gender diversity [83,84]. However, it is unclear (and unlikely) that these interventions are actually removing gender from perceivers' minds; rather, it is more likely that people are relying on a stereotypical, and often androcentric (i.e., male), default [85,86]. We recommend that interventions move beyond trying to remove the gender schema – a difficult process, surely – and instead, seek to understand and work with the gender schema to disrupt bias. For example, many people assume that bias against transgender, non-binary, and gender-non-conforming individuals comes from a political or ideological place. Although this is likely to be true, it is also likely that these forms of bias come from a schematic place as well. That is, cognitive disfluency influences bias, above and beyond ideologies [55,87,88]. Understanding the role of ideological resistance to gender separate from people's confusion around gender neutrality is likely to result in more effective interventions. In other words, finding other ways to fulfil the needs (e.g., need to understand, need to relate) that gender meets may in fact provide a more effective way to navigate gender stereotyping and inequality. For example, non-gendered targets are dehumanized, in part due to the absence of a gender schema and the inability of study participants to sense-make (i.e., understand [55]). Perhaps providing participants with a schema to understand and make sense of non-gendered targets or providing more exposure to gender-ambiguous targets [89] or a third category [81] would mitigate these effects. We suggest (and hope) that using gender as a verb – as an active process that can shape our understanding of gender as a noun – generates novel interventions to disrupt gender bias.

Concluding remarks

Gender is as important to the human experience as it is to the field of psychology, and yet its study has been largely limited to an understanding of what differentiates males from females. We show that gender is much more than that: it serves as a fundamental lens of social cognition, it is closely connected to multiple cognitive processes, and it is accessible and available even when gender is not on the mind. Understanding how people gender the world around them allows new insights into gender, and social cognition more broadly, and opens new avenues for changing the ways in which gender influences the world we live in.

Declaration of interests

No interests are declared.

Resources

[i]www.oed.com/dictionary/gender_n?tab=meaning_and_use#3044893)

[ii]http://datacolada.org/76.

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