

Epistemic Equality

Distributive Epistemic Justice in the Context of Justification

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Abstract Social inequality may obstruct the generation of knowledge, as the rich and powerful may bring about social acceptance of skewed views that suit their interests. Epistemic equality in the context of justification is a means of preventing such obstruction. Drawing on social epistemology and theories of equality and distributive justice, we provide an account of epistemic equality. We regard participation in, and influence over a knowledge-generating discourse in an epistemic community as a limited good that needs to be justly distributed among putative members of the community. We argue that rather than trying to operationally formulate an exact criterion for distributing this good, epistemic equality may be realized by insisting on active participation of members of three groups in addition to credited experts: relevant disempowered groups, relevant uncredited experts, and relevant stakeholders. Meeting these conditions fulfills the political, moral, and epistemic aims of epistemic equality.

Keywords epistemic injustice; testimonial injustice; distributive justice; discrimination

1. INTRODUCTION

We acquire many of our beliefs from the testimony of others, including experts, and from social institutions, such as science, that are in charge of generating knowledge. Knowledge generation is social in at least three ways. First, it depends on an apt division of cognitive labor among researchers (Kitcher 1990). Second, it depends on the existence of justified trust among them (Hardwig 1985). Third, hypotheses must undergo a social process of critical scrutiny and evaluation, as in peer-review, to acquire the status of knowledge (Longino 2002).

Unequal power relations may obstruct the generation of knowledge. The rich and powerful may bring about acceptance of skewed views or artificially manufacture uncertainty that prevents closure of controversies. Epistemic equality in the context of justification is a means of preventing such obstructions.

There is no developed model of epistemic equality. This paper fills this lacuna. Similar to scholarship that regards participation in, and influence over citizenship as a distributive good that needs to be justly distributed between all citizens (Young 1989), we regard epistemic equality as

a distributive problem, in which participation in, and influence over, communal knowledge-generating processes are a limited good that needs to be justly distributed among putative members of an epistemic community. Our account of epistemic equality specifies how this good should be justly allocated, such that knowledge, as opposed to error, guess, or mere opinion, is achieved.

In Section 2, we characterize epistemic equality in the context of epistemic justification *qua* a model of distributive justice. We then examine two ways to implement it: the meritocratic approach, which centers on formulating a just criterion of participation in a knowledge-generating discourse, and the democratic approach, which centers on identifying potential participants whose contributions are likely to be disregarded. In Section 3, we argue against the meritocratic approach, and in Section 4, we argue for the democratic approach. Specifically, we argue that the democratic approach meets the moral and political aims of epistemic equality, as well as its epistemic aim.

2. CHARACTERIZING EPISTEMIC EQUALITY

In this section, we characterize epistemic equality in the context of justification *qua* a scheme of distributive justice. We first distinguish between different meanings of “epistemic equality” and identify the one in which we are interested. One question epistemic equality may answer is how inquiry may promote society’s becoming more egalitarian and less discriminatory (Kourany 2010), or how it can advance global equality, for example, between the developing and developed worlds (Harding 2002). Another question is how society members’ concerns should be equally addressed by science, and how society members can equally benefit from the products of scientific research (Kitcher 2001; Jebeile 2020). Epistemic equality may also ask how equal access to the fundamental goods of knowledge and information should be regulated (Kurtulmus and Irzik 2017), particularly equal skilled access to information technologies (Quan-Haase 2016, 147–67).

While these are important questions, our account of epistemic equality has a different focus. We are concerned with *epistemic equality in the context of epistemic justification*, namely the context in which claims gain the status of knowledge.¹ “Knowledge” is used here as a success term that signifies an epistemic achievement, namely, epistemically privileged form of belief or acceptance that is distinguishable from mere opinion, speculation, or educated guess.²

We regard knowledge production as a social process in an epistemic community, in which claims undergo critical scrutiny, and only those claims that successfully survive can be communally accepted and certified as knowledge (Longino 2002). Since our paper concerns the regulation of this collective social-epistemic process, it inclines to theories of knowledge that state that a claim must win social acceptance and be publicly certified to acquire the status of knowledge (Code 2018; Kusch 2002). If one subscribes to a theory of knowledge that does *not* regard social acceptance as a condition for knowledge, one may think of social certification as an extra step that knowledge must pass to serve as a basis for public decision making.

Unequal social power relations may obstruct this process. The rich and powerful may misuse their power to bring about the communal acceptance of views that suit their interests. They may also prevent acceptance by artificially manufacturing uncertainty that prevents the closure of controversies, e.g., tobacco companies’ efforts to impede the scientific acceptance of the harms of smoking or oil companies’ attempts to cast doubts about global climate change (Oreskes and

¹ The context of discovery refers to the part of scientific research in which hypotheses are raised and explored. It is contrasted with the context of justification, in which hypotheses are tested and accepted or rejected. This distinction is commonly attributed to Reichenbach (1938). Kitcher’s (2001) influential model of Well-Ordered Science deals with the context of *discovery*, hence falls outside the purview of this paper.

² We say more about this in Section 4.2.

Conway 2010). Epistemic equality of the kind in which we are interested is designed to prevent such undesirable situations and aid the smooth and successful generation of knowledge.

We regard epistemic equality in the context of justification as a distributive problem. Participation in, and influence over, a knowledge-generating discourse are a limited good that needs to be justly distributed among putative members of an epistemic community. The question our account answers is how this good should be allocated, such that reliable (justified, trustworthy) knowledge is produced.

Our starting point in characterizing epistemic equality in the context of justification as a distributive problem is Longino's notion of "tempered equality of intellectual authority." Longino argues that when researchers theorize from empirical data, they may make biased background assumptions that may taint their resulting theories. Tempered equality is one of four social-epistemic norms of critical discussion Longino prescribes to weed out such biases from theories a scientific community collectively certifies. Tempered equality of intellectual authority requires that intellectual capacity and relevant expertise be the only criteria for participating in a knowledge-generating discussion, regardless of gender, race, etc. Tempered equality is designed to prevent situations in which several theories can accommodate the data, but some theories are not seriously considered because their proponents are socially disempowered (Longino 2002, Ch. 6). Tempered equality also gives preference to research programs with non-hierarchical power relations, such as programs that do not unnecessarily require scarce equipment or specialized training that are accessible only to select few and exclude able researchers, particularly women (Longino 1995).

Tempered equality may be characterized as Aristotelian equality, associated with Aristotle's maxim, "treat like cases alike." Some interpret this maxim as committed merely to *formal equality*, namely, mere universality and impartiality in the application of a distributive rule, regardless of the content of the rule (Gosepath 2011, §2.1). By contrast, according to the *substantive equality* interpretation, which we endorse, Aristotelian equality demands that a distributive rule draw a rational connection between the individuals' entitling properties, the nature of the distributed good, and the amount of good each individual deserves (Berlin 1955-6). Namely, a distributive rule cannot distinguish individuals *arbitrarily* (Pinto 2021). What connections are rational, however, is debatable. In Aristotle's (2000, 1131a) own words, "everyone agrees that justice in distribution must be in accordance with some kind of merit, but not everyone means the same by merit."³ In Longino's tempered equality, this merit is *intellectual capacity and relevant expertise*.

A second relevant distinction is between simple substantive equality and complex substantive equality (Miller 1995). Simple equality identifies one encompassing aspect in people's lives to which all other aspects are reducible and devises general rules for just distribution of goods with respect to it. For instance, if welfare is the encompassing aspect, a distribution of goods is just if it satisfies individuals' different preferences regarding their welfare. By contrast, complex equality denies the existence of only one such encompassing aspect. It identifies different "spheres of justice" in people's lives, which are run by inconvertible currencies. In every sphere, a different distributive criterion governs. Society should reduce the effect of dominant goods from one sphere over other spheres, such that individuals are not unjustly privileged in one sphere due to their possessing a dominant good in another sphere (Walzer 1983).

³ Cf. Medina (2013, 63): "The value that guides epistemic justice in this case is not equal distribution but proportionality—that is what fairness means in this case."

Longino's (2002, 131) tempered equality states that "the social position or economic power of an individual or group in a community ought not determine who or what perspectives are taken seriously in that community". This statement characterizes tempered equality as *complex equality*. Namely, tempered equality recognizes the epistemic domain as a distinctive distributive sphere, governed by its own distributive criterion, and aims at eliminating the influence of other spheres on it. Recall that a central motivation for epistemic equality is preventing wealthy and powerful bodies, such as tobacco and oil companies, from impeding warranted scientific acceptance of theories that go against their interests, for instance by funding research that artificially casts doubt on these theories (Oreskes and Conway 2010).

In complex equality, genuine equality cannot be achieved merely by implementing a just rule of distribution within each sphere. Preventing the influence of dominant goods from one sphere on others is *as important*. While we focus on the internal rule of distribution that should govern the epistemic sphere, merely implementing a just *internal* rule of distribution within the epistemic sphere is insufficient for realizing genuine epistemic equality. *External* influence of dominant goods from other spheres should also be prevented. That is, it is not enough that participation in, and influence over the knowledge-generating discussion are allocated according to relevant expertise. The poor and other members of disempowered groups, for example, must also be able to acquire such relevant expertise in the first place, namely, get proper education, the opportunity to pursue an academic career, etc. Otherwise, their potential epistemic imports will not be realized in the knowledge-generating discussion, even if governed by a just distributive rule. Epistemic equality *must be* part of a systematic correction of other social inequalities, purporting to minimize the mutual influence of dominant goods in different spheres.

What is the good distributed in epistemic equality? Some scholars (Lackey 2018; Coady 2017; Medina 2013, 62–3) take this good to be credibility.⁴ They argue that credibility is a limited good people compete for, because when people offer conflicting testimonies on a given matter, assigning more credibility to one necessarily entails assigning less credibility to another.

The dynamics that epistemic equality seeks to regulate, however, go beyond deeming another as credible and accepting her testimony for that. Like Fricker (2015)⁵ we prefer to talk about individuals' contributions to a knowledge-generating discourse, rather than their testimonies. In addition to testimony, a contribution can take the form of experimental data, a critical question, an objection, etc. Being treated with epistemic equality entails being treated as someone who can competently make such contributions and respond to other's contributions (Hookway 2010).

Unlike mere testimony, however, a contribution may impose an epistemic requirement on its recipient not only to accept a certain claim, but also to defend, revise, or retract his previously held views, conduct some inquiry, or seek more evidence. Consider, for example, a researcher who presents a paper at a conference, faces major empirical and theoretical criticism from the audience, which he cannot adequately address, but then presents exactly the same paper at another conference to a different audience without addressing or even mentioning this criticism. We normally condemn such a person for violating the epistemic norm of "uptake of criticism" (Longino 2002, 129-130), which is necessary for an effective knowledge-generating discourse. Thus, rather than credibility, we characterize the good that is distributed in epistemic equality *as*

⁴ This is as opposed to Fricker (2007, 19) who claims that credibility is not a distributable good. We find the arguments according to which credibility is distributable compelling.

⁵ As opposed to Fricker (2007), who uses the terminology of testimony.

participation in, and influence over a knowledge-generating discourse. This characterization better captures the social dynamics that epistemic equality seeks to regulate.

To conclude, we characterized epistemic equality in the context of justification as complex, substantive, Aristotelian equality, in which the epistemic domain is a distinct distributive sphere. The distributed good in it is participation in, and influence over a communal knowledge-generating discourse, and it is distributed by relevant expertise and intellectual capacity. Further developing this model can take two different routes. We may either precisely formulate the distributive criterion “relevant expertise and intellectual capacity” and its application conditions (hereinafter, *the meritocratic approach*). Alternatively, we may devise a workable method for realizing the rationales of epistemic equality in lieu of a precise formulation of the distributive criterion (hereinafter, *the democratic approach*). In the next section, we scrutinize the meritocratic approach,

3. AGAINST THE MERITOCRATIC APPROACH

Longino’s distribution criterion of relevant expertise and cognitive ability satisfies the rationality requirement of substantive Aristotelian equality because there is a rational connection between it and participation in, and influence over a knowledge-generating discourse. Cognitively able people with relevant expertise should *prima facie* make a positive contribution to a knowledge-generating discourse in their domain of expertise. The challenge is operationally formulating this criterion to pick out those whose epistemic contributions are positive without favoring the socially privileged and disfavoring the socially disempowered. We call the attempt to formulate such an operational definition *the meritocratic approach*. We argue, however, that because expertise is a dual concept, both social and epistemic, the meritocratic approach is ineffective and should be rejected.

A straightforward way to operationally formulate the relevant expertise criterion is in terms of relevant credentials, such as education, publications, and awards. But this is problematic for two reasons. First, who the relevant experts are is often unknown or disputed. When a subject has been scarcely researched, it is unclear who the experts are, and putative experts from different domains make competing claims to expertise. In such cases, expertise is required to determine who the experts are, which leads to infinite regress.

Second, as several case studies in the sociology of science and social epistemology illustrate, formulating relevant expertise in terms of official credentials may lead to unjustifiably excluding or downplaying “experience-based expertise,” namely expertise stemming from uncredited practical training or local knowledge (Collins and Evans 2002, 251–54). Such cases include radiologists dismissing farmers’ knowledge of local soil and sheep grazing patterns when asked to predict patterns of radiation decay allegedly caused by Chernobyl fallout (Wynne, 1996),⁶ entomologists dismissing beekeepers’ claims about the effects of pesticides on bee colonies (Suryanarayanan and Kleinman 2012), agronomists downplaying traditional agricultural practices (Data and Scoones 2003), and courts convicting mothers for abuse based on flawed scientific expert testimony according to which only shaken baby syndrome could explain their babies’ specific injuries, while discarding mothers’ alternative explanations of the these injuries (Lackey 2018, 155–7).

One reason scientists downplay alternative claims to knowledge is their superior social status. A second reason is that scientists’ preference for avoiding false positives over false

⁶ This has become a famous case study in science and technology studies that illustrates the tensions between scientific and local knowledge.

negatives sets the epistemic bar too high for uncredited experts to meet. A third reason is incommensurability between scientific and non-scientific epistemic standards: scientists dismiss lay claims because they cannot standardize them or extrapolate them from idealized models. Yet the mere fact that non-scientists' epistemic practices cannot be reconciled with scientific protocols does not mean that they are not knowledge-yielding. For example, farmers and beekeepers have a tradition of field trials, which use less stringent controls than scientific experiments but produce more reliable local knowledge about successful agricultural practices (Hansson 2019; Kleinman and Suryanarayanan 2020). As Brister (2012, 200) writes, "both scientific knowledge and the knowledge of non-scientists is partial, but [...] scientific knowledge is in fact often received as though it is privileged."

Go (2020, 89–90) argues that scientists' preference for universal generalizability also serves as a means of epistemically marginalizing disempowered members of the scientific community. For example, an introduction to a 1974 sociology book that focuses on American black sociologists' contributions (Blackwell and Janowitz 1974) states that black sociologists have not yet made substantive contributions to sociology because their studies of black communities offered particularistic insights that were not universally generalizable. Go argues that the work of minority sociologists who study their own communities is still considered as second-rate, derogatively called "me-search."

This is problematic for three reasons. First, as Cartwright argues, universal knowledge should not be categorically valued more than local knowledge. General theories are as important a scientific aim as achieving "one particular success after another after another after another. Theories and general principles are among the tools that help us achieve this" (2020, 249).

Second, so-called universal knowledge is often local knowledge of those in power, uncritically and unjustifiably taken to be universally valid. For example, Weber (1864-1920) developed his theory of the rise of capitalism generalizing from his own experience as a Christian white middle-class European male (Go 2020, 90). Piaget (1896-1980) developed his allegedly universal model of cognitive development from observing his own three children (Hopkins 2011). Psychologists today still draw general conclusions from experiments performed almost solely on subjects from Western, educated, industrialized, rich, and democratic societies (Henrich et al. 2010), and they use concepts foreign to non-Western cultures (Staeuble 2005). Unjustifiably generalizing an elite's perspective may reinforce its privilege by presenting the privilege as part of the natural, unquestionable order of things.⁷

Third, epistemic standards that treat the experience of dominant groups as universal and the experiences of disempowered groups as special restrict disempowered researchers' deliberative freedom. As Moreau (2020, Ch. 3) argues, equality requires that people not be constantly reminded of their membership in disempowered groups in a way that would deter them from performing activities they desire. For example, black people should not have to think twice before they hang out in white neighborhoods out of fear that they will be stopped by the police. In the epistemic case, researchers from disempowered groups should not refrain from voicing their views and presenting their findings out of fear that they will be looked down at. This would harm their personal status as knowers, and prevent the epistemic community from acquiring knowledge from them.

⁷ Cf. Young (1989, 257): "In a society where some groups are privileged while others are oppressed, insisting that as citizens persons should leave behind their particular affiliations and experiences to adopt a general point of view serves only to reinforce that privilege; for the perspectives and interests of the privileged will tend to dominate this unified public, marginalizing or silencing those of other groups."

Trying to identify experts by academic education and official accreditation, then, may lead to marginalizing uncredited experts whose expertise stems from relevant life experience or alternative training. It may also perpetuate unjust social-power hierarchies within the scientific community. Formulating the relevant expertise criterion in terms of credentials may thus give more power to those who already have it and less to those who deserve it, undermining the rationale for epistemic equality.

It might be objected that we may formulate the relevant expertise criterion in terms of credited experts who are also open minded and acknowledge their own knowledge gaps. This objection fails for three reasons. First, it is unclear how trying to operationalize a criterion that picks out only open-minded experts can evade the problems discussed so far. Second, even if we manage to formulate such a criterion, some of the problems discussed above are structural and pertain to general scientific norms and standards; therefore, merely picking out individual experts with good epistemic character will not be enough. Third, if uncredited experts offer a contribution that is potentially of *equal* value to scientific knowledge, they should participate in the epistemic discourse as *equals*, rather than as informants whose contributions must first be validated by credited experts. Otherwise, the Aristotelian equality maxim “treat like cases alike” is violated.

The failure to formulate a distributive criterion in terms of relevant expertise stems from the inherent dual nature of expertise, as both social and cognitive. Expertise is intrinsically a social status that entails social privileges and powers. Thus, in a society in which putative experts already have more (or less) social power than they deserve, appealing to expertise as a distributive criterion would just perpetuate the existing inequalities.

Expertise is inherently social for two reasons. Experts are socially recognized as cognitive authorities in a domain inaccessible to laypeople. Such recognition *ipso facto* exclusively empowers them to define their domain of expertise, the problems they can and cannot address, the resources they need, and sometimes even the parameters of a successful solution. Even when experts’ solutions fail, experts are those who decide the causes of failure and assign responsibility. That is, a failure of expertise does not necessarily undermine the power of the class of experts, but only shifts power within it (Fuller 2006). In addition, experts have a unique social authority within liberal democracy. They are the only actors toward the views of which the state is not neutral, because their views are regarded as statements of facts, rather than values. This allows experts to circumvent the democratic political processes to which other state actors are subject when they try to have their views accepted (Kappel 2014; Turner 2001). In reality however, experts’ advice is not devoid of values since scientific knowledge, especially policy-relevant one, is value-laden.⁸

Second, expertise is social because knowledge is social. As Mill (1896, 131) writes, a person’s beliefs are a product of “his party, his sect, his church, his class of society [...] his own country or his own age.” Feminist epistemologists add that because certain perspectives are often inseparable from certain social identities, even in open and critical settings, there is a limit to people’s ability to transcend their background and free themselves of biases and prejudice. This is why Longino insists that the absence of women and ethnic minorities from a scientific consensus, even if unintentional, constitutes a cognitive flaw, which reduces the critical resources of the community (Longino 2002, 131).

But as mentioned, Longino also requires that social backgrounds *not* be taken into account when allocating the good of participation in, and influence over a knowledge-generating discourse. In Longino’s tempered equality, then, there are two conflicting rationales, one that requires that members’ social backgrounds be considered and one that requires that they be ignored. This

⁸ See Elliot (2017) for a review of the literature about the value-ladenness of scientific knowledge.

tension stems from the dual – social and cognitive – nature of expertise, which renders the meritocratic approach ineffective. To be clear: we do not argue against Longino’s tempered equality. Rather, we ask how it can be best operationalized. Our point is that trying to operationalize it by formulating a criterion of relevant expertise leads to a dead end, which stems from an irresolvable tension in the notion of expertise itself.

In addition, we do *not* argue that it is impossible to identify relevant experts at all. Social epistemologists have proposed ways in which non-experts may identify and defer to experts (Collins and Weinel 2011; Goldman 2001; Gelfert 2011; Matheson 2005). As Miller (2016, 16-18) argues, these proposals have their strengths and limitations. We also do *not* argue that a meritocratic expertise-based criterion would fail to identify relevant experts at all. Our point is that it would fail to identify *all and only* relevant contributors to a knowledge-generating discourse or neutralizes social power structures that unjustly favor certain contributors over others.

Could a meritocratic, relevant-expertise criterion be cashed out in evidentialist terms to avoid these problems? Taking a cue from Lackey (2018, 163), we may try to formulate a distribution rule for epistemic equality, according to which one should allocate the good of participation in, and influence over a knowledge-generating discourse among putative members of an epistemic community according to the evidence one *should* have about the members’ respective credibilities on the question at hand, as well as about their credibility *relative to one another*. That is, a putative community member’s participation in, and influence over a knowledge-generating discourse should match the evidence that one should have that this member’s contribution is true. In case several members offer conflicting contributions, their respective allocations should match the evidence that one should have about which member’s contribution is more likely to be true relative to the others’ contributions.

The prospects of this meritocratic evidentialist criterion depend on what the word “should” in it refers to. “Should” might refer to standards of epistemic excellence, describing the evidence one has in epistemically ideal or nearly ideal circumstances (Conee & Feldman 2004, 87). Such evidence would indeed match different members’ credibilities, which makes this criterion adequate. But in ideal circumstances, epistemic equality already exists, which makes this criterion pointless for the purpose of operationally formulating a distribution rule for non-ideal circumstances in which epistemic equality does not yet exist. Alternatively, “should” may refer to the conduct of a responsible epistemic subject in non-ideal circumstances, where a responsible subject conducts inquiry and gathers evidence until she satisfies others’ legitimate epistemic expectations from her (Goldberg 2017). In non-ideal conditions, however, there is no guarantee that the evidence that even a responsible subject can find will match the correct credibility assignments that different community members deserve. Some evidence may be hard to find, and some may not exist and be hard to generate. It is likely that the evidence that even an epistemically responsible subject would gather about other people’s credibilities would still reflect, to some extent, existing social biases that stem from power inequalities. Thus, while the meritocratic evidentialist criterion in its non-ideal interpretation is a reasonable principle for the epistemic conduct of an individual subject who wants to assign, as much as possible, correct credibilities to different interlocutors she encounters, it falls short of a community-wide distribution rule for epistemic equality.

Even if we could overcome these problems, the meritocratic approach would still suffer from another problem, which we deem detrimental to it. Even if we managed to operationally formulate a meritocratic criterion that successfully picked out all and only the right experts, there would be no guarantee that they would use their powers for the epistemic good. Experts sometimes

misuse their power, often believing that they are operating for the greater good. Here are a few examples. Leading biologists of the 1950's masked major disagreements within them about the safe ranges of atomic radiation to keep their professional image intact (Beatty 2006). Clinicians skew medical trials for money (Stegenga 2018, Ch. 10) and give their names to papers they did not author (Sismondo 2015). Too often, researchers knowingly announce discoveries based on poor, inconclusive evidence (Miller 2015, 424-435). In a survey for *Nature*, 15.5 percent of surveyed scientists admit to "changing the design, methodology or results of a study in response to pressure from a funding source" (Martinson et al., 2005).

These examples, and many others like them, should not be taken lightly. By itself, a relevant-expertise criterion does not safeguard against such misuses of power. It picks out the experts with seemingly relevant knowledge but does not restrict their conduct. There are, of course, other restrictions, such as laws, ethical codes, and professional norms. These restrictions, however, are exterior to the distributive criterion of relevant expertise, and thus do not protect it from potentially becoming self-undermining; namely, from the possibility of picking out experts who would undermine the generation of knowledge rather than assist it.

We have argued that due to the dual, social and epistemic, nature of expertise, formulating a meritocratic relevant-expertise criterion for operationalizing a distributive scheme of epistemic equality in the context of justification would fail to pick out all and only relevant contributors to the knowledge-generation discourse or overcome existing power inequalities. It also cannot safeguard against the possibility that under the influence of biases, values, and interests, the experts that it picks out would misuse their power to influence the outcome of the knowledge-generating discourse. The upshot is that for implementing epistemic equality, we need to worry not only about participants' expertise, be it credited or uncredited, but also about their interests and stakes. We propose a way to do so in the next section.

4. FOR THE DEMOCRATIC APPROACH

In this section, we present the democratic approach, and argue that it should be employed for realizing epistemic equality. Instead of trying to operationally formulate a substantive criterion of relevant expertise, as the meritocratic approach suggests, the democratic approach requires that in addition to relevant scientific experts, whose importance we do not deny, relevant groups that are likely to be otherwise underrepresented or dismissed be identified and participate in the knowledge-generating process. They should all participate in the knowledge-generating discussion as equals. Looking for members of vulnerable groups, such as the lower class, and ethnic, gender, and national minorities is a good rule of thumb.

More precisely, the democratic approach requires equal participation of members of three groups:

- (1) credited experts with seemingly relevant expertise without favoring, or only slightly favoring those who have higher individual or institutional prestige;
- (2) people with seemingly relevant uncredited, experience-based expertise;
- (3) seemingly relevant stakeholders, especially from underrepresented sectors in the knowledge-generating discourse.⁹

For example, in the above-mentioned cases, the sheep farmers and beekeepers should be identified and included as equals in the knowledge-generating processes in addition to radiologists and biologists, respectively. Or when drafting the extremely influential Diagnostic and Statistical

⁹ Cf. Rolin (2009).

Manual of Mental Disorders (DSM), patients and not just psychiatrists should participate and influence the outcome.¹⁰

Regarding the second group, Oreskes (2019, 131-132) helpfully identifies four categories of people who should be included in the knowledge-generation process even if they lack credited expertise. The first consists of professionals with relevant information, such as nurses and midwives. The second consists of people with relevant “on the ground” experience, such as farmers and fishermen. The third consists of amateur professionals, and the fourth of citizen scientists.

Oreskes stresses, however, that uncredited experts and stakeholders are not always right. She also warns against conflating genuine uncredited experts with “people with no credible claim to expertise—celebrities, K-Street lobbyists, or the op-ed writers of the *Wall Street Journal*” (2019, 132). Another group about which we should be cautious consists of people who are funded by affluent actors to game the system, especially those who are falsely presented as authentic representatives of marginalized groups or as legitimate stakeholders. An example are so-called patient advocacy groups which are a front for pharmaceutical companies. Including them in the knowledge-generating discourse goes against the very rationale of epistemic equality (we say more about this in Section 4.2).

The word “seemingly” that features in our participation criteria indicates that we do not have a precise definition of relevant expertise. As we argued in the previous section, trying to formulate such a criterion with extreme analytic precision is pointless. This means that an approximate criterion will have to do. As a rule of thumb, bearing in mind the caveats mentioned in the previous paragraph, when in doubt whether a certain form of expertise of a member of an underrepresented group is relevant to the matter at hand, we should err on the side of inclusion.

We now move to argue that the democratic approach is worthy of the name “epistemic equality.” To do so, we need to show that (1) it leads to a just allocation of the good in question (hereinafter, *the political and moral aims*); (2) it leads to the generation of knowledge, rather than error or mere theories (hereinafter, *the epistemic aim*). In the next two subsections we argue that the democratic approach meets these aims.

4.1. The Democratic Approach Meets the Political and Moral Aims

Let us start with the political and moral aims. Equality is opposite to *wrongful discrimination*. When a distributive criterion is not based on a rational connection between individuals’ entitling properties and the nature and amount of the distributed good, it is discriminatory in that it ignores the individuals’ specific needs, capacities, and prospects (Pinto 2021). It denies them the equal concern and respect they deserve as human beings (Dworkin 1977, 272-73). For example, a “separate but equal” education policy, which distinguishes individuals based on skin color, is discriminatory because there is no rational connection between skin color and education (Kreiczer-Levy and Pinto 2011, 141).

But when a distributive criterion establishes such a rational connection, it may be permissible, even if it somewhat harms individuals that do not fit the stereotype on which it is based. For example, allowing citizens to vote according to age is legitimate, although this distributive criterion is based on a stereotype that connects age with properties supposedly required for voting, such as mature judgment. There are people under the voting age who possess the

¹⁰ There can be multiple ways to characterize who belongs to vulnerable groups for the sake of inclusion in the knowledge-generating discourse. Our preferred account characterizes such members by the strength of the civic status of their cultural identity. See Pinto (2010, 704-13, 717-22).

properties required for voting, and there are some over it who do not. This criterion does not allow individuals to demonstrate that they have the required properties (Schauer 2003, 120). Like any stereotype, it limits individuals' freedom and autonomy by enforcing an image on them, limiting them in presenting themselves as they wish (Réaume 2003, 673; Moreau 2004, 298-303). Such stereotypes are permissible, however, because we cannot afford, do not want to, or principally cannot make an individualized investigation into everyone's properties. We find such stereotypes good-enough approximations.

But not all stereotypes are permissible. Sometimes a criterion establishes a rational or seemingly rational relation between an entitling property and the distributed good, but it still amounts to unjust discrimination because it significantly harms individuals' autonomy and *dignity*. Merely harming individuals' autonomy is not sufficient for a distinction to amount to wrongful discrimination. In the voting-age case, the autonomy of underage yet mature individuals is harmed because they cannot vote, while others, who are as mature, can. Nevertheless, this distinction is permissible.

We now examine two dominant views about when the use of a stereotype harms dignity and therefore amounts to morally wrong discrimination. (Recall that wrongful discrimination is the opposite of equality.) According to the first, a stereotype is wrongful when it is unreliable and leads to credibility deficit, namely, speakers' getting less credibility than they deserve. According to the second, a stereotype is wrongful when it is demeaning. We side with the second view and argue that the democratic approach is consistent with it, hence meets the political aim.

Fricker (2007, 17-29) advocates the first view. Fricker notes that we regularly rely on stereotypes to evaluate speakers' credibility and trust their testimony accordingly. She coins the term "testimonial injustice" to describe cases in which a hearer assigns a speaker less credibility than she deserves because of biases, e.g., when a hearer does not trust a woman because he thinks women are incapable of rational reasoning. In such a case, there are epistemic harms – the hearer is denied knowledge, and if such biases are systematic, the social dissemination of knowledge is obstructed. There is also a moral harm to the speaker's autonomy and dignity.

According to Fricker (2007, 41-2), not all stereotypes create testimonial injustice. When a stereotype is not prejudicial, but rather reliable, the hearer is not culpable for using it, even if he makes a wrong credibility assessment. Hence, he does not harm the speaker. For example, if a hearer responsibly judges a speaker as untrustworthy because the speaker avoids looking her in the eye, frequently looks askance, and pauses as if to work out his story, then the hearer is not culpable, even if the speaker is not a liar, but rather shy. The shy speaker is a victim of bad luck, and so is the honest used-car salesman who is not trusted by his customers because they hold a reliable stereotype about used-cars salesmen's honesty.

Applying Fricker's analysis to epistemic equality, the stereotype on which the distributive criterion is based must be reliable, and *any* relevant *reliable* stereotype will be adequate. Moreover, cases realizing the epistemic and political aims of epistemic equality overlap. That is, the same distributive criterion both enhances the generation of knowledge and prevents moral or political injustice. If Fricker's analysis is correct, however, we reach the same dead end as with the meritocratic approach. We must again formulate a distributive criterion that reliably connects individuals' entitling property and their capacity to generate knowledge.

In our view however, epistemically permissible and impermissible uses of a reliable stereotype for credibility assessment do not necessarily coincide with morally or politically permissible and impermissible uses of it, respectively. For example, in some Western countries, blood donations from men who have sex with men are refused, or have been refused until recently

(Wikipedia n.d.). Public-health regulators justify this practice by claiming there is a reliable statistical correlation between homosexuality and HIV infection, which increases the risk of contaminating the donation. Opponents of this practice dispute this correlation and argue that it is based on bad scientific reasoning (Culhane 2005; Galarneau 2010). Suppose for the sake of the argument that the statistics are reliable. Then from an epistemic perspective, according to Fricker, their use is permissible. It does not amount to epistemic injustice when gay donors' testimonies, according to which their blood is probably not infected, are disregarded. Nevertheless, intuitively, this stereotype is offensive regardless of the reliability of the statistics. The connection that Fricker draws between a stereotype's reliability and epistemic justice breaks down.

Hellman (2008, Ch. 2) offers an alternative explanation of the moral harm in these cases. According to Hellman, the use of a stereotype, even a reliable one, amounts to wrongful discrimination when it is demeaning. A demeaning stereotype is oppressive, degrading, subordinating, or regards a person as subhuman. Particularly, a stereotype is demeaning if meets four conditions. First, it has been used as a criterion for distributions of goods between individuals. Second, these individuals are identified as belonging to vulnerable groups in society. Third, the stereotype conveys a message that is interpreted in the society at hand as negative (therefore what specifically counts as demeaning depends on common perceptions in a given culture and its history: it is usually associated with vulnerable groups, such as women, black people, and gays, who have historically been victims of persecution or exclusion). Fourth, for a stereotype to be demeaning, the one who relies on it to distinguish between individuals must be in a position of power over them. That is, he must be in a position to put them down. Here Hellman refers mostly to power that is given to individuals when they have higher status as employers. Stereotypes that meet these four conditions are demeaning because they perpetuate the inferior social status of vulnerable groups that are marked by these stereotypes.

Drawing on Hellman's account, Moreau (2020, Ch. 2) rightly argues that demeaning distinctions operate in a context of structural inequality between social groups in society. Following Moreau and Young (1989), we suggest looking at the broader social power relations between the *groups* to which each side belongs: the side who draws the distinction and the side it disadvantages. When a distinction drawer belongs to a social group that has a higher social status than the group the distinction disadvantages, the relationship between them is one of subordination. In such a relationship, the side that belongs to the group of the higher social status has the power to demean the side that belongs to a vulnerable group with the lower social status.

According to Moreau, vulnerable groups that suffer from lower social status have less power across a variety of social contexts. Not only do these groups have less political power, but in situations of social subordination, they do not enjoy positive responses of deference and respect from society. Reliable and unreliable stereotypes that are specified in terms of membership in vulnerable groups serve to rationalize their lack of power and authority. For instance, the stereotype that connects Islam and terror by associating Muslims with religious extremism and the propensity to engage in terror, serves to justify the lower social status of Muslims in Western countries.

Consider, then, the example of profiling ethnic and racial minorities in airports. Assume for the sake of the argument that the stereotype that some ethnic and racial minorities are more likely to be terrorists than other groups, is reliable. It is still demeaning because it has been used to distinguish between individuals, the ethnic groups associated with it are vulnerable in terms of their lower social status in general society, and most importantly, the stereotype expresses a negative message that associates these ethnic minorities with terrorism.

Because demeaning stereotypes are especially harmful to individuals' autonomy and dignity, they are wrongful. In the blood-donation case, because gay men are members of a vulnerable and historically persecuted minority group, a distinction based on a stereotype according to which they are diseased is demeaning, and therefore morally wrong.

Hellman's rationale entails that the democratic approach realizes the *political and moral* aims of epistemic equality, because the democratic approach starts by identifying the vulnerable groups that are usually marginalized and excluded, and makes sure that their members participate in the communal discourse as equals. Thus, it is especially designed to prevent demeaning discrimination, which, as we argued, amounts to achieving equality in distribution when it is done systematically.

In this subsection, we argued that discrimination is wrongful when it is based on a demeaning stereotypes, that stereotypes are demeaning when they convey a negative message about members of vulnerable groups, and that the democratic approach is exactly designed to prevent wrongful discrimination as characterized here. Because political equality is the opposite of wrongful discrimination, the democratic approach meets the moral and political aims of epistemic equality.

4.2. *The Democratic Approach Meets the Epistemic Aim*

So far, we argued that the democratic approach realizes the political and moral aims of epistemic equality. But in epistemic equality, unlike other models of political equality, the moral and political aims are secondary to the epistemic aim, which is the generation of knowledge. We will now argue that it realizes the epistemic aim too.

Most philosophical definitions of knowledge are some variation on the conception of knowledge as (non-gettiered) justified true belief. These definitions point out two desiderata from communal theory acceptance to count as knowledge. First, it must be true, where for *scientific* knowledge, truth is broadly construed to include also approximate truth, empirical adequacy, model-world isomorphism, etc. Second, when true, it must not be accidentally true by mere luck (Miller 2013, 1295-1300). The democratic approach satisfies both desiderata.

Let us start with truth. The democratic approach increases social diversity among inquires. Diversity has many epistemic benefits. Diversity may generate new research questions, identify limitations within existing models, propose new models, propose alternative hypotheses and interpretations of data, open up new lines of evidence, reveal "loaded" language in descriptions of phenomena, and more adequately identify and weigh potential risks (Intemann 2009). Diversity raises the chances that otherwise marginalized or overlooked positions associated with members of relevant weak groups get proper consideration. If one of these otherwise neglected views is true, the democratic approach increases the chances the epistemic community will consider and accepted it.

Diversity also helps satisfy the non-accidentally desideratum. A central problem in theory choice is a failure to conceive of alternative explanations. If for a putatively successful theory T , it very easily could have been the case that had we thought of an alternative T^* , we would not have accepted T , then if T is true, we are lucky to have accepted it. Social diversity increases the number of alternatives we consider; hence we can be more confident that if T is true, it is not merely luckily true (Miller 2013, 1313).

Three lines of objection may be raised against our claims. According to the first, the epistemic drawbacks of social diversity outweigh its epistemic benefits. Second, social diversity is merely a means of achieving other epistemic aims, which can be reached more effectively

without diversity. Third, our model might be considered impractical. In the remainder of this section, we address these worries.

To start with the first line of objection. One may worry that including outsiders, who have fundamentally different background assumptions and epistemic commitments and are unconstrained in their evidence assessment by accepted standards, in a scientific community might inhibit the formation of warranted agreement. Considering too many alternative theories may distract researchers and reduce the chances that a true theory will eventually prevail (Stegenga 2016, 46). Social diversity has additional epistemic drawbacks. Different epistemic communities may mean different things by the same terms, which may lead to mutual misunderstanding. They may have different certainty norms. For example, members of some communities may make reports even when they are uncertain, while others may make reports only when they are certain. This makes members of different communities miscalculate each other's credibilities or miss out on information (Gerken 2018).

Indeed, social diversity, particularly including relevant uncredited experts and stake holders in a knowledge generation discourse, is not an epistemic panacea. It has epistemic pros and cons. Empirical evidence indicates that social diversity generally improves collective epistemic performance, but measures must be implemented to mitigate obstacles that come with diversity, such as inter-group friction (Page 2017, Ch. 5). The difficulties with diversity, however, are not unique to interactions between scientists and outsiders, but exist in interdisciplinary collaborations. Scientists have developed effective ways to overcome these problems (Miller and Freiman 2020), which can also be used in interactions with outsiders. The need for such mitigating measures is consistent with our characterization of epistemic equality as complex equality, which requires combating the negative influence of power inequalities in non-epistemic spheres on the epistemic sphere.¹¹

This debate is reminiscent of the debate between Kuhn and Popper about the necessary conditions for the growth of knowledge. Kuhn (1970) emphasized the importance of a conceptual framework (paradigm) to define research problems and standards of accepted solutions to them, focus researchers' attention, and shield them from distractions in the form of attacks on, and doubts about their fundamental theoretical commitments. By contrast, Popper (1970) emphasized the necessity of constant criticism of, and challenges to researchers' fundamental theoretical commitment, lest science become a dogmatic enterprise of perpetuating and reaffirming received views regardless of their empirical validity. Assuming that social diversity is needed for bringing perspectives that challenge accepted dogmas, then for Popper lack of diversity is a serious epistemic problem.¹²

Both a guiding conceptual framework, as Kuhn argued, and challenges to its core assumptions, as Popper argued, are required for the growth of knowledge. Their exact positive and negative contribution would depend on the case at hand. A question remains, though, whether social diversity is *necessary* for achieving plurality of perspectives and the other epistemic benefits associated with diversity. According to the second line of objection, which states that social

¹¹ Steel and Bolduc (2020) argue that some of the epistemic benefits of diversity depend on the existence of *inequality* between members, because the value of some members' perspectives comes from the fact that they are differently located in the social hierarchy. We acknowledge this point, and note that our account, as a complex equality account, does not aim at equating people in all aspects, but only with respect to their participation in and influence over communal knowledge generation. The various perspectives that they bring due to having an unequal social status remain.

¹² Popper does not mention social diversity, but pluralism and toleration (e.g., Popper 2008, 334). It is unclear whether Popper thinks that social diversity is required for pluralism. In what follows, we argue that it is.

diversity is merely a means of achieving other epistemic aims, it is not. Social diversity (aka “identity diversity”) is epistemically beneficial because it is correlated with cognitive diversity, which is diversity in problem-solving methods and strategies. In the context of justification, in addition to generating alternative hypotheses, cognitive diversity leads to the generation of evidence of multiple types. When such multimodal evidence points in the same direction, it provides greater confirmation of a hypothesis than evidence of a single type. This is the idea of robustness (Stegenga and Menon 2017). Social diversity is thus merely a means of achieving cognitive diversity, which in turn is a means of achieving theoretical pluralism and evidential robustness. Cognitive diversity, however, can be achieved by other means, such as teaching a socially homogenous group to use a variety of research methods – or so the second objection goes.

Our reply to this objection is twofold. First, achieving cognitive diversity by means other than identity diversity is often unfeasible. Identity properties are correlated with different skills, bodies of knowledge, and mental models for analogical reasoning, and identity homogeneity is correlated with cognitive homogeneity. Homogenous groups may be unaware of their knowledge gaps. Even in narrowly construed technical matters, social diversity is correlated with different training methods. People from different social backgrounds go to different colleges. Some colleges emphasize abstract mathematical skills, while others take a hands-on approach. Colleges do not follow exactly the same curriculum. Closing such wide, potentially unknown gaps of knowledge and skills in a homogenous group is often impractical (Page 2017, 149-161).

Second, as Miller (2013, 1312) argues, the positive contribution of social diversity is distinct from that of robust evidence. Even if a scientific community accepts a theory that seemingly enjoys strong evidential support, social diversity in the community is an independent epistemic desideratum. Suppose there is a scientific consensus that passive smoking does not raise the chances of lung cancer. Suppose this conclusion is supported by seemingly robust studies of different types, such as epidemiological, in vivo, and in vitro studies. If all these studies have been supported by tobacco companies, there is still good chance their conclusion is false. The upshot is that for inferring truth from social agreement, in addition to being evidentially supported, we would like it to be socially diverse in relevant ways, in this case shared by publicly-funded researchers, smokers and non-smokers, etc. It may be objected that the consilience of evidence here is merely apparent, and not genuine. Hence, this example does not show that social diversity trumps evidential robustness. Be that as it may, social diversity, or awareness to lack thereof, is still necessary for discovering that the evidence is not as robust as it seems.

So far, we argued that identity diversity, particularly incorporating relevant experience-based experts and stakeholder, has an indispensable role in achieving the epistemic aim of epistemic equality. As Young (1989, 257) argues in the context of democracy and citizenship, persons belonging to vulnerable groups have different perspectives and history. They can contribute unique perspectives to the democratic discourse. Fisch (2017) offers an explanation why this is so in the epistemic context. Fisch takes seriously the possibility of incommensurability between the normative epistemic standards of two competing conceptual frameworks. He argues that there are limits to an insider’s ability to criticize or challenge a framework from within that framework, because the insider is limited in his ability to criticize the very standards on which his criticism is based. Only an outsider, who adheres to a different conceptual framework, and is not committed to the insider’s standards can thoroughly criticize the insider’s framework. The outsider’s perspective is indispensable for the successful generation of knowledge.

But because the outsider argues from within a different framework, so Fisch argues, she cannot rationally convince the insider. The outsider can only destabilize the insider’s beliefs and

make him reflect on his commitments. But in order to do that, the insider must *trust* the outsider. That is, he must take her to be offering a system of commitments that potentially constitutes a genuine alternative to his own. In our terms, the insider must treat the outsider *as an epistemic equal*, whose contribution is potentially as valuable as his own. Hence, incorporating outsiders and treating them with equality is epistemically indispensable.

Last, one may object that the democratic approach is unfeasible. Are scientists seriously expected to let potentially hostile creationists, anti-psychiatry, anti-vaccination, and other anti-science advocates participate with them in the processes of knowledge generation when they allegedly have relevant experience-based expertise or stakes? Our answer is a qualified yes. First, activists' hostility toward science is often an artifact of their exclusion rather than a cause of it. For example, Epstein (1995) describes how lay AIDS activists, who criticized FDA drug-testing for being cumbersome and slow, managed to acquire the expertise they needed, integrate in the FDA committees, and change drug testing and approval procedures. Once involved in the FDA processes, the activists retracted from their blank rejection of clinical methods. To be clear: stiff-necked science rejecters should *not* be included in its processes only for the sake of epistemic equality, but scientists should offer their critics an olive branch first.

Second, the characterization of all contrarians as ignorant, irrational, and lacking conversation abilities is inaccurate, and stems from lack of engagement with them. Some anti-vaccination advocates, for example, raise valid parental concerns about vaccination safety, which have been misconstrued by the public health establishment (Goldenberg 2016).

Third, worries about the damage to science that would result from including outsiders are overblown. If scientists' claims stand on solid epistemic grounds, scientists need not fear outside criticism; if their claims do not, scientists should welcome criticism to strengthen their epistemic standing (Borgerson 2011, 444). For example, while the discipline of philosophy has its own social inclusion problems, there are recognized philosophers who defend some version of intelligent design, and whose views are taken seriously (e.g., Monton 2009; Plantinga 2011). Philosophy has not collapsed from including these unorthodox views, and neither should biology.

One may argue that the democratic approach is unworkable, because members of vulnerable groups typically lack the relevant expertise and background knowledge required for participating in scientific knowledge-generating. This objection is problematic for three reasons. First, some marginalized views come from *within* the scientific community and are dismissed due to gender and other social biases (Okruhlik 1994; Bowler and Morus 2005, 487-510; Go 2020). Second, as mentioned in Section 3, relevant vulnerable groups members may possess experience-based expertise, thus credited and non-credited experts *alike* must learn each other's terminology and methods. Third, as Epstein's (1995) AIDS activists example illustrates, lay people may acquire expertise equivalent to credited expertise in informal ways.

It might still be objected that the AIDS activists example is unrepresentative, because the activists – middle-class, young, white, and educated men – possessed social traits that allowed them to integrate in the FDA processes, while typically disempowered individuals lack exactly those traits. One may also worry that participants in the knowledge-generation discourse may not authentically represent the relevant stake holders (Steers-McCrum 2020). For example, most patient advocacy groups actually represent pharmaceutical companies' interests (McCoy et al. 2017, Rose et al. 2017). We deem these worries serious, and acknowledge they have no easy solution. They highlight again why epistemic equality is complex equality, rather than simple. Namely, they show why in addition to allocating the good of participation in, and influence over a knowledge-generation discourse according to a just distributive criterion, the epistemic sphere

should be shielded from the influence of dominant goods in other sphere, particularly the corrupting influence of money (cf. Davis 2018).

CONCLUSION

We proposed an account of epistemic equality in the context of justification, namely, an account of how participation in, and influence over a knowledge-generating discourse in an epistemic community should be justly distributed among putative members of the community such that knowledge is eventually produced. We characterized epistemic equality in the context of justification as complex, substantive, Aristotelian equality, in which the epistemic domain is a distinct distributive sphere. We examined two possible ways to go. The first devises a distributive criterion and applies it to individual members. We argued that this approach is unworkable. By contrast, increasing relevant diversity in the epistemic community and ensuring the views of members of weak groups are given proper consideration is both easier to implement, and realizes the aims epistemic equality is designed to achieve.

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