https://doi.org/10.52521/vdfkev19

Are Scientific Communities Epistemic Agents?

Comunidades Científicas são Agentes Epistêmicos?

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ABSTRACT:

The objective is to approach how the concept of group (scientific communities) is characterized as an epistemic agent. The problem is if the process of formation of beliefs and knowledge originates from individual epistemic agents or from collective agency? Our hypothesis is that if groups agency knowledge, then collective agency occurs through social epistemic norms. To this end, we analyze the concepts of group/community based on: a) George Ritzer in General Sociology; b) David Bloor in the Sociology of Scientific Knowledge; c) Thomas Kuhn in the Philosophy of Science; d) Markus Schlosser, José Aparecido Pereira and William Ramsey in the relationship between Agency and Eliminativist Materialism and e) Alvin Goldman and Frederick Schmitt in Social Epistemology. We consider that the nature of social knowledge is not the sum of individual minds, but involves an epistemic agency..

KEYWORDS: Scientific Communities, Groups, Epistemic Agency, Collective Agency, Eliminativist Materialism.

RESUMO:

O objetivo é abordar como o conceito de grupo (as comunidades científicas) caracteriza-se como agente epistêmico. O problema é se o processo de formação de crenças e de conhecimento origina-se a partir de agentes epistêmicos individuais ou de agência coletiva? Nossa hipótese é se grupos agenciam o conhecimento, então a agência coletiva ocorre por normas epistêmicas sociais. Para isso, fazemos uma análise dos conceitos de grupo/comunidade a partir de: a) George Ritzer na Sociologia Geral; b) David Bloor na Sociologia do Conhecimento Científico; c) Thomas Kuhn na Filosofia da Ciência; d) Markus Schlosser, José Aparecido Pereira e William Ramsey na relação entre Agência e Materialismo Eliminativista e e) Alvin Goldman e Frederick Schmitt na Epistemologia Social. Consideramos que a natureza do conhecimento social não é soma das mentes individuais, mas envolve uma agência epistêmica.
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PALAVRAS-CHAVE: Comunidades Científica, Grupos, Agência Epistêmica, Agência Coletiva, Materialismo Eliminativista.

INTRODUCTION

This paper aims to examine how the concept of a group—particularly scientific communities—can be characterized as an epistemic agent. Within the literature of the Social Sciences[1] , there is a vast repertoire of concepts concerning what groups are. Yet, when we turn to the social dimensions of knowledge, we encounter studies situated in the Sociology of Scientific Knowledge, the Philosophy of Science, and Social Epistemology. The central problem is whether the process of belief formation and knowledge originates from individual epistemic agents or from collective agency. To address this issue, it is necessary to determine whether belief formation—and, consequently, knowledge—arises from: (1) a single individual epistemic agent alone, or (2) whether a group, such as a scientific community, can itself be considered an epistemic agent or instead depends on trans-individual reasons.

Our approach analyzes the conceptual distinctions of group and knowledge across Sociology, the Sociology of Scientific Knowledge, Philosophy of Science, and Social Epistemology. We argue that Social Epistemology can support the understanding that groups are epistemic agents. In the first section, we examine how General Sociology, the Sociology of Scientific Knowledge, and the Philosophy of Science address the notion of scientific community. To this end, we draw on the explanations of George Ritzer (2007) on groups, based on *The Blackwell Encyclopedia of Sociology*; the observations of David Bloor (1976) on scientific knowledge and scientific communities in *Knowledge and Social Imagery*; and the ideas of Thomas Kuhn (1962, 1969) in *The Structure of Scientific Revolutions*. In the second section, we seek to understand how Epistemic Agency relates to Eliminative Materialism, highlighting the contributions of Markus Schlosser (2019) in *Agency*; Christian List and Philip Pettit (2011) in *Group Agency: The Possibility, Design and Status of Corporate Agents*; as well as José Aparecido Pereira (2015) and William Ramsey (2019) on *Eliminative Materialism*. In the third section, we aim to present the role of Social Epistemology in Alvin Goldman (1986, 2024) and Frederick Schmitt (2008), in order to understand Reliabilism and Testimony in the process of sharing beliefs and knowledge within a group.

Finally, we argue that social epistemic norms are embedded in the analyses of Social Epistemology. To this end, we examine how the Sociology of Science addresses norms at an institutional level, how the Sociology of Scientific Knowledge emphasizes social conventions in the production of knowledge, and how Social Epistemology situates social epistemic norms in relation to moral norms.

[1] Among the Social Sciences, we adopt a specific focus on the Sociology of Scientific Knowledge; however, even when not explicitly addressing other fields, we do not disregard the importance of, for example, Cultural and Social Anthropology, as well as Cognitive and Social Psychology in relation to the topic.

GROUPS, COMMUNITIES, AND KNOWLEDGE

It is evident that scientists work in groups and share the results of their knowledge socially. Knowledge shared socially by scientists takes place within a group we refer to as the specialized scientific community. This type of group, as well as the knowledge produced by scientists, is studied within Sociology through the following specializations: the Sociology of Science[2] and the Sociology of Scientific Knowledge.

In general, both Sociology and its subdiscipline, the Sociology of Scientific Knowledge, are concerned with investigating the relationships between social groups, knowledge in general, and scientific knowledge. In Sociology, groups are understood as "an identifiable, structured, and continuous collectivity of social individuals who perform reciprocal social roles, according to specific norms, interests, and social values, in order to achieve common objectives" (Lakatos, 1996, p. 313).

The term "group" refers, at minimum, to two distinct forms of social cooperation. On the one hand, it refers to small groups in which local patterns emerge from the skills, needs, and interests of their members. On the other hand, it also refers to organizations in which order is imposed by authorities. Groups structured according to the attributes of their members are generally informal groups, whereas groups structured by laws, norms, rules, and authorities are formal. In turn, the sociological dynamics of knowledge can be characterized as follows:

> Knowledge is relevant to sociology as a principle through which social relations can be organized in terms of the differential access that members have to a shared reality. Until the 18th century, Plato's Republic summarized knowledge as a static principle of social stratification. However, the Enlightenment introduced a more dynamic conception, according to which different forms of knowledge could be organized based on the degree of freedom granted to their holders. An individual or a society would thus pass through these stages in a process of development. Thinkers such as G. W. F. Hegel, Auguste Comte, and John Stuart Mill came to associate progress with the extension of knowledge to a greater number of people. However, this dynamic conception of knowledge and the production of power appears to generate trade-offs between the two: the more we know, the less we seem to care. Knowledge appears to engender power only when it is restricted to a few who can use it. The distinctly sociological response to this paradox was to return to Plato's original idea that a singular view of reality must ground knowledge. This response, commonly associated with philosophical relativism, holds that different forms of knowledge are suited to the needs and desires of their holders (Ritzer, 2007, p. 2474).

The investigation into the nature, limits, and scope of knowledge traditionally falls under the scrutiny of Philosophy, in which Epistemology is tasked with distinguishing knowledge from what is merely ideological. However, there exists a common reality shared by all members of a group, and this shared reality shapes the collective knowledge we have about the world. Various philosophers have

[2] We highlight the work of Robert K. Merton (1942, 1968), who directly investigated the institutional frameworks of science and advocated for a scientific *ethos*.

emphasized the epistemological, political, and accessibility-related dimensions of knowledge. Yet, it has often been assumed that only ideological and institutional factors fall within the domain of Sociology, leaving the analysis of the content of knowledge—especially scientific knowledge—outside its scope. In response to this limitation, the Strong Programme in the Sociology of Scientific Knowledge seeks to overcome these restrictions:

> Previously, there was a division of labor between philosophy and sociology. The role of philosophers was to analyze and define norms for science, discussing and formulating criteria of demarcation between science and non-science. Sociologists, in turn, studied the structure of scientific institutions and provided explanations when science went wrong. Thus, the only type of knowledge deemed suitable for sociological attention was knowledge perceived as defective. The Sociology of Scientific Knowledge, however, moved closer to scientific knowledge itself—regardless of whether it was considered true or false—as material for sociological investigation. [...] The Strong Programme was a programmatic statement developed by a transdisciplinary group of scholars based at the University of Edinburgh, the so-called Edinburgh School. Their proposal was that scientific knowledge should not be treated as a special case of knowledge, but instead be analyzed and explained in terms of its social origins and causes. A sociological account of the emergence of scientific knowledge, therefore, must be causal, impartial, symmetrical, and reflexive (Ritzer, 2007, p. 4105).

We can observe that the concepts of group and knowledge do not arise solely from an a priori epistemological conception[3], since little or no emphasis is placed on the normative processes of belief formation and on epistemic justification in the conditions of knowledge. The Sociology of Scientific Knowledge does not dismiss the importance of epistemology, but it holds that the cognitive content of scientific knowledge is influenced by social factors.

The Sociology of Scientific Knowledge understands groups as collective structures organized either (1) by the behavior and practices of their members, from which values and patterns emerge, or (2) by pre-existing organizations, such as social institutions[4], in which values and patterns are guided by some authority that has established them. In case (1), we are referring to informal groups, whose origin arises spontaneously from individuals collectively organized. In case (2), the social organization of groups is already formed and institutionalized prior to individuals, with some form of authority, norm, or value guiding members' behavior through social conventions. Scientific communities typically belong to this latter type of organized and institutionalized group; however, the development of scientific practices may allow for changes in the structure of this formal organization. All of this—whether in informal groups or in institutionalized ones such as scientific communities—is considered as social conditions that are entirely external to the epistemic conditions of knowledge.

[3] Independent of experience and empirical conditions stemming from social causes.
[4] According to Eva Maria Lakatos, in General Sociology, "social institutions consist of a relatively permanent structure of patterns, roles, and relationships that individuals enact according to certain sanctioned and unified forms, with the aim of satisfying basic social needs" (1990, p. 315)

Moreover, sociological analyses of knowledge seem to support a view associated with philosophical relativism: different forms of knowledge, including scientific knowledge, are socially dependent and possess equal value relative to other forms of knowledge. The sociological requirement that knowledge depends on particular perspectives strongly endorses certain relativist theses (Social Constructionism)[5], especially when knowledge is related to power, interests, needs, and desires of its bearers. Thus, we can see that the sociological study of knowledge extends beyond the limits of epistemology, even though traditional epistemology itself has undergone significant criticism and a shift in its paradigm of belief, truth, and justification.

The Strong Programme in the Sociology of Scientific Knowledge sought not only to describe scientific institutions, as does the Sociology of Science[6], but also to explain that the content of scientific theories can be investigated sociologically—something many sociologists had not previously attempted (Bloor, 1976, p. 16). According to the Strong Programme, a belief is not understood as something that requires justification or that must assume a normative value of truth; rather, it is conceived as a "lived belief," one that people take to be "true" in order to address their interests, needs, and desires. The problem with this type of analysis is that, in addition to endorsing a strong relativism, it treats truth and falsity in the same way:

> The sociologist is interested in knowledge—including scientific knowledge—purely as a natural phenomenon. The appropriate definition of knowledge will therefore differ significantly from those offered by laypersons or philosophers. Rather than defining it as true belief—or even justified true belief—for the sociologist, knowledge consists of whatever people confidently hold and upon which they conduct their lives. Sociologists are particularly interested in beliefs that are taken as certain, institutionalized, or endowed with authority by groups of people. Knowledge, of course, must be distinguished from mere belief—something that can be done by reserving the term "knowledge" for what is collectively endorsed, while leaving what is idiosyncratic and individual as mere belief (Bloor, 1976, p. 18).

From the perspective of the Strong Programme, knowledge is not based solely on logical-formal criteria. It depends on collective experiences, on the social sharing of beliefs, customs, and habits. Following this view, scientific knowledge—beyond depending on institutional factors—is part of a social culture that influences its cognitive content. Moreover, scientific knowledge is committed to the functioning of the world, and this commitment is itself a social phenomenon aimed at human adaptation to nature. With regard to the scientific community, Bloor (1976, p. 95) states the following:

[5] Knowledge is dependent (relative) on the representations and explanations of society; it depends on our social constructions.
[6] The Sociology of Science differs from the Sociology of Scientific Knowledge in that it is primarily concerned with the institutionalization of scientific knowledge.

> Scientists form a "community" of professionals. The theme of "community" is ubiquitous—it conveys social solidarity and suggests an established way of life with its own styles, habits, and routines. This theme is further reinforced by the contrast with the controversial imagery of "revolutions" that periodically disrupt these communities. There is no campaign against the notion of authority in Kuhn; on the contrary, in one of his formulations, the positive function of dogma in science is emphasized. The process of scientific education is presented as authoritative. It does not aim to provide students with an impartial account of worldviews; instead, it seeks to train them to operate within the prevailing paradigm.

Sociologists of scientific knowledge attribute a central importance to Thomas Kuhn (1962, 1969) in the development of their theses. According to these sociologists, Kuhn endorsed a form of relativism among scientific theories and among the work of scientific communities, emphasizing their social dimension. Moreover, Kuhn also appears to support the view that epistemic normativity is no longer a hegemonic reference for theory evaluation and choice, since the normative is intertwined with the descriptive (Kuhn, 1969, pp. 254–257)[7]. In the development of normal science, however, normativity is not abandoned, as it remains embedded in the social practices of a specialized scientific community:

> The broader community is composed of all scientists connected to the natural sciences. At a level immediately below, the principal professional scientific groups constitute communities: physicists, chemists, astronomers, zoologists, and others of a similar kind. For these larger groupings, membership in a community is quickly established, except in borderline cases. Holding the highest academic degree, participating in professional societies, and reading specialized journals are generally more than sufficient conditions. Similar techniques also allow us to identify subgroups: organic chemists (and perhaps, among them, those specialized in proteins), solid-state and high-energy physicists, radio astronomers, and so on. [...] To take a contemporary example: how would one have identified the group of bacteriographers prior to its public recognition? (Kuhn, 1969, p. 221).

Although Thomas Kuhn does not reject the normative and epistemic aspects involved in the work carried out by scientific communities—such as advanced academic qualifications, participation in professional societies, and engagement with specialized journals—his thought can be situated at the intersection of Philosophy of Science, History of Science, and Sociology of Science. In this sense, it is quite plausible to critique not only the interpretation offered by sociologists of scientific knowledge regarding Kuhn's work, but also the idea that his contributions can be reduced solely to the social dimensions of knowledge. On the other hand, if we intend to establish a connection between Kuhn's thought and contemporary epistemological debates, this becomes possible only in writings produced well after *The Structure of Scientific Revolutions*. One such work is *The Road Since Structure*[8], where we find references to changes in the rationality of scientific belief and a concern with a lexical theory of scientific terms for natural and artificial kinds (Mladenovic, 2022).

[7] Kuhn's original work, *The Structure of Scientific Revolutions*, was published in 1962, with a later edition including a postscript in 1970 by the *University of Chicago Press*.
[8] A collection of philosophical essays written between 1970 and 1993.

So far, we have examined how social conditions influence the conditions of knowledge. We now aim to understand how conceptual conditions can evaluate collective and social knowledge. To this end, we highlight the notions of Epistemic Agency and Epistemic Agency without grounding them in mentalist theories, since the views of Thomas Kuhn and David Bloor are strongly critical of the notion of a collective mind.

EPISTEMIC AND COLLECTIVE AGENCY AND ELIMINATIVE MATERIALISM

The shift from classical metaphysics to an analysis of collective knowledge is grounded in a critique of the subject–object dichotomy. This critique emerges from a collective and embodied ontology of lived experience, in which cognition, belief formation, and perception are not substantialized within an individual knowing subject. In this sense, perception is an embodied, enactive, and pre-reflective experience in its relation to the world (Maurice Merleau-Ponty, 1964; Francisco Varela, 1991; Shaun Gallagher, 2005; Dan Zahavi, 2014). This ontology allows us to claim that collective agency should be understood as a dynamic interplay among bodies, rather than as the mere sum of individual minds. From this critique of classical metaphysics, eliminative materialism seeks to sustain an ontology of lived experience in the domain of knowledge.

If we treat scientific communities as a form of collective epistemic agency, it is important to identify the difficulties involved in determining whether a group can indeed be considered an epistemic agent. In general terms, groups may also be represented as a collection of subjects capable of performances[9]. Collective agency has often been interpreted as a replication of the agency of an individual subject. Before proceeding further, however, it is necessary to clarify what agency is:

> In very general terms, an agent is a being with the capacity to act, and "agency" denotes the exercise or manifestation of that capacity. The philosophy of action provides us with a standard conception and a standard theory of action. The former understands action in terms of intentionality, while the latter explains the intentionality of action in terms of causation by the agent's mental states and events. From this, we derive a standard conception and a standard theory of agency. However, there are alternative conceptions of agency, and it has been argued that the standard theory fails to adequately capture agency (or distinctly human agency). Moreover, it appears that genuine agency may be exhibited by beings that are not capable of intentional action, and it has been argued that agency can and should be explained without reference to causally efficacious mental states and events (Markus Schlosser, 2019).

If all agency is taken to originate from the intentionality of mental states, this standard view of intentional agency can be questioned, since not all forms of agency can be reduced to mental models.

[9] Here referring to performances of action, deliberation, functioning, and so on; it is difficult to attribute an intellectual performance grounded in a mentalist notion to collective agency.

There are types of agency that can be characterized as epistemic, shared, collective, relational, and artificial (Markus Schlosser, 2019). We will not analyze all of these types of agency, but our focus is on collective agency, as it is directly related to group agency:

> Collective agency occurs when two or more individuals act as a group (according to certain principles or procedures that constitute and organize the group). Research on shared and collective agency has flourished over the past two decades. A central question has been whether shared and collective agency can be reduced to the agency of the individuals involved, or whether they constitute distinct types of agency—being, in some sense, something beyond individual agency. An account of collective agency in terms of the standard theory raises the question of whether it makes sense to attribute mental states and events (such as desires, beliefs, and intentions) to groups of individuals (Markus Schlosser, 2019).

Would collective agency be described merely as the sum of the agency of several individuals (Christian List, 2011)? Is the epistemic agency of groups nothing more than a relation among subjects? To address these questions, we must first understand what epistemic agency means. We may define epistemic agency as concerning the control that agents can exercise over their beliefs (Markus Schlosser, 2019). The capacity to regulate reflection and to generate new beliefs constitutes an intellectual performance carried out by epistemic agents.

It should be noted that definitions of epistemic agency often involve the notion of a person, understood as a subject capable of forming new beliefs when recognizing their own beliefs through an intellectual performance. Here, we replace the term "reflection" with the idea of an intellectual performance, since the notion of reflection may imply a subject endowed with introspective consciousness—capable of "looking" at their own beliefs. However, if we assume that epistemic agency originates in an individual subject, then group epistemic agency would appear to be either a mere metaphor or an analogy of a group acting as a subject. In contrast, there are positions that defend the possibility of agency without mental representations:

> Arguments for the claim that the standard theory fails to account for important aspects of agency are generally motivated by a focus on distinctly human agency. Once we shift our attention to non-human agents and simpler organisms, however, a very different challenge arises. When we consider such agents, the standard theory appears clearly too demanding.
> This view explains agency in terms of the agent's desires, beliefs, and intentions, and it is typically assumed that this amounts to an explanation in terms of mental representations—that is, intentional mental states and events with representational content (usually propositional content). Yet, it seems that there are beings capable of genuine agency that do not possess representational mental states. We can distinguish three claims (and corresponding challenges). First, there are non-human beings capable of agency that lack representational mental states. Second, there are many instances of human agency that can and should be explained without attributing representational mental states. Third, all instances of agency can and should be explained without such attributions. We now turn to each of these claims in turn (Markus Schlosser, 2019).

Agency is not something exclusively centered on human intentionality. As an example, theorists in artificial intelligence (Stuart Russell and Peter Norvig, 2010) have developed the notion of agency in order to understand how machines can function as intelligent agents. In this context, the concept of rationality in artificial intelligence is not grounded in assumptions of conscious, intentional, and reflective awareness. We should also take into account that our understanding of the dynamics of living beings may support forms of agency, since they respond to their environment in intelligent ways. Human collective agencies should likewise be analyzed without recourse to mentalist theories. Eliminative materialism, for instance, seeks to deny the existence of entities and properties referred to in a certain folk psychological lexicon, arguing that such entities should ultimately be eliminated from our explanatory framework:

> Thus, defenders of eliminative materialism argue that, from a structural point of view, folk psychology is committed to a highly mistaken and inaccurate account of the factors that ground human actions and behavior. In this sense, "[...] when we examine the many and puzzling behavioral and cognitive deficits from which people with brain damage suffer, our explanatory and descriptive resources begin to grope in the dark." This implies that such a view is not merely an incomplete interpretation of our inner dimension, but rather an inadequate attempt to understand our internal states. Accordingly, the main problem with folk psychology lies in its inability to describe the domain of subjectivity with consistency and precision. Given this theoretical fragility and poverty, it would not be advisable to expect that a proper interpretation of our internal states—provided by neuroscience through strictly scientific categories—could be placed on the same level as the theoretical framework derived from folk psychology. Consequently, eliminativists argue that this framework should eventually be eliminated in favor of a more developed neuroscience. For this reason, they maintain that if such a replacement were to occur, we would have no grounds to deny the benefits resulting from this project (Pereira, 2015).

In the case of group agency, it is quite plausible to reject the idea that groups possess a "mind." Eliminative materialism attempts to explain the functioning of the mind in terms of neuroscience and cognitive science. Scientific communities are neither the sum of all the "individual minds" of their members nor a "large mind" or "ideal mind." A scientific community shares its knowledge, but this sharing is not grounded in mentalist theories or in a "psychology of crowds" [10].It is a common mistake to attribute to groups the existence of a "mind," either as an aggregation of the minds of its members or as an enlarged set of individuals. What exists instead is the priority of the group over its members, in which values, models, and exemplars are shared within a collective and objective enterprise. Phenomenal states of consciousness and reflective states can therefore be questioned on computational and neuroscientific grounds.

[10] According to Thomas Kuhn (1970): "There are no ideal minds, and the 'psychology of that ideal mind,' therefore, is not available as a basis for explanation."

> Some authors have proposed an eliminativist perspective not only with respect to particular states of consciousness, but also with respect to phenomenal consciousness itself. For example, Georges Rey (1983, 1988) argues that if we examine various neurological or cognitive theories of what consciousness might amount to—such as internal monitoring or the possession of higher-order representational states—it becomes easy to imagine all these features being implemented in a computational device that nevertheless lacks anything we would intuitively regard as "real" or robust consciousness. Rey suggests that the failure of these accounts to capture our ordinary notion of consciousness may indicate that the latter does not correspond to any real process or phenomenon; the "inner light" we associate with consciousness may be nothing more than a remnant of mistaken Cartesian intuitions (Ramsey, 2019).

The lack of naturalization of consciousness entails difficulties at the level of terminology, cerebral localization, and its validity within the neurosciences. It seems that, so far, we have produced a metaphysics of consciousness, but attempts to understand how it can be known run into empirical problems. This is also true for the cognitive sciences. In a similar way, David Bloor (1976) appeals to the cognitive sciences in order to naturalize them. This means that our behaviors depend on cognitive aspects derived from the brain. However, explaining phenomenal consciousness in scientific terms remains highly difficult due to its complexity, issues of localization, and underlying philosophical conceptions. Cognitive science thus appears as a "background study," an image of our abilities that still awaits naturalization (Bloor, 1976).

Although eliminative materialism may commit itself to a strict naturalism regarding agency, several criticisms have been raised against its arguments. Paul Boghossian (1991) argues that irrationalist accounts of the content of propositional attitudes can function adequately within ordinary linguistic expressions. In a sense, this challenges the claim that certain notions must be eliminated altogether.

SOCIAL EPISTEMOLOGY AND COLLECTIVE KNOWLEDGE

For Social Epistemology, the epistemic conditions of knowledge (belief, truth, and justification) depend on how individuals possess knowledge, how cognitive work is socially organized, and, ultimately, how knowledge is collectively held. These three epistemic conditions lead to the main lines of inquiry in Social Epistemology, all of which begin with a common question: are the conditions of knowledge individual or collective?

When we refer to Social Epistemology, we are concerned with the conceptual and normative study of the dimensions of knowledge (Frederick Schmitt, 2008, p. 547). In this sense, when we consider a set of intellectually autonomous subjects capable of solving problems within their practices, such intellectual autonomy involves cognitive capacities that contribute to belief-forming processes. These processes include memory, perception, and virtue-based traits of character[11]. The debate between reliable

[11] Here we refer to the possible intersection between Reliabilist Epistemology and Virtue Epistemology.

processes for belief formation and moral or intellectual virtues is grounded in the idea of a subject as an intellectually virtuous epistemic agent[12] . Beyond the individual subject, can a group—such as a scientific community—be an intellectually virtuous epistemic agent?

This question also concerns the problem of epistemic justification in scientific knowledge. The issue is whether the construction of these epistemic conditions depends on the cognitive capacities of individuals in producing scientific knowledge or on collective acceptance at various levels of reliability of beliefs about the theoretical models they adopt. Thus, if we accept that the manifestation of belief reliability or justification occurs only through collective means in scientific knowledge, then epistemic individualism in science becomes untenable as a way of justifying beliefs, since scientific activity reflects a social practice and its epistemology is also social in nature.

However, since Social Epistemology is concerned with the social conditions of knowledge within its conceptual framework, it is necessary to determine whether its investigation is normative or descriptive in nature. This question echoes a long-standing debate between traditional epistemology (a normative stance) and naturalized epistemology (a descriptive stance). The normative stance emphasizes the verification of the conditions of knowledge in terms of logical and conceptual rigor. In contrast, the descriptive stance focuses on matters of fact—descriptions of cognitive processes—rather than purely abstract rules (Dutra, 2010, p. 165). In this sense, if Social Epistemology consistently addresses cognitive aspects of belief justification such as memory, perception, testimony, and (materially expressed) reasoning, and does so without the ambition of grounding knowledge in *a priori* stipulations, then it can be said to approximate a naturalized conception of epistemology.

On the other hand, we should not reduce Social Epistemology to a full incorporation into Naturalized Epistemology, since the latter tends to emphasize that, among the various forms of knowledge we possess, scientific knowledge—especially within the Natural Sciences—provides us with a more reliable way of knowing the world (Audi, 2005, p. 227). In contrast, although Social Epistemology is useful for analyzing perceptual mechanisms that produce beliefs, it does not restrict its scope to science alone, also addressing other forms of knowledge. In this sense, we understand that collective and social knowledge is grounded in group belief:

> The cases discussed so far focus on epistemic agents that are individuals. What makes them topics of social epistemology is that they involve agents interacting in the course of belief formation, where such interaction bears epistemic significance for one or more of their beliefs. The cases we now consider, however, do not involve individual agents, but groups that appear to function as collective epistemic individuals. By "collective epistemic individuals," we have in mind collections of individuals that constitute a group to which actions, intentions, and/or

[12] This concept is closely aligned with approaches emphasizing the ethical implications of cognition.

> representational states—including beliefs—are attributed. Such collections may include juries, panels, governments, assemblies, teams, and so on. Social epistemologists have addressed several questions concerning the nature of such "collective" subjects, of which we highlight two of the most prominent. First, under what conditions can a group believe something or (more generally) constitute an epistemic agent in its own right? (Here social epistemology has drawn extensively on existing discussions in philosophy of mind, action theory, group metaphysics, and social and political philosophy.) Second, given a case in which a group believes something, under what conditions does that belief count as epistemically justified (or amount to knowledge)? (Goldman, 2024).

The interaction among epistemic agents is a key aspect of interest here, especially regarding the circulation of information and its sharing among members of a group. This circulation occurs through various mechanisms such as testimony, consensus, conciliation, and reliabilist processes. Social Epistemology involves a form of epistemological externalism, since a belief can be considered true or justified if it is produced by reliable processes, even in the absence of awareness of those processes. The Reliabilism developed by Alvin Goldman (1986) is presented as collective, social, historical, and cognitive, in the sense that cognitive processes are naturalized. From the investigation of these processes—from the simplest forms of cognitive life to complex human groups governed by norms and epistemic practices—Social Epistemology becomes relevant, though without abandoning philosophy (Willard Van Orman Quine, 1969, 1981). Social Epistemology seeks to naturalize justification without adopting a foundationalist framework, taking into account a causal theory of cognition and a historical form of reliabilism. Thus, the epistemic evaluation of scientific beliefs may find support in Goldman's thought (1986), but only insofar as justificatory conditions depend on social conditions, enabling a form of Social Reliabilism that requires trans-individual reasons for testimonial justification in science (Frederick Schmitt, 2008, pp. 552–576).

We understand that, for example, theory choice and theory evaluation are justified not only by formal, logical, and verificationist criteria, but also by reasons grounded in the reliability of our beliefs within cognitive mechanisms that scientific communities accept as reasonable and natural through the testimony of their members. Here, there is no abandonment of the role of the Formal Sciences. However, unlike traditional epistemology—which treats them as the sole important foundation for the normativity of scientific knowledge—the demarcation between the Formal Sciences, Natural Sciences, Human Sciences, and technological disciplines becomes less rigid. This avoids transcendental foundations and allows for a naturalization of scientific knowledge. The processes of belief transmission among members of a scientific community may occur through testimony:

> The central topic in the "epistemology of testimony" concerns how beliefs based on testimony should be evaluated. The main issue is whether testimony should be considered a basic source of justification. We may think of a basic source of justification as one whose reliability can be

> taken for granted and trusted, except in cases where there are reasons for doubt. As an illustration, consider perception. A perceptual belief can be justified even without one having reasons to assume that perception is reliable—so long as one has no specific reasons for doubt in the case at hand. The question is whether testimony can be treated in the same way (Goldman, 2024).

As a social dimension of knowledge, testimony is an epistemic source of beliefs that may itself be justified through perception or authority. We should not deny that, within scientific communities, the collective role of perception is emphasized as a way of "seeing the world" (*Gestalt)*[13] . Perception thus plays a fundamental role in experience, insofar as it actively shapes it. In addition, scientific authority—expressed through the hierarchy of members within the community—plays a role in evaluating and epistemically validating beliefs and their justification, in order to produce knowledge. The scientific community exercises testimony through the circulation and sharing of knowledge among its members. This should not be understood as a metaphor for individual mental functioning, nor as a mere aggregation of individuals.

CONCLUSION

We could engage in a long discussion on the Epistemology, Metaphysics, and Ontology of Groups, but in this article we prefer to draw distinctions between Sociology and Social Epistemology regarding this subject. We argue that knowledge is collectively shared through social epistemic norms. These norms are discussed within the Sociology of Science, the Sociology of Scientific Knowledge, and Social Epistemology.

In the Sociology of Science, scientific knowledge is defined by the authority of each specialized community (Robert K. Merton, 1942). This knowledge is organized through complex, stable, and cohesive social structures, grounded in a structural-functionalist program:

> [...] a framework for construction theory that views society as a complex system whose parts work together to promote solidarity and stability. As its name suggests, this approach refers to social structure, understood as any relatively stable pattern of social behavior. Social structure shapes our lives—in families, in the workplace, in the classroom, and in the community [...] (Macionis, 2012).[...]

In this program, the organization of science depends on norms tied to its institutions. Scientific institutions seek to maintain stability and solidarity within their scientific communities. Scientific knowledge depends on the institutional frameworks of the scientists' *ethos*. This *ethos* involves norms in

[13] Here, *Gestalt* refers to an allusion to *The Structure of Scientific Revolutions*, where the paradigm represents a "way of seeing the world" within a scientific community.

which the criterion of impersonality prevails over the individual. Factors such as social status, individuality, nationality, and religiosity should not play a role in scientific norms. Scientific production belongs to the scientific community; individual precedence does not exist, since scientific activity is constrained by institutional structures (Robert K. Merton, 1942, pp. 273–275). Another norm, which seems to approximate a form of collective intellectual virtue, is disinterestedness, according to which scientific activity should not be guided by self-serving goals.

On the other hand, the Sociology of Scientific Knowledge maintains that, according to the Strong Programme, epistemic values such as truth and falsity depend on social conventions:

> The idea that scientific theories, methods, and accepted results are social conventions faces a series of objections that must now be examined. It is generally assumed that if something is a convention, then it is "arbitrary." To regard scientific theories and results as conventions, it is argued, implies that they are true only by decision, and that any decision could have been made. The response is that conventions are not arbitrary. Not everything can become a convention. Moreover, arbitrary decisions play only a minor role in social life. The constraints on what can become a convention, a norm, or an institution are social credibility and practical utility. Theories must function with the level of precision and within the scope that is conventionally expected of them. Such conventions are neither self-evident, nor universal, nor static. Furthermore, scientific theories and procedures must be consistent with other prevailing conventions and purposes within a social group. They encounter a "political" problem of acceptance, just like any other political recommendation (David Bloor, 1976, pp. 72–73).
> encontram um problema "político" de aceitação como qualquer outra recomendação política (Bloor, 1976, pp. 72-73).

The notion of social convention is particularly important in David Bloor's thought. It is not merely a matter of regulating the actions, behaviors, and practices of scientists within a community, but of regulating the very content of scientific knowledge itself. We should not detach the cultural and socio-imaginative background of scientific knowledge, since scientific knowledge cannot be isolated from its social foundations.The Strong Programme is a sociological explanation of the mechanisms that produce scientific belief and knowledge. Our understanding is that scientific knowledge does not originate solely from an individual with strong cognitive abilities, but from a group that shares, negotiates, and adopts values under social conventions. In a manner similar to Eliminative Materialism, the Strong Programme seeks to naturalize the processes of belief formation, justification, and knowledge. According to David Bloor (2011), scientific knowledge is a product of our biological evolution—an instrument developed to adapt human beings to nature:

> Humans are biological organisms that have developed as social animals instinctively sensitive to others. Human knowledge is a natural phenomenon embedded in a material world of causes and effects. Relativists are appropriately confronted with the question: "Relative to what?" This must always be answered by examining the contingent causes of the credibility of a knowledge claim. The relativities of knowledge are the causes of knowledge (Bloor, 2011, pp. 448–449).

David Bloor defends a form of naturalism that rejects any metaphysical or "supernatural" explanation of both the world and knowledge. The naturalistic character of the Strong Programme involves both ontological and methodological commitments. The ontological commitment concerns the description of natural reality, while the methodological commitment concerns the procedures through which social conventions in scientific knowledge are applied.

Finally, for Social Epistemology, there is an epistemic importance to social norms, insofar as they are related in various ways to morality (John Greco, 2021). Moral norms and ethical conduct are social norms that also apply to scientific knowledge. This is evident in the behavior of scientists when they attempt to follow epistemic values such as truth and falsity: there are not only logical rules governing the acceptance or rejection of a theory as true, but also a kind of moral authority that leads us to approve or disapprove certain beliefs and justifications:

> [...] some epistemic norms also describe regularities in behavior, reflect patterns of approval and disapproval, and are internalized in ways that guide conduct. The epistemic norm that one should not believe everything one is told is an example. In general, people do not believe everything they are told; they disapprove of others who do (or who deviate significantly in that direction), and they have internalized this norm as if it were their own. That is, people generally agree with this rule, generally act in accordance with it, and do so independently of concerns about reward or punishment. The same applies to many other epistemic norms (Greco, 2021, p. 74).

In our view, there is a strong connection between epistemic norms, social norms, and moral norms. Scientific knowledge is produced within communities in order to follow standards that are not merely logical, but also moral, since scientists' behavior aims to comply with values regarded as virtuous within the community. We do not see how moral norms can be separated from social norms, given that every moral norm is also a social norm insofar as it concerns the order and organization of a community. Expressions such as "bases beliefs on good evidence" or "do not believe everything you are told" function simultaneously as social, moral, and epistemic markers.

The transmission and circulation of knowledge occur through practices that, in addition to being part of a group's culture, depend on testimony, which in turn depends on degrees of trust we assign to it. These degrees of trust are related to perceptual markers, memory, historical reliability, and, especially, ethical-moral markers. In scientific knowledge, it is very common to use expressions such as "reliable theories," "risky theories," "good theory," among others. The degree of reliability of a scientific community helps determine its social and moral norms. In our understanding, there is a very strong link between epistemic norms, social norms, and moral norms.

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REFERÊNCIAS

AUDI, Robert; *A Contemporary Introduction to the Theory of Knowledge***.** Taylor& Francis e-Library, 2005.

BLOOR, David; *Knowledge and Social Imagery*. London: Routledge Directions Editions, 1976.

_____. Relativism and the Sociology of Scientific Knowledge. In: HALENS Steve D. (org.). *A Companion to a Relativism*. [s/l] Blackwell Companions to Philosophy, Willey-Blackwell, p. 433 – 455, 2011.

BOGHOSSIAN, Paul. The Status of Content Revisited In: *Pacific Philosophical Quarterly*, 71: p. 264–78. 1991.

DUTRA, Luiz Henrique de Araújo. A Concepção Social da Investigação Científica segundo Thomas Kuhn. *Revista Portuguesa de Filosofia*. p. 93 – 120. 2007.

GALLAGHER, Shaun.
How the body shapes the mind. Oxford: Oxford University Press, 2005.

GRECO, John; *The Transmission of Knowledge*. Cambridge: Cambridge University Press, 2021.

GOLDMAN, Alvin; *Epistemology and Cognition***.** Cambridge: Harvard UniversityPress, 1986.

_____. Social Epistemology. In: *The Stanford Encyclopedia of Philosophy*. (2024) Disponível em: https://plato.stanford.edu/archives/sum2024/entries/epistemology-social/>. Acesso em 08/10/2024.

KUHN, Thomas; *A Estrutura das Revoluções Científicas*. São Paulo: ed. Perspectiva, 1998 [1962].

_____; Posfácio; I n : *A Estrutura das Revoluções Científicas*. São Paulo: ed. Perspectiva, 1998 [1969].

_____; Reflexões sobre os meus Críticos. In: LAKATOS, Imre; MUSGRAVE, Alan (eds.). *A Crítica e o Desenvolvimento do Conhecimento*. São Paulo: Editora Cultrix, pp. 285-343, 1979 [1970].

_____; *O Caminho desde a Estrutura*. São Paulo: Ed. UNESP, 2006.

LAKATOS, Eva Maria. Sociologia Geral. São Paulo: Editora Atlas, 1990.

LIST, Christian e PETIT, Philip; *Agency Group: the possibility, design and statusof corporate agents***.** Oxford, New

York: Oxford University Press, 2011

MACIONIS; John. Sociology. [s/l]: Pearson, 14. ed, 2012.

MERLEAU-PONTY, Maurice. *O visível e o invisível*. Tradução de José Artur Gianotti e Armando Mora d'Oliveira. São Paulo: Perspectiva, 2012 [1964].

MERTON, Robert King. The Normative Structure of Science In: *The Sociology of Science Theoretical and Empirical Investigations*. Chicago: The University of Chicago Press, 1973 [1942].

_____; *Social Theory and Social Structure*. Nova York: The Free Press, 1968.

MLADENOVIC, Bojana; *A Incomensurabilidade na Ciência*. São Paulo: UNESP. 2024.

QUINE, W. v.o. Epistemology Naturalized. In: QUINE, W.v.o**.** *Ontological Relativityand Other Essays*. Nova York; Londres; Columbia University Press, 1969.

_____; *Theories and Things*. Cambridge: HUP, 1981.

PEREIRA, José Aparecido. Uma Análise sobre Materialismo Eliminativo a Partir do Pensamento de Nagel. In: *Trans/Form/Ação*, 38 (3), Sep-Dec, 2015. Disponível em: https://www.scielo.br/j/trans/a/Q9stRwkGyPtgNvZ38qDFnHC/#. Acesso em: 15/09/2024.

RITZER, George; *The Blackwell Encyclopedia of Sociology*, 2007.

RAMSEY, William, Eliminative Materialism. In: *The Stanford Encyclopedia of Philosophy*. 2022. Disponível em: https://plato.stanford.edu/archives/spr2022/entries/materialism-eliminative/. Acesso em: 30/10/2024.

RUSSELL, S., & NORVIG, P; *Artificial Intelligence: A Modern Approach 3rd edition,* Saddle River, NJ: Prentice Hall, 2010.

SCHMITT, Frederick. Epistemologia Social. In: GRECCO, John e SOSA, Ernest. *Compêndio de Epistemologia*. Ed. Loyola, São Paulo, 2008.

SCHLOSSER, Markus. Agency. In: *The Stanford Encyclopedia of Philosophy. 2019*.

Disponível em: https://plato.stanford.edu/archives/win2019/entries/agency/. Acesso em: 01/09/2024.

VARELA, Francisco J.; THOMPSON, Evan; ROSCH, Eleanor. *The embodied mind: cognitive science and human experience*. Cambridge, MA: MIT Press, 1991.

ZAHAVI, Dan. *Self and other: exploring subjectivity, empathy, and shame*. Oxford: Oxford University Press, 2014.

RIOS, Maurício Cavalcante. Are Scientific Communities Epistemic Agents?. ***Kalagatos***, Fortaleza, vol. 23, n.2, 2026, eK26030, p. 01-18.

Received: 04/2025
Approved: 02/2026