The problem of knowledge dissemination in social network discussions

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ABSTRACT

This paper adopts an Austin-based speech-act theoretical framework to examine how, and to what extent, public social network discussions can contribute to the dissemination of knowledge. We focus on the role of Verdictives, the group of illocutionary acts which consist in the issuing of a judgment, and argue that the knowledge resulting from a Verdictive depends on its bringing about its characteristic conventional effect. Against this background, and working from a corpus consisting of comments on two Facebook posts discussing the highly debated issue of vaccinations, we analyze how knowledge dissemination can take place in social network discussions through the performance of Verdictives and other moves aimed at supporting, rejecting or challenging them. Particular attention is paid to moves aimed at legitimizing or delegitimizing participants as addressers of Verdictives and their sources of information. We conclude from our analyses that Facebook users have their implicit folk-epistemology, but that certain 'bad habits' in their communicative behavior and some limitations in their attitude towards inquiry, as well as the negative influence of their search for affiliative relations, significantly limit their possibilities of exchanging and disseminating genuine knowledge.

1. Introduction

This paper adopts an Austin-based speech-act theoretical framework (Sbisà, 1984, 2002, 2007, 2009, 2018) to examine how, and to what extent, public social network discussions can contribute to the dissemination of knowledge. Nowadays, social networking sites are the best means of connecting and allowing people to interact, and therefore also of disseminating and sharing information. Facebook, in particular, is the social networking site that offers the greatest opportunities for interaction, from content-sharing to discussions on the content posted, which may take place both on the wall of its users' profiles or on those of the vast array of public pages and groups devoted to specific themes. Furthermore, through the "News Feed" section, which acts as the homepage for personal profiles, each of the Facebook users receives frequent, immediate updates on what his or her "Friends" are doing, posting, sharing and commenting, and to what pages, posts and comments they are appending their "Likes". These features make Facebook appear highly suitable for the dissemination of knowledge. However, as is well known, Facebook, like other social networking sites, has also proven to be very suitable for spreading fake content or misleading claims regarding topics of public interest, in areas such as economics, the environment, public security, health and technology. To what extent, then, can Facebook actually be considered beneficial to knowledge dissemination?

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Here, we focus on those aspects of Facebook users' communicative behavior which may be expected either to foster knowledge dissemination or to hinder it. We analyze a corpus consisting of the comments on two posts concerning health-related issues, which are both available on the Facebook page of the Italian daily newspaper *la Repubblica*. We examine the comments and replies in which Facebook users make assertions, support already made assertions, reject or challenge those of other users, and may thereby formulate and transmit knowledge. We also consider how the author of an assertion attempts to present herself and her sources of information as endowed with epistemic authority, and how other users may attempt to undermine the epistemic authority of an author and her sources. Our conclusion is that Facebook users have their implicit folk-epistemology, but that at the same time, certain 'bad habits' in their communicative behavior and some limitations in their attitude towards inquiry significantly reduce their potential for exchanging and disseminating genuine knowledge.

2. Applying our theoretical framework to online communication

By "online communication", scholars usually refer to any kind of communication between people (or people and software systems), which takes place on the Internet and is performed using computers, smartphones and other similar electronic devices. Communication may be through instant messaging applications, video and audio conferencing applications, e-mails, chat rooms, social networking sites, and so on. The expression "online communication" thus covers a broad range of communicative phenomena investigated in a field of study variously dubbed "Computer-Mediated Communication", "Internet-Mediated Communication" or "Web-Mediated Communication". In the last thirty years or so, scholars in pragmatics have paid increasing attention to this field of study, focusing on how online communication works and on its similarities with, and differences from, offline communication.[1] As stated above, our focus here is on the communication taking place on one of the most widely used social networks, namely Facebook.

On a social networking site such as Facebook, there are multiple options for engaging in conversation with other users, both privately and publicly. It is noteworthy that, although Facebook makes an instant messaging application available to its users (the so-called "Facebook messenger"), thanks to which they can send private messages to other users, much of Facebook communication is visible to a large audience. Status messages, wall comments, pictures posted by an individual user can be made available to all the other members of the network or even to any Facebook user, depending on the user's setting of the privacy controls of her or his profile (which can be used to restrict access to whatever the user posts on her or his wall). Furthermore, any Facebook user can see messages posted in public areas, such as public pages or groups, even when those messages are directed at a specific recipient (by tagging her or his profile name in the post or comment). It is in the public pages or groups that the interactional nature of Facebook comes to the fore: when commenting on public posts, Facebook users can start a discussion (and hence an interaction) with other users about any topic they want. Unlike face-to-face conversations, which are characterized by the co-presence of the interlocutors with the possibility of overlaps and interruptions, discussions under a public Facebook post do not only take place simultaneously, but may also be asynchronous and extend over stretches of time. In this respect, Facebook discussions differ substantially from face-to-face conversations, and take the form of a multi-participant written dialogue.

One of the most obvious differences between performing a speech act in face-to-face interaction and performing the same speech act in a public discussion on Facebook, is that in online communication, the issuing of an utterance does not consist of speaking words, but of typing them in a specific box. Therefore, all those gestural, proxemic, paralinguistic, and prosodic indicators which accompany oral utterances and help us understand them are missing. They are replaced only in part by such devices as acronyms (for example, "*LOL*" meaning "laughing out loud"), emoticons (e.g. "☺" representing a smile), and uppercase letters (which is interpreted as "shouting"). Another difference, which significantly affects the way in which interaction proceeds, is that – while in face-to-face interaction, the interlocutor's reaction often consists of (or is accompanied by) a verbal response – social networking sites provide their users with nonverbal means to take a stand with respect to the contents posted by others. In the case of Facebook, not only can users comment on a post or reply to a comment, but also show approval of a post or comment through the "Like" button, exhibit an emotional reaction to it by clicking on the icons next to it (*Love*, *Haha*, *Wow*, *Sigh*, *Grrr*), and share a post (whether appending a comment or not). It should be pointed out that while the number of "likes" or of certain kinds of emotional reaction is indeed an indication of how popular the contents and stances expressed by that post or comment are, it is sharing the post that directly contributes to their dissemination (even though sharing a post does not necessarily imply that the user endorses its contents).[2]

Differences notwithstanding, however, written utterances available in discussions on public posts can be conceived as performing speech acts just as spoken ones do: intuitively, it is clear that they are used, for example, for stating, forecasting, explaining, arguing (for or against a claim), asking, assessing, approving, criticizing, advising, commending, objecting, challenging, and insulting. Some of these speech acts aim to formulate factual knowledge (for example, stating), while others consist of deciding in favor of, or against, some opinion or line of conduct (for example, approving/disapproving), and some are used to support or dismiss claims to knowledge or decisions (for example, objecting and challenging). Still others consist of taking subjective stances or expressing these stances. In our Austin-based speech-act theoretical framework (elaborated by

[1] Studies of online communication applying conceptual tools from pragmatics include Herring (2004); Herring and Androutsopoulos (2015); Yus (2011).

[2] It is worth mentioning that posts can be shared for a variety of reasons. Moreover, their contents can include texts, pictures, videos, audios, not all of which may be the object of an endorsement; think, for example, of a user sharing the picture of a puppy without any comment (see Marsili, 2020: 6–11).

Sbisà since 1984), all of these speech acts, inasmuch as they are illocutionary acts, have conventional effects.[3] These effects are achieved when an utterance is recognized as being designed to perform a certain illocutionary act and is felicitous enough to succeed. They affect the deontic-modal properties of the participants in the speech situation (what they can or cannot do, should do or should not do, and the like) (Sbisà, 2002, 2009, 2018; see also Witek, 2015a, 2015b). Although this theoretical framework, and indeed, speech act theory in general, originated in reference to face-to-face verbal interaction, our approach is flexible enough to be used with other kinds of communicative situation and even with newer ones (such as online communication), since it does not identify speech act types on the basis of speaker intentions and linguistic forms, but on the basis of intersubjectively available procedure patterns, which may come about through various means.[4]

According to Austin (1975: 14), the performance of an illocutionary act is made possible by there being an "accepted conventional procedure" designed to produce a characteristic conventional effect. Procedure patterns comprise the initial state to which the act applies (that is, its preparatory conditions,[5] usually concerning the speaker's entitlement and the appropriateness of circumstances), the steps (which include a linguistic utterance displaying certain features) that the agent has to carry out in order to be recognized as performing that act, the act's result (its conventional effect) and possibly the kind of response expected (Sbisà, 2002, 2009, 2018; Witek, 2015a, 2015b). Insofar as the effect of the illocutionary act is conventional, it comes into being in virtue of an intersubjective (and therefore social) agreement, be it overt or tacit, which is made possible by the securing of uptake, that is, when the procedure for the illocutionary act is executed correctly and completely enough for the audience to be enabled to recognize it.

A feature of this dynamics which is particularly interesting to consider with respect to online communication is that once a procedure pattern is recognized, aspects of the procedure that might not have been made manifest tend to be "accommodated" (to use the term introduced by Lewis, 1979): for example, a preparatory condition which is not known by the audience to be satisfied, is taken by default to be satisfied and moreover, when it concerns some deontic property of the agent (which is assigned by intersubjective agreement), actually does get satisfied (Sbisà, 1984: 93–112, 2014: 619–631; Langton, 2015: 1–33; Witek, 2015a, 2015b, 2016). So, a social network user who addresses an audience to which she is largely unknown,[6] often relies upon the accommodation of the preparatory conditions of the illocutionary acts she is engaging in. However, if she happens to have some reason to fear that accommodation will not work, she will feel in need of giving her readers explicit assurance of her entitlement to perform those illocutionary acts, which produces, as we shall see, interactional moves explicitly devoted to establishing that entitlement.

3. Knowledge and Verdictives

In order to examine whether social network discussions have knowledge-disseminating effects, we shall consider their illocutionary dynamics (on the dynamics of illocution, see Sbisà, 2018: 23). Before doing so, however, we must devote some attention to the very notion of "Knowledge Dissemination" and the kind of illocutionary acts that play a role in disseminating knowledge.

Of course, disseminating knowledge is only possible if there is some knowledge to spread around. First of all, the dissemination of knowledge through speech requires some speaker to encode some knowledge in an utterance. Encoding knowledge in an utterance might simply be seen as "reflecting" in language some knowledge that the speaker already possesses or reproducing linguistically encoded knowledge that has already been offered to the speaker by another speaker (see, e.g., Fricker, 2004). But it can also be seen as a matter of judging things to be so and so (rather than otherwise), namely, for example, finding out with what words a certain situation is to be described. So, should we distinguish two main classes of utterances encoding knowledge, those that encode ready-made knowledge and those that contribute to constructing the knowledge they encode? Austin's way of dealing with "Constatives" in *How to Do Things with Words* (1975) suggests that an element of action should be assumed to be present in all cases. In an Austinian spirit, we do not assume that perception comes to our minds already in a linguistic form,[7] or that restating something that we have been told is merely a repetition by which the same knowledge is passed on. Instead, we surmise that in both cases there is something left for the current speaker to do, and that this something, which has to do with the linguistic formulation of a content to be presented as constituting knowledge in a specific context and for the benefit of an audience, amounts to a judgment (in the broad sense of the word).

[3] For Sbisà's reading of Austin, see Sbisà (2007) – where it is claimed, among other things, that Austin took illocutionary acts to be conventional acts primarily because they have effects he was inclined to describe as conventional.

[4] Sbisà has used her Austin-inspired model of the speech act in analyses of written texts and fictional dialogues as well as of face-to-face conversations, both natural and broadcast in TV programs (see, e.g., Sbisà, 2001, 2006). Her framework evolved also thanks to these experiences of analysis. We applied some aspects of the framework to texts and messages on the web in a study into the expression of certainty and uncertainty about communicated contents (Labinaz and Sbisà, 2014). We have been concerned with online communication, with particular respect to the dissemination of knowledge, in Labinaz and Sbisà (2017, 2021).

[5] The label "preparatory conditions" is borrowed from Searle (1969: 60).

[6] The pronoun "she" (plus "her", "hers" and "herself") is used throughout to refer to any social network user engaged in communicating with other users.

[7] This is apparent in various aspects of Austin's discussion of perception in *Sense and Sensibilia* (1962) and is entailed by his distinction between senses of words in the language and types of objects in the world (Austin 1979: 132–153; particularly: 136–137, 143, 147).

Austin takes judgments to form one of his five classes of illocutionary acts, namely, Verdictives.[8] Like the other classes in his typology, Verdictives consist of a group of variously related procedure patterns focusing on a central feature: the giving of a verdict about facts or values, based on evidence or reasons. The verdicts given may be official or unofficial: as in other cases, with Verdictives, too, Austin highlights similarities in speech act pattern across different degrees of formality, from institutional illocutionary acts to thoroughly informal, conversational ones. The main difference lies in the fact that unofficial verdicts formulate findings which, although they are put forward by a competent speaker, may still be questioned, while official verdicts do not merely formulate such findings, but establish what must be socially accepted as being the case.[9] To give a fuller characterization of the Verdictive procedure pattern, we add that:

(i) Verdictives presuppose (as their preparatory condition) that the speaker is in a position to give the verdict, namely, is competent to issue judgments about the subject matter in question.
(ii) They commit the speaker to the truth or fairness or (more generally speaking) correctness of her judgment.
(iii) They commit the speaker to providing, if requested, her evidence or reasons (which may include data and criteria of judgment).
(iv) They entitle the audience to rely upon the speaker's judgment in their subsequent verbal and nonverbal behavior: for example, by issuing the same judgment in their own turn or by using it as a premiss in reasoning or as a ground for decisions.

It is to be expected that speech acts that provide linguistically encoded knowledge are also a major means for transmitting it. The picture of Verdictives outlined above accounts for this, since it follows from it that the knowledge-transmitting function is integral to them. Especially in the case of Verdictives concerning factual matters, the fact that the audience receiving a Verdictive is thereby entitled to rely upon its content (for example, by issuing judgments with the same content in other contexts, or by using that content to issue further judgments) amounts to their becoming knowledgeable about the Verdictive's subject matter. In our view, then, with a few provisos mentioned below, the transmission of knowledge is an essential part of the effect that Verdictives whose content is concerned with matters of fact bring about as felicitous illocutionary acts (Sbisà, 2019; see also Labinaz, 2019: 121–124).[10]

To further explain our picture of Verdictives, let us point out that we make a sharp distinction between the transmission of knowledge and the transmission of belief. Indeed, in our Austin-based speech-act theoretical framework, knowledge and belief play distinct roles: the transmission of knowledge does not come down to making the audience form a belief (even when the belief that is formed happens to be true and justified); moreover, knowledge might be made available to someone even if she is not willing to believe its content (Sbisà, 2019: 11). In speaking of "belief", we are referring to an attitude expressed by the speaker as regards the content of her assertion, which is transmitted when the audience actually come to adopt that attitude. The success of the transmission may depend on various circumstances: once the speaker has spoken in such a way as to express a certain belief, the audience may agree to share it in consideration of its plausibility or its consistency with their other beliefs, or, from the premiss that (to put it in Gricean terms; Grice, 1975) the speaker is cooperative, may conclude that the expressed belief is true; other factors involved include personal inclinations and preferences, and presupposition accommodation (often exploited to enable belief transmission to evade conscious critical control).

The transmission of "knowledge", on the other hand, has different characteristics. Firstly, while knowledge is a state of an agent, it should not be conceived of as a state of her mind alone, unconnected to actual world situations: it is indeed a state regarding something that is actually the case, which enables the agent to reliably make true assertions (where by assertions, we mean informal Verdictives about matters of fact) and correct, effective decisions.[11] Secondly, as we have seen, knowledge is also the socially recognized (and therefore in our sense "conventional") status of an agent that entitles her to make certain assertions or use them as reasons for action (Sbisà, 2019) and, as a status, is transmitted conventionally.

The two distinctive features of knowledge introduced above amount to two aspects which coincide only in ideal cases. Indeed, no agent is more entitled to be socially recognized as possessing knowledge about a certain subject than an agent who actually entertains a state of mind which enables her to reliably make assertions or well-grounded decisions about that subject. But these two aspects must be kept distinct in actual situations like those we are going to examine, which are far from ideal. Therefore, when speaking of the transmission or even "dissemination" of knowledge it is convenient to distinguish between the *de facto* enablement to reliably make true assertions and well-grounded decisions and the *de iure* entitlement to

[8] On Verdictives, see Austin (1975: 152–153); Sbisà (1984: 104–105; 2006: 164–165). A class of Verdictives is admitted also by Bach and Harnish (1979: 109–119) as part of their "conventional" illocutionary acts, namely acts that are performed with the intention of following a convention which has effects on institutional states of affairs: this corresponds to the more formal, official Verdictives in Austin's class. For assertion in particular (insofar as it is a Verdictive in our sense) see Brandom (1994); Searle (1969: 66; 1979: 12–13); Sbisà (2019).

[9] It should be pointed out that in the case of official, institutional Verdictives too, the judgment issued can be informally criticized as incorrect. But what has been socially accepted as being the case cannot be changed, unless by means of some other official procedure.

[10] The effect of a Verdictive can be said to affect the interpersonal relation between speaker and audience just as the effects of speech acts of other illocutionary classes do, since, alongside the effect on the speaker which is basically an assignment of a deontic modality of the "ought to" or "have to" kind, there is a corresponding effect on the audience involving an entitlement, which on the one hand may amount to the transmission of knowledge, and on the other, is akin to the assignment of a deontic modality of the "can" kind.

[11] On externalist conceptions of knowledge, see Williamson (2000: 49–54).

make certain assertions or use them as reasons for action. In the former quality, knowledge can be transmitted only by an agent who actually possesses it. But for an audience, it is often almost impossible to check whether the agent's state is one of knowledge in this sense (particularly in social networks, where the author of a post or comment may not be accessible to readers outside the social network in which she participates). What is transmitted, then, is knowledge as a status, that is, the entitlement to make certain assertions and use them as reasons for action. As we have seen, such a transmission is part of the effect that Verdictive illocutionary procedures are designed to bring about, and that they do bring about insofar as their execution is felicitous and made recognizable.

If the agent actually possesses knowledge as an enablement to reliably make assertions as regards the subject matter at issue, the *de facto* facet of knowledge is transmitted to her audience together with the *de iure* facet. It can be said, then, that it is thanks to its social, *de iure* facet that knowledge is transmitted. Obviously, this social facet of knowledge does not suffice to guarantee that knowledge as enablement is really present in the agent. It may well be that an agent manages to be socially recognized as knowledgeable about some subject matter (therefore, as entitled to issue Verdictives about it) without actually being able to reliably make true assertions about it. This gives rise to various kinds of problematic situations which we are often faced with in everyday life, not least when we are reading social network discussions.

In this paper, without losing sight of the crucial importance of the *de facto* facet of knowledge for full-fledged knowledge dissemination, we shall focus on knowledge as a socially recognized status, and how this is dealt with in the illocutionary dynamics of Verdictives in social network discussions.

4. Verdictive illocutionary dynamics in social network discussions

We shall now describe the results of our examination of a corpus consisting of comments and replies on two Facebook posts concerning health, and more specifically, the highly debated issue of vaccinations (see Table 1).[12] Both posts were published on the Facebook page of *la Repubblica*, which is one of the most popular and most "liked" daily newspapers on Facebook in Italy.[13] Depending on the popularity of the topic, the links to the articles on the newspaper's main website posted on its Facebook page may have from a handful to ten thousand "Likes", a thousand "Shares" and more than one thousand "Comments". Discussions about the news articles posted on *la Repubblica*'s Facebook page can therefore be regarded as highly representative of discussions on public posts, at least as far as Italian-speaking users are concerned.

Table 1
The Vac corpus.

Acronym	Title of the posted article	Posted on *la Repubblica*'s Facebook Page on …	Likes	Comments and replies	Shares
Vac1	Walter Ricciardi: "Non si può tollerare chi nega l'utilità delle vaccinazioni"	October 17, 2015	1891	920 comments	520
URL: www.facebook.com/Repubblica/posts/10153717882956151 (last accessed November 29, 2019)					
Vac2	"Pensavo che più vaccini fatti tutti insieme avessero un impatto troppo forte sul bambino. È stato uno sbaglio, un pensiero ignorantissimo"	June 1, 2019	828	915 comments	341
URL: www.facebook.com/Repubblica/posts/10158942718881151 (last accessed November 29, 2019)					

The first post links to an interview with Walter Ricciardi, then President of the (Italian) National Institute of Health, regarding the possibility of disciplinary action against physicians who advise parents not to have their children vaccinated (published on 17 October 2015).[14]

The other post links to an article telling the story of a woman who did not get her child vaccinated for meningococcal B disease and ended up with him contracting meningitis. The article says that the woman decided to make her experience public in order to encourage people to get their children vaccinated, even when the vaccination is not compulsory (published on 1 June 2019).

In the next two sections, we shall examine how Facebook users engaged in discussions under these public posts, perform or attempt to perform Verdictives (especially about matters of fact), support already made Verdictives by arguing for their correctness (Section 4.1), and reject or challenge Verdictives issued by other users (Section 4.2). Finally, moving beyond

[12] Keenly aware of concerns related to privacy that this kind of analysis can give rise to, we have removed any personal information regarding the Facebook users engaged in the discussions analyzed here, including their names, surnames, and nicknames. Furthermore, whenever a user was tagged in one of the comments under examination, her name and surname has been replaced with random initials. Accordingly, our analysis will deal with utterances issued by enunciators having certain characteristics and qualifications, without being recognizable as specific individuals.

[13] *la Repubblica* Facebook page has almost four million "Likes" (Internet-released data; available at https://www.facebook.com/Repubblica/, accessed November 26, 2019).

[14] The discussion on this post was already part of the corpus we examined in Labinaz and Sbisà (2017, 2021). It is to be noted that this discussion occurred before the approval of the so-called "Lorenzin" decree law which made vaccination compulsory for children to be allowed into school (2017), which has caused so much discussion in Italy, while the discussion on the second post (Vac2) occurred two years later.

Verdictives, we briefly consider to what extent the encoding of information as presupposed can outflank the illocutionary dynamics of Verdictives in its knowledge-disseminating function (Section 4.3).

4.1. Assertions as Verdictives and their effects

When a social network user posts a comment consisting of a simple declarative sentence, she will normally be expected to be making an assertion. In fact, the linguistic form we usually employ in order to do this is the plain, non-modalized indicative mood, associated with the declarative sentence form. Since assertions are Verdictives, they presuppose that the author is in a position to make them (see above, Section 3, i). As we explained earlier in Section 3, the author's being in such a position can be accommodated by default, so there are good chances that just by uttering a simple declarative sentence, participants in an online discussion manage to get themselves recognized as knowledgeable agents and therefore, as sources of knowledge for their readers. The commitments that authors take upon themselves can vary in range and complexity, as can be seen from the following examples:

(1) *A.B. una epidemia* ***è sempre inferiore a****lle vaccinazioni di massa.* (Vac2)
'A.B. An epidemic **is always less widespread than** mass vaccinations'
(2) *C.D. i non vaccinati* ***sono i più*** *sani.* (Vac2)
'C.D. The non-vaccinated **are the** healthiest.'
(3) *E.F. il vaccino* ***non copre*** *tutti i tipi di meningite.* (Vac2)
'E.F. The vaccine **does not cover** all types of meningitis'

In (1), due to the presence of *sempre* 'always', the sentence is to be read as involving universal quantification.[15] In uttering it, its author is making a risky statement involving strong commitment: indeed, it would be enough to give just one counterexample to make her claim false. Usually, someone uttering a sentence like this has special expertise about the subject matter in question. On the other hand, (2) is a generic statement, expressing a generalization about people who are not vaccinated (on generics, see Leslie and Lerner, 2016). Unlike universally quantified sentences, generics may be taken to be true even in presence of exceptions, when the predicate expresses a property that is typical of the genre considered or characteristic of it in a salient way. The commitment associated with asserting (2) is therefore less demanding. At any rate, the author is presenting herself as being in a position to make a comparison between the health of people who have been vaccinated and those who haven't: it would be reasonable to expect her to be acquainted with at least some statistical evidence about that comparison. Finally, a speaker who asserts (3) is making a plain statement about one kind of vaccine, suggesting that she knows which illnesses it covers. So, all the pieces of information expressed by (1), (2) and (3) are presented as constituting knowledge, and if required to, the authors of those messages are committed to giving evidence or reasons that things are as they say they are. Moreover, inasmuch as the assertions in the messages are accepted as felicitous, their authors are also presumed to be able to give that evidence or those reasons.

Since a Verdictive is performed on the basis of "evidence or reasons", a speaker may want to emphasize the Verdictive force of her speech act and at the same time prevent possible questions or critical remarks, by spontaneously providing evidence or reasons in support of her statement. For this reason, an assertion is sometimes accompanied by another assertion which specifies the grounds for it:

(4) […] *I vaccini sono veleni e molti bambini si ammalano* […] (Vac1)
'[…] Vaccines are poisons and many children get ill […]'
(5) *E.F.* […] *coloro che sono a rischio sono pochi in confronto ai milioni e milioni di persone che non lo sono ed è grazie a questo se malattie come vaiolo, peste morbillo etc … oggi non ci fanno più paura* (Vac2)
'E.F. […] those who are at risk are few in number in comparison to the millions and millions of people who are not, and it is thanks to this that diseases like smallpox, plague, measles etc… no longer frighten us today'

In (4), it is insinuated (by conversational implicature) that vaccines make children fall ill,[16] so that, in the light of this implicatum, the assertion "Many children fall ill" provides grounds for asserting that vaccines are poisons. In (5), the fact that we are no longer afraid of certain diseases is presented as being due to the benefits of mass vaccinations, which is in turn a reason for maintaining that vaccines are beneficial.

Finally, among the reasons that authors offer for making a certain assertion or supporting a certain claim, we also find assertions by other people or institutions who are allegedly reliable and therefore entitled to issue judgments on the matter, and the (almost) general agreement about the matter under discussion.[17]

[15] We read (1) as meaning that every time an epidemic occurs, that epidemic affects fewer people than would be affected by mass vaccination.

[16] This conversational implicature can be explained by reference to the maxim of Relation, "Be relevant" (Grice, 1975: 27). This maxim would be violated by the second conjunct in (4) unless the second conjunct "many children fall ill" were a contribution relevant to the ongoing discussion on vaccines, to which the first conjunct manifestly contributes. But it is such if one assumes that it is vaccines that make so many children fall ill.

[17] As suggested by a referee, from a rhetorical point of view, the case at issue falls under the category of the argument from authority (see, e.g., Hamblin, 1970: 42–43).

(6) *I.L.* […] *… dopo anni ed anni di studi (scientifici) empirici i vaccini* ***sono stati dichiarati*** *sicuri e fondamentali per il debellamento di malattie mortali* ***dalla stessa organizzazione mondiale della sanità*** (Vac2)
'I.L. […] … after years and years of empirical (scientific) studies vaccines **have been declared** safe and essential for fighting diseases **by the World Health Organization itself**'

(7) […] *Tuttavia esistono cure sperimentali dove è giusto, come dici te, avere dubbi e* ***cure sulla cui efficacia concordano quasi tutti i medici del mondo, come i vaccini.*** *Su questo avere dubbi è da presuntuosi e ignoranti* […] (Vac2)
'However there are experimental forms of treatment where as you say it is quite right to have doubts, and **treatments whose effectiveness almost every physician in the world agrees with, like vaccination**. To have doubts about that means you are presumptuous and ignorant […]'

This should not come as a surprise, since assertions on subject matters pertaining to medicine (as well as other sciences) can only be made by the general public on the basis of knowledge transmitted to them by experts.[18] But sometimes the appeal to agreement overlooks the issue of the reliability of the sources of information referred to and shifts towards some form of *confirmation bias*:

(8) *Ma se apri Wikipedia* ***non finisci più di leggere di questi casi. Vuoi dire che siano tutte bufale?*** *Io non direi!* (Vac1)
'But if you look on Wikipedia **there is case after case like that**. **You mean to say that they are all lying?** I don't think so'

4.2. Challenges and rejections

Discussions under a public post are typically conflictual, and it is easy to find utterances that reject Verdictives previously issued by another participant. These may offer a straightforward assessment of the other participant's assertion as false:

(9) *M.,* ***quello che hai detto è falso****. Porta le prove se vuoi dimostrare di avere ragione*. (Vac1)
'M., **what you said is false.** Supply the evidence if you want to prove you are right'

or make an assertion contrary to the stance that a participant has taken, as in the following reply to someone who maintains that vaccines successfully defend people from contagions:

(10) *N.O. l'immunità di gregge? Infatti* ***non ci sono mai stati tanti contagi tra vaccinati come in questo periodo*** (Vac2)
'N.O. Herd immunity? Indeed, **there have never been so many contagions among the vaccinated as during this period**'

When rejections are merely denials or falsity assessments, they bind their authors to a less heavy commitment than those consisting of assertions with affirmative content: in fact, their authors are only committed to things not being in a certain way, without anything being said about how things actually are. But in most cases, the conflict between participants in the online discussion develops as the expression of two opposed views, challenges to each other's views, and defenses of one's own.

Challenges are particularly interesting because of the vast array of features of the Verdictive illocutionary procedure they call into question.

In example (9) above, the falsity assessment is followed by a challenge to bring evidence. In example (11), the author's disagreement with the target assertion is implicit in the way in which she challenges its author to provide evidence for it:

(11) *R.S. "il tasso di mortalità di alcune malattie è diminuito grazie ai vaccini":* ***ti sfido a trovarmi qualsiasi statistica storica che comprovi questa affermazione****. Chiaramente la statistica deve comprendere i dati dei decenni precedenti all'introduzione delle vaccinazioni di massa* (Vac1)
'R.S. "The mortality rate of certain illnesses has decreased thanks to the vaccines". **I challenge you to find any historical data that confirm this statement.** Obviously, the statistics have to include the data from the decades preceding the introduction of mass vaccinations'

Challenges often point to specific aspects under which the comments to which the author responds are found wanting:

(12) *I.L., ma lei esattamente su cosa si basa? Su dati mal letti e falsati sulle presunte relazioni temporali viste come causali post vaccinali? Come può essere così ingenua?* (Vac2)
'I.L., but what are you basing things on exactly? On badly read and falsified data about alleged temporal relationships seen as causal post-vaccination relationships? How can you be so naïve?'

(13) *I.L. In un post ha dichiarato 21.648 reazioni avverse in 3 anni (in un precedente post, sempre lei, ne ha dichiarate 22.658).* ***Qual'è la fonte? A che anni si riferisce? In quale nazione? Ha tutti i riscontri clinici? Le reazioni avverse di che tipo/gravità sono state? A quali vaccini sono riferite? A quanto ammonta la popolazione vaccinata? Se la popolazione non fosse vaccinata ha delle proiezioni sui tassi di mortalità per le malattie coperte?*** (Vac2)
'I.L. In one post, you stated there were 21,648 adverse reactions in 3 years (in a previous post, you again, declared there were 22,658. **What is the source? Which years does it refer to? In which country? Do you have all the clinical data? How serious/of what nature were the adverse reactions? Which vaccines do they refer to? What proportion of the population is vaccinated? If the population was not vaccinated, have you got any projections about the mortality rates for the diseases covered?**'

[18] Even experts often make assertions on the basis of knowledge transmitted to them by other experts.

In example (12), the author of the message targeted is criticized for not reading the data she has cited correctly and for fallacious reasoning from them (specifically, a post hoc fallacy; see, e.g., Hamblin, 1970: 37–38). The author of (13) asks I.L. for the data deemed necessary to give a correct interpretation of the figures about adverse reactions to vaccines that she reports and in doing so, attempts to demonstrate that, in addition to the lack of transparency as to sources of information, the claim that vaccines are harmful to which I.L. subscribes is not supported by the evidence provided.

In a few cases, challenges (or rejections) can take a straightforward argumentative form:

(14) […] *I casi di autismo nei paesi occidentali, dove il vaccino è obbligatorio, non sono affatto maggiori dei casi di autismo del terzo mondo. Basta questo a chiarire che non c'è alcun collegamento* (Vac1)
'[…] The cases of autism in western countries, where vaccination is compulsory, are no more numerous that the cases of autism in the third world. That is enough to make it clear there is no connection'

(15) *A.C.* ***se i vaccini fossero così sicuri lo Stato non avrebbe istituito una commissione per i danni da vaccino****. La realtà non la vedete proprio!* (Vac2)
'A.C. **If vaccines were that safe the Government would not have set up a commission about harm from vaccine.** You lot really can't see reality!'

However, it is not always legitimate to question a comment by asking for scientific evidence. In the following case, for example:

(16) […] *P.S* ***mi posta una prova scientifica, che i medici prendono premi per far vaccinare le persone****, perché una cazxata così grande è la prima volta che la leggo*. (Vac2)
'P.S. **send me some scientific proof that physicians get bonuses for having people vaccinated**, because it's the first time I've read such a load of rubbish.'

It is clear that this is not a scientific issue. In order to evaluate whether what the author of the target comment has claimed is true, we probably need a newspaper or even judicial investigation, but not (strictly speaking) a scientific one. What the author of (16) is doing here is to equate evidence in favour (or disfavour) of her opponent's putative assertion (which she deems to be an expression of irrational belief) to evidence in favour (or disfavour) of a scientific claim.

It is fair to point out that when polemics does not degenerate (alas) into exchange of insults, defences of one's claims from challenges or attacks to another participant's assertions may take the form of comments offering quite appropriate explanations:

(17) *B.D. Il vaccino antimeningococcico b è costituito da componenti batteriche (i cosiddetti "antigeni") essenziali per stimolare la risposta immunitaria. Le componenti batteriche non possono in alcun modo sostenere una "sepsi meningococcica" in quanto non è possibile la replicazione. Ma questo lo sa chi ha studiato medicina* ☺ (Vac2)
'B.D. The meningitis B vaccine consists of bacterial components (so-called "antigens") essential for stimulating the immune response. There is no way that bacterial components can cause "meningococcal sepsis" because replication is not possible. But anyone who has studied medicine knows this ☺'

It must be said, however, that utterances providing evidence for one's assertions or attacking one's opponents' claims are assertions too and as Verdictives, presuppose the author's competence on the subject matter at issue (or at any rate, her being socially recognized as being in a position to issue judgments about it). It is this competence in the first place that makes it possible for an assertion to entitle its audience to further assertions on the same issue (that is, to make them knowledgeable about it). But this competence is not always unquestionable and the entitlement it is associated with (while usually getting accommodated by default, as already seen in reference to the plain assertions examined in Section 4.1) may succumb to attacks raising doubts about it, thus losing legitimacy and making the assertion fall short of its aim to formulate and transmit knowledge. It is therefore no coincidence that the question of the author's entitlement to issue an assertion (understood as a Verdictive) is often raised. We shall further develop this issue in Section 5.

4.3. Beyond Verdictives

Our focus has been on Verdictives (assertions about matters of fact in particular) because of their close, direct relationship to knowledge and its dissemination. Quite marginally with respect to this, it should be pointed out that sometimes, rather than make an explicit assertion, authors of comments prefer to encode informative content that is relevant to the current discussion as presupposed (for example, as the complement clause of a factive verb or the descriptive content of a definite noun phrase). Obviously, in these cases, the speech act featuring the presupposition trigger needs not have Verdictive illocutionary force:

(18) […] *informati su****gli effetti devastanti che ha*** *recentemente* ***avuto il vaccino hpv*** *in Inghilterra e negli states…* […] (Vac1)
'[…] go and find out about **the devastating effects that the HPV vaccine has** recently **had** in England and the States… […]'

That the anti-HPV vaccine has had devastating effects in England and the US is presented as something known to the author of the comment which readers should share, not as the main point of a judgment that the reader might still want to test as to its correctness as well as to its author's entitlement to issue it.

This communicative strategy may contribute to the dissemination of knowledge,[19] but lacks transparency as to which agent (if any) is committed to providing evidence or reasons for things being as the author presupposes. So, in the following example, while presupposition is used to reject the claims of the author's opponent (conveying at the same time that they are not worth discussing), the issue of the evidence or reasons in favor of the presupposed content (that vaccines are important and totally safe) is simply not addressed:

(19) *[…] é piu facile che il sole sorga ad ovest e tramonti ad est piuttosto che queste persone* ***capiscano l'importanza e la TOTALE sicurezza dei vaccini****.* (Vac 2)
'[…] it is easier for the sun to rise in the west and go down in the east than for these people to **understand the importance and COMPLETE safety of vaccines.**'

However, in the context of the sample discussions we have been studying, presupposed content is sometimes targeted by rejections and challenges just as if it had been formulated as explicit assertion, or may even be accompanied by an appeal to evidence, such as in the comment below, which presupposes that vaccines have had very little effect and even a negative one on epidemics:

(20) […] *Comunque* ***basta vedere i dati storici, morbillo compreso****, per comprendere che i vaccini hanno inciso in modo trascurabile e spesso anche negativo riguardo alle epidemie.* […] (Vac2)
'[…] Anyway **all you have to do is look at the historical data, measles included**, to realize that vaccines have had very little effect and often even a negative one on epidemics. […]'

All this suggests that linguistically encoded presuppositions (notwithstanding some risk of dogmatism and unavailability to discussion) outflank the illocutionary dynamics of full-fledged Verdictives in ways that participate, at least in part, in its knowledge-disseminating function.

5. Legitimization and delegitimization strategies

In situations involving anonymous communication such as that taking place under a public post, there might be no direct way for the readers to check whether a participant asserting something is actually entitled to do so and moreover, whether she is being serious and sincere. If an author does not possess the required entitlement, the judgment she issues does not qualify as formulating and transmitting knowledge. Whether or not she possesses the required entitlement (and it can be even worse if she does!), if the author is lying or deceptive in some way, what she passes on to her readers as constituting knowledge is a fake. The awareness of all this leads some social network users, when commenting on a post or replying to someone else's comment, to depart from the by-default tendency to rely on the accommodation of the initial conditions of illocutionary procedures, and instead inform their readers why they are entitled to the assertions they make, or present themselves as sincere and seriously motivated by showing involvement in appropriate ways. The conflictual (and therefore non-default) context created by rejections and challenges further enhances this behavior.

We shall now explore the discursive strategies used by participants in our sample discussions in the attempt to be acknowledged as knowledgeable and trustworthy (Section 5.1), as well as those used to attack their opponents' entitlement to assert and their trustworthiness (Section 5.2).

5.1. Legitimization strategies

The most straightforward strategy adopted by authors of comments to appear as legitimate and trustworthy providers of knowledge is to give statements and descriptions about their own studies and professional expertise:

(21) *È sconcertante ….****anni di studi, di dedizione, corsi, congressi*** *… tutto affinché la qualità dei* ***tuoi piccoli pazienti*** *sia sempre migliore … e poi … giungi in questo luogo infernale e chiunque avrebbe da insegnarti qualcosa. Non è medicina della evidenza … della propria evidenza ma di quella altrui. Del sentito dire, dell'aver letto altrove … **La "mia" medicina** mi permette di affermare che **in 25 anni di professione nessuno dei miei pazienti ha riportato danni da vaccino, né reazioni avverse** … solo fortuna????* (Vac1)
'It's shocking … **years of study, of dedication, of courses, congresses** … everything so that the quality of **your young patients** gets better and better … and then … you find yourself in this hellish place and everyone has got something to teach you. This is not evidence-based medicine … based on your own evidence, but on somebody else's. On hearsay, on what you've read somewhere else … **"My" medicine** allows me to state that **in 25 years of professional practice none of my patients has been harmed by vaccines, or had any adverse reactions** – is that just luck?'

(22) *E.G.* ***guardi io sono farmacista e mamma****. A mia figlia ho fatto tutti i vaccini possibili immaginabili …* ***in tanti anni di professione non ho mai visto una reazione avversa a un vaccino*** *mentre* ***ho vissuto da vicino la tragedia di una mia cliente col tetano perché non era vaccinata****.* (Vac2)
'E.G. **Look I am a pharmacist and a mother**. I gave my daughter all the vaccines you can possibly imagine … **in many years in my profession I have never seen an adverse reaction to a vaccine** but **I have experienced the tragedy of a customer of mine who had tetanus because she wasn't vaccinated.**'

[19] We have explored the transmission of knowledge by means other than Verdictives in Labinaz and Sbisà (2021).

The author of (21) focuses on her entitlement to make certain assertions, at the same time emphasizing the sincerity of her involvement as regards her patients by means of an affect-laden use of possessives. In (22), the author's being a mother who vaccinated her own daughter is meant to guarantee her sincerity in the exercise of her professional competence.

In other, more extreme cases, authors refer to their personal experience just as such and appear to consider it as superior to scientific and professional expertise.

(23) […] ***ho tre nipoti nati SANI e DIVENTATI AUTISTICI*** *successivamente alla inoculazione di vaccini e* ***conosco, PERSONALMENTE****, famiglie di bambini nelle stesse condizioni dei miei nipoti, quello che affermo non l'ho studiato nei libri,* ***lo sto VIVENDO****!* […] (Vac1)
'[…] **I have three grandchildren who were born HEALTHY and BECAME AUTISTIC** after being inoculated with vaccines, and **I PERSONALLY know** whole families of children in the same situation as my grandchildren, I didn't study what I'm saying in books, **I am LIVING it**! […]'

As has already been observed, the legitimacy of an author's entitlement as an addresser of Verdictives also depends on whether the sources upon which her Verdictives are based are acknowledged as providing her either with trustworthy data and fair criteria of judgment or, at least, with an entitlement to assert arising from previous Verdictives by entitled agents. For a Verdictive to be successful, then, its addresser must get the audience to acknowledge the legitimacy of her sources. To achieve this aim, the most common strategy is to make reference to socially recognized expertise. Usually, the source of data is specified (e.g. *Agenzia Italiana del Farmaco* 'Italian Pharmaceutical Agency') in the hope that its very name acts as a guarantee. When individuals are mentioned as sources, information is supplied about their professional expertise. At the same time, whenever possible, bonds of friendship or family relationships are invoked to guarantee that the author's source is not only entitled (and competent) but also benevolent and therefore sincere:

(24) *P.S ho un fratello medico, e una cognata laureata in chimica e tecnologie farmaceutiche, io credo a loro due* (Vac2)
'P.S. I have a brother who is a physician, and a sister-in-law with a degree in Chemistry and Pharmaceutical Technologies, I believe them'

5.2. Delegitimization strategies

In online discussions, delegitimization strategies also play an important role: they hinder their targets from producing and transmitting socially recognized knowledge. Quite obviously, the author of a comment is sometimes considered as not being in a position to make assertions about medical issues precisely because she is not a physician or lacks the appropriate studies and professional experience in the specific area:

(25) ***Tu non sei medico*** *quindi zitto* (Vac1)
'**You're not a physician** so shut up'

(26) *F.H. lei è medico, biologo, virologo? Come fa a giudicare ciò che non conosce e non ha studiato? La smetta di scrivere stupidaggini.* (Vac2)
'F.H. Are you a physician, a biologist, a virologist? How can you judge something you don't know about and haven't studied? Stop writing nonsense'

An author may be delegitimized as the addresser of Verdictives also by being accused of using incomplete data or being careless in her reasoning. The following comments are replies to already quoted attempts to get oneself legitimized (21, 23):

(27) […] *sei drammaticamente limitata,* ***hai considerato*** *i danni nel tempo?* ***hai considerato*** *cosa succede al sistema immunitario?* ***hai mai seguito*** *le statistiche che pongono a paragone vaccini e malattie?? fammi il piacere se è vero che sei medico informati e non fare danni ai bambini che di colpe non ne hanno* (Vac1)
'[…] you are drastically limited, **have you considered** the long-term damage? **Have you thought** of what happens to the immune system? **Have you ever looked at** the statistics comparing vaccines and diseases?? Do me a favour - if it's true that you're a physician, find out about these things and don't do any harm to children who have no fault of their own'

(28) *Oltretutto tre nipoti.* ***Non si fa la domanda che*** *la causa può essere diversa? […]* (Vac1)
'Beyond all this, three grandchildren. **Don't you ever wonder whether** the cause might be a different one? […]'

Moreover, an author can also be attacked for not behaving consistently with the commitments stemming from her Verdictives. Someone who fails to live up to their commitments is indeed untrustworthy and either in bad faith, or just unable to avoid inconsistency, in which case they are in no position to issue Verdictives, since they cannot undertake the commitments that a Verdictive brings about as part of its effects.

(29) ***Non prende farmaci. Quindi*** *se le viene la broncopolmonite si lascia morire* […] (Vac1)
'**You don't take drugs. So** if you get pneumonia you let yourself die […]'

Finally, an author may be delegitimized by being represented as suffering from some disabling mental condition, as in the following reply (made particularly insulting by the encoding of the target participant's emotional distress as presupposed).

(30) *F.H. anche arrabbiarsi così tanto fa male. Si calmi e vada da un medico a farsi misurare la pressione.* ***O da uno psicologo a parlare dei suoi disagi emotivi*** (Vac2)
'F.H. Getting that angry is bad for your health too. Calm yourself down and go and see a physician to get your blood pressure checked. **Or a psychologist to talk about your emotional distress**'

Delegitimizing strategies may also attack an author's sources. In the following example, a critical remark is addressed to an author (expressed in rather insulting language) as a person and addresser of Verdictives, because the sources she trusts are unreliable:

(31) […] *sei una* ***credulona male informata*** https://it.wikipedia.org/wiki/Andrew_Wakefield
'[…] **you're badly informed and you'd believe anything anyone tells you** https://it.wikipedia.org/wiki/Andrew_Wakefield' (Vac1)

In other cases, the criticism is leveled directly at the sources an author relies upon when writing her comment: once it is made clear that she relies on communication from agents who are not competent, she is shown not to be competent as an addresser of Verdictives. A frequent delegitimization strategy is to claim that the sources relied upon by an author are not scientific.

(32) […] *P.S.* ***quelli che ha nominato lei non fanno parte della comunità scientifica internazionale*** (Vac2)
'[…] P.S. **the individuals you named are not part of the international scientific community**'

But the medical scientific community itself may be the target of delegitimization strategies. An author in (Vac1) evokes the harmful consequences of the uses of thalidomide in pregnancy in the Sixties as a precedent showing that *la ragione scientifica* 'scientific reason' is unreliable. In many other cases, the medical sciences are attacked as having been made untrustworthy by the pursuit of personal economic interests by researchers and physicians (under the influence of the pharmaceutical industry, known as "Big Pharma").

(33) *L.N. quando* ***i responsabili dell'aifa e dell'iss sono diretta emanazione della Glaxo*** *(sovvenzionati o facenti parte del CDA)* https://archive.is/Oriew#selection-1133.0-1133.82 *Io non mi fido!!* […].[20] (Vac2)
'L.N. when **the people in charge of the AIFA and the ISS are a direct expression of Glaxo** (either receiving funding or actually on the board of directors) https://archive.is/Oriew#selection-1133.0-1133.82 I do not trust them!! […]'

(34) *O.Q. […] io mi fido dei medici ma ovviamente non di tutti […]* ***sicuramente sicuramente i medici prendono premi e regali e soldi per far vaccinare*** *perciò un dubbio è naturale che venga ma solo alle persone intelligenti* (Vac2)
'O.Q. […] I trust physicians but obviously not all of them. […] **most definitely physicians get bonuses and gifts and money for having people vaccinated** so it's natural to have one's doubts but only intelligent people have them'

Of course, the same strategy can be used the other way around:

(35) *I.L. beh dipende che dati vuoi vedere: ci sono quelli falsati di* ***un ex medico radiato dall'albo che cercava di lucrare con un suo farmaco "devaccinizzante"*** *e quelli della comunità scientifica in blocco* […] (Vac2)
'I.L. Well it depends which data you want to look at: there are the ones made up by **an ex-physician who was struck off the list who was trying to make money with a "devaccinizing" drug** and there are those of the scientific community as a whole […]'

6. Concluding remarks

In Section 4, we have examined how Facebook users contribute to knowledge dissemination in discussions on public posts, by performing Verdictives (about matters of fact in particular), by supporting these Verdictives with evidence or reasons, or by rejecting and challenging those of other users. In Section 5, we have considered how Facebook users present themselves as legitimized or entitled to make a Verdictive or present their sources of information as legitimately providing them with entitlement, and also how they attempt to delegitimize other participants in the discussion or their sources of information with the aim of nullifying the knowledge-disseminating effect of those other participants' Verdictives.

Although it is clear that our collection of examples is far from exhaustive, we have attempted to identify some main trends in the communicative behavior of the Facebook users involved in the discussions we have examined.

First of all, we have noticed that their communicative behavior does show some awareness of the epistemic and argumentative import of their moves and those of their opponents. Attempts to challenge other participants by asking for evidence and reliable sources in support of their claims occur quite frequently, as well as attempts to support one's assertion by appealing to evidence, reasons, or the judgments of experts. Participants are also quite careful to check on whether those attempting to issue Verdictives are in a position to do so and whether the epistemic authorities on which they rely are trustworthy. Facebook users involved in these discussions thus appear to realize that they have to satisfy the procedural requirements for Verdictives in order to be fully successful in formulating and transmitting knowledge, and that it is important to get the audience to acknowledge the legitimacy of their sources of information. All that suggests that their communicative behavior is guided (to a certain extent at least) by a set of inexplicit norms and routines that amount to a "folk epistemology" (for this notion, see Gerken, 2017).

[20] The acronyms "AIFA" and "ISS" stand for *Agenzia Italiana del Farmaco* 'Italian Pharmaceutical Agency' and *Istituto Superiore di Sanità* 'National Institute of Health', respectively.

Secondly, beyond these positive aspects, we have also identified some "bad habits" that are very common in the communicative behavior of participants in the discussions examined. Although not foreign to face-to-face interaction, these "bad habits" appear to be prominent in online public discussions. They are (i) the tendency to make assertions without providing support for them, (ii) the tendency, when some argument is presented, to consider always and only the favorable evidence (thereby falling into the trap of what is known as "confirmation bias"; Nickerson, 1998), (iii) the frequent invocation of the principle of authority, and (iv) the tendency to verbal aggressiveness. Not all four of these "bad habits" are bad to the same extent. For example, confirmation bias may have a positive value in conflictual contexts. And appeal to authority, insofar as it is epistemic in character, is pretty natural in a context in which most of the knowledge at issue is obtained by testimony. But the co-presence of more than one of these four features in the same comments or replies enhances the negative import of each on knowledge formulation and transmission.

As to (i), uttering a declarative sentence is not always perceived by Facebook users as an act committing them to providing evidence or reasons when required to. Indeed, few of the assertive utterances made in the discussions we have examined are accompanied by this kind of support (or collocated in a discourse context implying that the author has evidence or reasons and is willing to disclose them to her readers). Doubt may arise that at least some of the assertive utterances in the discussions examined do not amount to full-fledged, Verdictive assertions, but are "Exercitive assertions", that is, assertions that dogmatically impose (or attempt to impose) an obligation on their audience to believe their content (Sbisà, 2020). Even when participants argue, and here we are moving to (ii), the arguments they provide in support of their claims are rather weak. In particular, they are prone to confirmation bias, that is, the tendency to search for, interpret and, more generally, favour evidence that confirms one's prior beliefs, hypotheses and claims rather than evidence that may prove them wrong (see Nickerson, 1998). As pointed out by Mercier and Sperber (2011), confirmation bias can be an effective argumentative move when it helps people to collect evidence in support of their claims, in view of possible attacks or criticisms from an opponent, as happens in such contextual conflicts as ours. However, as a result of this bias, participants fail to consider alternative sources of information and to take the data or criticism provided by their opponents seriously: this suggests shortcomings in their formation to reasoning and argumentation and even more, in their approach to scientific inquiry. As to (iii), when the author of a comment feels that she has no first-hand competence on the subject matter of an assertion she wants to make, she tends to invoke some recognized epistemic authority and attempt to be legitimized as the addresser of that assertion inasmuch as it conforms to Verdictives coming from that authority. This is not bad in itself, since it amounts to relying upon knowledge achieved by testimony. However, a distinction must be made between cases in which the author making an assertion just repeats what she has been told, and those in which the Verdictives of the epistemic authority upon which she relies are transparent enough as to their criteria to enable the author to master what she is asserting more fully: only in the latter case is it clear that the assertion made is a full-fledged Verdictive. Resorting to authorities is also questionable when they are not really pertinent to the epistemic domain at issue and most importantly, when they do not merely support the author's entitlement to make assertions, but are believed to establish the truth of those assertions once and for all. Finally, as far as (iv) is concerned, in this context, aggressive verbal behavior comprises the use of expressive devices such as rows of exclamation marks, capitals (which in social network conversation, is the equivalent to shouting) and insults or derogatory expressions, the latter being used mostly to delegitimize one's opponent or her sources of information.

In our opinion, most of these 'bad habits', particularly (iii), are closely connected with the search for affiliative relations on the part of the participants in online discussions of the kind we have examined (on phenomena of this kind, see, e.g., Nguyen, 2020). In particular, we have noticed the great value they attribute in their comments to the relations they have with other participants or other agents acting as sources of information and epistemic authorities. This can be explained by the fact that affiliative relations guarantee a benevolent attitude, which appears in turn to guarantee against insincerity and deception and therefore contributes to trustworthiness. But complete trustworthiness needs competence too: while competence should be assessed separately from affiliative relations, our participants show a marked tendency to consider competent (and thereby entitled to issue assertions as Verdictives) only those people who agree with what they themselves already believe to be true. Something similar happens with the assessment of the competence and trustworthiness of the sources of information. In fact, each group (think of those pro and anti-vaccination) has its own sources of information which they consider legitimate, and any alternative sources of information are viewed with suspicion. In this context, confirmation bias (which, as we have seen, is beneficial to a certain extent) contributes to "group polarization", consisting of the strengthening of one's ideas and beliefs by being involved with others sharing the same ideas and beliefs (Sunstein, 2008).[21] This leads to discussions turning into clashes between two camps, in which like-minded people reinforce each other's views and their hostile attitudes towards people who hold different views. This polarization is further confirmed by the aggressive verbal behavior shown by several participants, who use derogatory language to describe what their opponents are doing or simply fire insults at them. Such behavior indicates that, when faced with disagreement, participants in the discussions we have examined tend to 'essentialize' its causes, tracing it back to some intellectual inferiority on the part of one's opponents. This is far from being an ideal context for knowledge formulation and transmission, which should involve a serious attempt to understand the other person's point of view and a careful weighing up and comparing of the evidence or reasons on which they are grounded. Here, on the other hand, non-epistemic motivations run the risk of overwhelming and thwarting the participants' inclination to follow even just their own folk-epistemological guidelines.

[21] For experimental studies on polarization in social network communication see, e.g., Sia et al. (2002); Yardi and Boyd (2010).

To sum up, then, the main risk with discussions on public posts is that alleged knowledge dissemination tends to consist mainly of the circulation of acritically formed beliefs imposed for the sake of emotional affiliation. Undoubtedly, the "folk epistemology" employed by Facebook users could do with some improvement in order to generate epistemically good practices which might enable them to exert some fair and serious control over the alleged formulation and transmission of knowledge. Of course, this would require them to be aware of the influence of the polarizing dynamics in their communicative behavior and manage to avoid it for the sake of inquiry. Furthermore, it would certainly help if an increasing number of social network users could increase their ability and willingness to argue with each other by being trained in arguing and in being open to motivated changes of mind.

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