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Trust and Rejection in the Reception of Information

Miklós LEHMANN
Eötvös Loránd University, Hungary
e-mail: lehmann.miklos@tok.elte.hu

Abstract. One of the major new features of the digital environment is the increasing availability of information – but like so much else, this is not a completely new phenomenon. The history of culture and communication has led not only to an increase in the amount of information that can be transmitted but also to its interpersonal accessibility through newer technological tools. Techniques for recording knowledge (starting with various forms of writing) have increasingly widened the possibilities of dissemination and access. What is really new in the digital environment is the development of an information network that ensures continuous access. As a result, the accessibility of others' ideas has increased significantly, and a kind of networked collective thinking process has developed alongside it. This puts the issue of trust in a completely new light: belief in the reliability of the information transmitted strengthens collective thinking, while doubt and rejection weaken it. Social sustainability in all areas of the digital environment may require processes that can both maintain and expand the supply of information and foster trust and communication that benefits the community. This article will seek to answer this question by examining the spread of misconceptions and of trusted knowledge.

Keywords: digital information, reception of information, trusted knowledge, misconception, collective thinking

1. Information and Culture

One of the essential features of 21st-century industrial societies is that their structure and operations are linked to the efficiency of information flows and the spread and use of information. The digital environment offers a theoretical and practical opportunity for the free flow of information by enabling information sharing for all users and ensuring accessibility regardless of time and place. Although the digital divide phenomenon highlights the fact that access is by no means equal for all (for example, citizens in developing countries have less opportunities in

this area, as do those in regions that are more backward and in deeper poverty in developed countries; see Lythreatis et al., 2022), the flow of information is very broadly ensured. In addition to widespread accessibility, the speed of information dissemination is also a significant factor: on the one hand, transmission speeds have made instant access virtually possible, and, on the other, they have made it possible to transmit larger volumes of information.

Of course, the expansion of information diffusion is not a phenomenon that is entirely without precedent. Many of the earlier achievements of socio-cultural development, and in particular of communication technology, have pointed in this direction, whether by overcoming distances or by recording information. Various theories of cultural development often highlight changes in this field as milestones, such as the emergence of writing or the possibility of electronic broadcasting, linking them to radical changes in socio-cultural structures (cf. e.g. Donald, 1991). Regardless of the extent to which the emergence of a new technology can be considered revolutionary, it can be a force towards or a catalyst for significant social change; for example, the emergence of writing restructured society, inter alia, through the emergence of a literate class, as did electronic broadcasting, as one can see, through the development of mass media systems.

In the case of digitalization, the most significant socio-cultural change is that this technology presupposes the continuous and active participation of the user, changing the most basic social relations; this is why the term "digital environment" is justified (since for the user digital networks are a field of constant interactions and communication), but equally important points are highlighted by the concept of "net being" (which, according to László Ropolyi's definition, needs to be denoted in a different way from the social being (cf. Ropolyi, 2006)). It is also worth noting that, in addition to referring to the network structure of society, net being also highlights the re-formation of social relations (Castells, 1996) and the need for (often forced) connection to information. Continuous accessibility and presence can also be achieved in the digital environment because users are dependent on information and its dissemination in all aspects of life.

Another essential information feature of networks is sharing as an activity of users (and the shared nature of information). Users are not only consumers of information but also information providers: on digital networks, information is shared in a wide variety of domains. Thus, in addition to being constantly available and able to access a wide range of information, they are active participants in the flow of information – thus becoming involved in the social-cognitive processes of networks that in effect create digital culture.

This is precisely the point at which the essential problems of the digital environment arise. The networked form of information sharing is less transparent than the direct oral transmission of information or the transmission of information to specific individuals. And this opacity can easily lead to both a loss of trust in

information and the spread of unreliable information. The collective thinking that is so essential to culture will thus be affected by the flow of information that is uncontrolled – but very successfully disseminated. This is how information elements appear in the social-cognitive processes that are involved in the construction of a kind of new belief system or in the formation of a loose web of delusions (of which conspiracy theories and alternative interpretations of reality, like in post-truth theories, are striking examples). It is no coincidence that one of the major problems of contemporary society has become the issue of loss of trust and the regulation of the flow of information, the dilemma of control and freedom.

2. Information and Control

In the digital environment, it is therefore necessary to successfully achieve both the efficient flow of information, the collective thinking and action of networked communities, and the control of information – the latter can ensure the effectiveness of social-cognitive processes. The widening and accelerating spread of information is not, of course, the first time that control has become necessary (cf. Webster–Robins, 1989), but the process of control itself has become more complex. The centralized flow of information (for example, in the case of the printed press or electronic broadcasting, where information was transmitted by hierarchically structured editorial offices and news agencies) still allows for the almost automatic and effective control of information. As McLuhan (1964) points out, the medium plays a central role in cognitive processes – and the medium cannot be separated from its centralized character. These centres can exercise effective control over the content and flow of information. However, the decentralized network structure is a major obstacle to control, which is clearly an advantage for the democratization of information processes but a difficulty for the maintenance of trust. This in turn requires that issues of information reliability and control be given a high priority.

It is clear that the need to control information did not first appear in the digital environment but was already recognized in centralized media. For decades, newsrooms, news agencies, and news channels have maintained teams specializing in verification, and the process of verification has become an integral part of journalistic practice. The information received or found was subjected to both formal and substantive analysis, and further corroborating (or even refuting) information was sought. It was also already the case in the centralized media that misinformation was accompanied by deliberately distorted, manipulated, or even false material. For example, there is the old case that the famous lithograph of Abraham Lincoln, made around 1860, is in fact a fake picture, a composite: Lincoln's face was superimposed on a picture of Congressman John Calhoun, as no picture of Lincoln in a similarly elegant and heroic pose was available (Farid,

2012). A particularly interesting aspect of this case is that Calhoun, as a Southern politician, was a supporter of slavery, unlike Lincoln. But similar examples could be cited in the case of most dictatorial societies (Stalin, Hitler, Mao, etc.), where undesirable details or persons were removed from the images, or even information that later became undesirable was deleted from the archives.

As misinformation and fake news can spread more efficiently in the digital environment, the need for control is also increasing, and the infrastructure that newsrooms and news agencies have built up in the past is no longer sufficient. The objective of the fact-checking movement is to address this problem by building checking mechanisms and services that are accessible to the average user (Graves, 2016, 2018). In doing so, it also seeks to exploit the benefits that come from the networked flow of information: wide accessibility and searchability. The fact-checking movement therefore exploits both online and offline tools, the work of experts and lay people, the benefits of crowdsourcing and databases, and the usefulness of algorithms that can be run on digital information sources.

However, recent years have rather shown that this is not enough to regain or maintain social trust in information (Förster et al., 2014; Liaropoulos, 2020). The reasons for this will be examined below; but it is worth pointing out at the outset that the benefits of fact-checking procedures can only be realized if society is properly prepared. It is therefore worth introducing new tools for developing critical thinking in education, both in approach and methodology, from an early age. Critical analysis of information can only be achieved if users have the necessary skills and technical knowledge of socio-cognitive processes and of how to control information. This is therefore a challenge not only for the media but also for the various levels of education.

3. Propagation and Manipulation

A decentralized network structure also means that the mechanisms for controlling information are more precarious and the spread of information is harder to control. This is particularly striking in the case of social media, where once information is released, the multiplicity of shares can only be controlled by drastic means, at most through intervention by the service provider. One of the key tasks of the fact-checking movement is to help expose misinformation spread by sharing. The change in the way information is consumed, with users increasingly turning to social media as a dominant source rather than traditional media, such as websites of newsrooms and news agencies, makes it necessary to focus on fact checking. But it is equally important to take into account the economic considerations that are driving even traditional news providers towards social media, treating it as both a platform and a source.

As social networking sites have become the primary source of news for users, information typically spreads horizontally. News can be shared from news sites with a single click and then shared again and again by the user's friends. This process is often generated by the fact that users consider the act of sharing to be an important part of their daily activity, not only to share specific information but also to signal their own presence and activity and to reinforce their connections and relations with others.

But it is the sharing business model that makes this process really powerful. Social networking sites and other service providers place ads on the sites and share the revenue with users. As a result, all users – and all organizational participants in the information flow – will have an interest in getting as many visitors to their sites as possible and in getting their posts shared as much as possible. Blog posts will accordingly try to attract the interest of users and get them to share the content they find there. Posts are therefore often produced at a fast pace, with no time to check the information or even to formulate it in a sophisticated language and content: copy and paste have become routine.

Advances in technology have also made it possible to make the production and sharing of information an automated process. Some blog posts are automatically generated from previous content or information found on other sites, without human intervention, and then automatically shared on different social networks, generating a sufficiently high reach (Giansiracusa, 2021). The service structure, interested in increasing revenue, facilitates this process, as the production and sharing of posts can be ensured faster and cheaper through automation. What individual users notice most of all is that they encounter fresh information (or perceived as such) at a rapid pace and continuously and that a piece of news reaches them through different paths and different shares, while the number of shares increases significantly for each of them.

In addition to the horizontal spread, the vertical spread of information follows similar dynamics. As news agencies are forced to participate in this process and need to achieve high viewership and share rates in order to increase their revenues, they are adapting their business strategies to social networking site models. However, they find it difficult to compete with the information offer that a social networking site can provide, and their limited resources and small editorial staffs struggle to keep up with the digital dynamics of the networks. If their sites are not updated at the same pace as social networking sites, they will be left behind. They are therefore forced to constantly produce news and updates and to display content that keeps users' attention for as long as possible. To do this, they often highlight content themselves from simple user shares or blog posts. As a result, information follows a specific bottom-up path. It is observed that some of the news is generated at a low level (for example, in comments or personal blogs), then finds its way into official blogs maintained by organizations and journalists, and finally

ends up in the news feeds of major news agencies, entering the print and electronic channels of offline media (Birks, 2019; Graves, 2018). One striking phenomenon of this process is the way TV channels quote from news blogs or posts on social networking sites, implicitly assuming their credibility. At this point, however, serious questions arise about the reliability of the information.

An essential part of the problem is that there is no clearly identifiable source (a post linked to news feeds is often just a snippet of a share) or that, if the sequence of shares can be traced, the reliability of a user cannot be verified. In addition, vertical propagation raises the issue of greater automation. The logic of information diffusion and the business model based on sharing, as mentioned above, leads to an increasing proportion of content being generated automatically. With the development of artificial intelligence and deep learning applications, it will be possible to produce texts of linguistically appropriate quality (Giansiracusa, 2021). The most advanced natural language processing software currently available, GPT-3, can even mimic different styles. Content generated with a few clicks is instantly integrated into the information flow and reaches a large number of users through social networking sites – users who are unaware that they are reading AI-generated text.

The need for rapid updating and the pressure to produce large amounts of news means that more and more of the content is made up of artificially generated text. These texts are accompanied by images and videos, also supported by artificial intelligence applications (most famously by photoshopped pictures and deepfake videos, which are faked to look like real life, but also by simpler methods such as slow motion; see, for example, the case of Nancy Pelosi in the US – cf. Somaiya, 2019).

But it is not only artificially generated content that can be misleading, as artificial networks can also play an important role. In order to achieve higher sharing rates, networks of virtual people have been created that can reach a wide social audience almost instantly. Social networking sites are constantly struggling to filter out fake registrations, but as deception evolves, this is becoming increasingly difficult (however, there are AI-based applications for filtering already; see e.g. Ciampaglia, 2015; Pierri et al., 2020). It is important to bear in mind that the goal is not primarily information deception itself but rather to increase revenue by increasing the number of shares. An efficient and cheap way to do this is to automate the production and sharing of information.

Since they are simply trying to prove credibility by posting information that someone, somewhere has written something down, one might wonder: what is the guarantee that the news they are sharing is factual? One of the key challenges for the fact-checking movement is to address the credibility issues that arise in horizontal and vertical information dissemination; it must therefore look for facts in these cases that can establish credibility independently of the social media

sites, outside the chain of sharing. It is possible that in the eyes of users, the high number of shares may also be a test of the credibility of the information, but fact checking should not be based on vague statistical probabilities such as "a million people cannot be wrong".

4. Control and Trust

The plethora of false and misleading information has led to a significant proportion of users distrusting information on the Internet, especially on social networking sites. Our own research into this problem among 9–14-year-olds found that even schoolchildren have reservations about information on the Internet – although they admit that their schools have not yet prepared them for this (Lehmann et al., 2022). As our research focused on the prevalence of fact-checking practices among schoolchildren, we focused on platforms that students use to gather information about different issues; sharing personal information was not considered relevant from this perspective. Accordingly, the focus was mainly on the reliability of information shared on Facebook and YouTube platforms, as well as on blogs and vlogs followed, while the sharing of information on other social networking sites (Instagram, TikTok) was less mentioned by the pupils surveyed. The overall conclusion of the research was that students are aware of the presence of misleading information and doubt the reliability of information from social networking sites in many areas. So, there is a gap between the perceived reliability of information from teachers (or books) and from digital networks, social sites.

However, loss of trust can be a problem in itself. Applications (such as offered by fact-checking sites and services of news agencies) that present the facts that determine the verification process and the veracity of the news also lead, to some extent, to a further loss of trust. The more users are aware of how and to what extent news is being transformed or automated to increase the rate of sharing, the more they will be suspicious of any novel news.

The situation is further complicated by the fact that the effectiveness of fact-checking procedures can be questionable. As Birks (2019) points out, fact-checking sites often list the arguments for or against a given piece of information in vain, presenting the real facts in vain, and the majority of users prefer to stick to the position they previously believed to be true. In other words, in the mind of the average user, the facts listed by fact-checks are not a compelling force to change their mind. One possible reason for this is that in recent years the post-truth movement, which recognizes the legitimacy of alternative facts and alternative realities, has gained considerable ground in political life (Schleusener, 2018); but equally important may be the fact that human thinking is characterized by the difficulty of changing fixed opinions and holding on to – even false – ideas. In

other words, one is emotionally attached to her/his position, and this is difficult or impossible to change by cognitive means alone.

Therefore, for fact-checking procedures to be successful and socially effective, several factors need to be taken into account. On the one hand, school education must develop a willingness to accept facts and the ability to make unbiased judgements. Free debate and autonomous cognition can lead students to face up to their mistakes easily and to accept a different point of view if that proves to be true. This also requires awareness of the emotional dispositions to prefer one's own position. To the extent that this recognition is successful, practical skills in fact checking can be more easily acquired. It is therefore necessary both to help them acquire the technical knowledge of fact checking and to build up the need to check.

Technical skills can help make fact checking part of everyday information practice. The tools are essentially accessible, but a longer learning process is needed to use them successfully. It is necessary, for example, to understand the technical background to the creation of misleading information or the manipulative misuse of statistical data and the ways in which data can be interpreted.

In addition to developing cognitive skills, it is also necessary to encourage an appreciation of the benefits of fact-based thinking. Informed decision-making, longer-term planning can only be successful with the right facts (although short-term benefits can also be seen from misinformation).

But the fact-checking procedures themselves also have an important role to play. Until now, it has been assumed that the presentation of facts is sufficient to disseminate reliable information, but it is clear that facts alone are not enough to change entrenched opinions (Stalph, 2018; Bradshaw et al., 2020). A successful fact-checking exercise can also make its results attractive by putting them into a form that is easy for users to consume and benefit from. It is common for the information used to deceive to be embedded in an attractive narrative so that it is easily accepted by users (for example, offering a simple solution to a complex problem that is difficult for users to understand or offering an emotionally appealing narrative that is tailored to users' hidden attitudes and desires). Fact checking should be able to make real facts similarly appealing, making the narrative acceptable to anyone.

Here we can turn back to the question of trust. In order to maintain social cohesion and build a network for a sustainable society, trust must be regained. Although our research focused on students, there is a similar distrust of information sharing among the adult population. Just one example: a 2019 survey by *Columbia Journalism Review* and the Reuters news agency found that 70 percent of Americans distrust content shared by the US government. This figure is two percent higher than the US public's attitude towards content shared by the Russian leadership (*Columbia Journalism Review* – Reuters/Ipsos, 2019). Proper discussion and display of the results of fact-checking procedures can help to remedy some of the distrust

created by the abundance of false information. If a significant proportion of users have the discernment to check information before sharing it and only share factual content with others, trust can be regained, at least in part. However, this also requires that, contrary to post-truth theories, information is accepted by users on the basis of its autonomous verifiability rather than its mere narrative appeal. It is difficult to imagine a sustainable society without this demandingness and thus without trust in information.

5. Conclusions

The current loss of trust and the distrust of information on digital networks call for procedures that can cope with the massive and complex amount of information and consistently select reliable information based on facts. Fact checking is an effective tool for managing the information complexity of the digital environment. Fact-checking procedures – and their results – are accessible to all users and can help to evaluate information found on social networking sites and to analyse content that is shared. However, in order to successfully disseminate the results of fact-checking procedures, it is necessary to acquire knowledge about the creation and dissemination of misleading information. As we have seen, technical knowledge is not enough to be effective: there is a need for critical thinking and a need for a form of fact sharing that is acceptable to all – a way of fact checking made attractive.

It is necessary to include in education elements that relate to the development of information literacy, knowledge of fact-checking procedures, and the need to consume verified, reliable information so that future generations will be better prepared to deal with the difficulties and reliability issues of the digital information environment. However, this is unlikely to be enough: lost trust must be rebuilt, and to do so, opportunities must be found in digital networks. Fact-checking procedures can also help to slowly establish a socio-ethical norm that regulates the sharing of information through the dispositions of users rather than by law. A new kind of "social contract" (Liaropoulos, 2020) could build the trust that is currently missing in digital network communities. This should include the proper design of algorithms, which currently operate almost exclusively according to business considerations. As learning algorithms are expected to play an increasingly important role in the operation of networks as artificial intelligence develops and spreads, the principle of sharing fact-based, trustworthy information must be embedded in their design – while preserving the free flow of information that is essential for the digital environment.

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