From Content Analysis to Content Analysis of Digital Social Networks
Specificities and Limits of a Particular Content

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Abstract. Content analysis is a research method in the humanities and social sciences that has been around for many years. Despite its age, it does not always seem to be used adequately. Moreover, the rise of digital social networks has brought about a form of reconfiguration within humanities and social sciences research, impacting on their methods in the process. Obviously, one of these methods is content analysis. Thus, in the context of digital social networks, their specificities complicate the analysis of their content, which is so simple and accessible on the surface. This highlights the need to reconsider, among other things, the relationship between qualitative and quantitative aspects when using this method.

Keywords: Content analysis · humanities and social sciences · digital social networks · web · quantitative · qualitative · research methods

1 Introduction

Bonville stated in 2006, in L'analyse de contenu des médias, that content analysis remained "largely unknown" and was "subject to many prejudices" [1]. There is no evidence that the situation has changed significantly today. While new forms of expression are gaining momentum, the sources of data are multiplying with the internet. Research fields and objects have been transformed by digital technology. Information and data seem to have taken on different forms on digital platforms and require attention. It looks like much more accessible, if only in terms of cost. And above all, they are much more substantial. Of course, all this data is a kind of springboard for methods such as content analysis. However, what is the current state of play of content analysis as a method affiliated to the humanities and social sciences? Furthermore, what factors are likely to influence content analysis in the digital age? These are questions that have guided this review of mainly theoretical, but also empirical, writings, most of which are in French.

Thus, in the following lines, we will first present content analysis. We will review its history and its defining aspects, before outlining the steps to be taken to apply it. We will then discuss the effects that the web can have on research in humanities and social sciences. Finally, we will look at digital social networks, in particular by presenting certain aspects of them, as well as difficulties that could be linked to their content from the point of view of a content analysis.

2   Content Analysis: Background, Definitions, and Application Steps

As content analysis is the central element of this work, it is important to discuss all its aspects. Thus, this first part looks at content analysis from its origins to the way it is applied. We will also discuss the different definitions it has had over time. The history that we will first draw up will enable us to define a sort of chronology of the evolution of this method.

2.1   Background

There are different versions and understandings when it comes to referring to origins of content analysis. In terms of chronology, Robert and Bouillaguet's [2] version should be mentioned first. For the authors, content analysis has its roots in the work of exegesis relating to the interpretation of biblical texts in the Old and New Testaments. This vision is based on the work of Baruch Spinoza who, in the Techno-political Treatise (1965), referred in particular to the fact of "grouping the statements contained in each book and reducing them to a certain number of principal heads [i.e. generic headings] so as to easily find all those that relate to the same object" [2] in order to highlight the author's purpose of the text under study. Spinoza is far from being the only one to have referred to the Bible in the context of analyses of textual content. For example, Benjamin Bourdon, in his 1982 book L'expression des émotions et des tendances dans le langage (The Expression of Emotions and Tendencies in Language), using as an illustration a section of the book of Exodus, mainly that relating to the Ten Commandments, emphasises the role of development of categories and search for frequency with which words appear. His approach would be to better capture the essential elements. Furthermore, Bardin also links the origin of content analysis to sacred texts and their interpretation through hermeneutics. In addition to hermeneutics, Bardin traces antecedents of content analysis to rhetoric and logic. Both of these would derive an "interpretive attitude [that] remains in part in current content analysis but is underpinned by technical validation procedures" [3]. However, content analysis renamed as such, and perceived in the strict sense, emanates from Berelson's work in the early twentieth century in the United States. As Robert and Bouillaguet point out, "it is indeed in the United States and in the field of press analysis, albeit much later (at the beginning of the 20th century) that content analysis was established as a specific method" [2]. This period was marked by the evolution of mass communication through media such as the press and broadcasting. Their proliferation created a certain need to look more closely at their content. This is what began the work of studying American media content at Columbia University. "Thematic analysis is practised there, initially based on categories directly derived from the newspapers' own headings ('politics', 'sports', 'labour', 'criminal matters', etc.)" [2].

In the wake of this trend towards thematic analysis, Harold Lasswell is partly responsible for highlighting the scientific nature of content analysis. Indeed, his book Propaganda technique in the world war, published in 1927, is part of this perspective because it determines, from an in-depth analysis, similarities between propaganda methods used in different countries [4]. In addition, the communication model developed by Lasswell

(the 5Ws) contains essential elements of content analysis. In this regard, Robert and Bouillaguet state that "while the examination of other questions remains essential to the complete achievement of a content analysis, the question "What is being said" is obviously central" [2]. According to these authors, Lasswell's approach to this question is twofold, focusing on both content and form.

However, stabilisation of the method and its epistemological positioning came from Berelson in 1952 with the publication of Content analysis in communication research [5]. Although there was criticism and room for improvement following the work of Lasswell and Berelson, the latter remained central authors with regard to content analysis [3]. That said, it is from Berelson's work that the method begins to face other methods from other disciplines. Moreover, its use will diversify to include clinical psychology, semiology and linguistics [2]. The other historical evolution is due to technical progress and necessary adaptation to computers. As such, it has become possible to process much larger data quantitatively. With the history of the method behind us, it is appropriate to look at its definition in order to gain a more precise understanding of it.

2.2 Definitions

As one might expect from its evolution, content analysis is far from having a single definition. We will therefore try, through a review of different definitions, to bring out main aspects. But before we get to these, what are we referring to when we speak of "content"? According to Laramée and Vallée, content "is generally the text. [But it is possible to] broaden the notion of 'text' by including all forms of oral (radio, etc.) and written communication (magazines, newspaper articles, official texts, etc.), but also audiovisual content such as television programmes" [6]. In other words, the notion of content has a polysemic character, and content therefore takes various forms.

Returning to the definition of content analysis, it is important to note that, although older, Berelson's definition remains one of the most cited and used. The author presents content analysis as a "research technique for the objective, systematic and quantitative description of the manifest content of communications" [5]. Although the method has both a quantitative and a qualitative aspect, the former seems to predominate over the latter when referring to the previous definition. The quantitative aspect, highlighted by Berelson, aims at categorising, coding, counting, enumerating… While the qualitative part consists of inferring and interpreting the data resulting from the quantification, it is concerned with meaning. Emphasising this second aspect, Mucchielli defines content analysis as "a set of methods for analysing documents, most often textual documents, making it possible to explain the meaning or meanings contained in them and/or the ways in which they manage to make sense" [7]. In a similar vein, and drawing inspiration from Berelson, Robert and Bouillaguet attempt to balance the weight of each aspect (quantitative and qualitative) in some way. According to them, "content analysis stricto sensu is defined as a technique for the methodical, systematic, objective and, on occasion, quantitative examination of the content of certain texts in order to classify and interpret their constituent elements, which are not fully accessible to naive reading" [2]. In the end, although it remains oriented towards quantification, content analysis has a significant qualitative character if it is to be effective.

These definitional questions cannot be concluded without specifying how content analysis differs from other similar methods or disciplines. This is a necessary distinction, as their proximity often leads to considerable confusion. Therefore, it seems important to us, after having specified what content analysis is, to specify what it is not. Thus, although it is concerned with statements in the same way as discourse analysis, content analysis is different. Indeed, discourse analysis comes from linguistics and remains attached to it insofar as its attention is focused on elements such as style, syntax, intonation, idioms, etc. It is by this attachment to linguistics that Maingueneau differentiates the two methods. According to him, content analysis "proposes techniques for extracting information from documents but does not take into account their linguistic structuring" [8]. Another closely related method, document analysis is rather an "operation or set of operations aimed at representing the content of a document in a form different from its original form in order to facilitate consultation or retrieval at a later stage" [3]. While document analysis aims only to bring out the essential elements of a document, content analysis focuses on the messages and their meaning in order to make inferences.

In the end, if we can consider, in the light of all the above, content analysis as "a set of communication analysis techniques aiming, through systematic and objective procedures of the content of messages, to obtain indicators (quantitative or not) allowing the inference of knowledge related to the conditions of production/reception (inferred variables) of these messages" [3], what about the course of its application?

2.3 Application Steps

There are several techniques for conducting a content analysis. The number of steps and the process may differ somewhat from one technique to another. However, some elements seem to be a constant insofar as they are present in most of the theoretical literature, we have been able to explore. And so, although the names may differ from one author to another, a content analysis is mainly based on a pre-analysis, exploitation of documents, processing of results and their interpretation [1–3, 6, 9]. Beyond denominations, the main difference in application lies in the orientation, which is more quantitative for some [1, 5] and more qualitative for others [3, 7]. Authors such as Bonville equate the process of a content analysis with that of normal research in humanities and social sciences. A perception that could be understood in following lines, during which we will dwell on making each of the stages explicit.

Pre-analysis is a preparation and programming stage that takes place upstream. It serves to lay the foundations for the analysis. According to Bardin, "generally, this first phase has three tasks: the choice of documents to be submitted to the analysis, the formulation of hypotheses and objectives, and the development of indicators on which the final interpretation will be based" [3]. While the hypotheses aim to provide anticipated answers on the possible results, the objectives define desired goal; as for the development of indicators, it consists of setting up the analysis grid. It should be noted that this stage also involves the choice of documents on the basis of what Robert and Bouillaguet refer to as "feasibility criteria" [2]. These criteria are relative and may differ according to the objectives and other specificities defined by the researcher or imposed by his or her object. It is as a result of this selection that the corpus that will actually be used for the analysis is constituted. Although they may have their shortcomings, certain

rules aim to frame the constitution of the corpus. Thus, according to Bardin [3], in the context of a content analysis, a corpus must be exhaustive in relation to the criteria that the researcher has set. The corpus is also subject to a rule of representativeness in relation to the set from which it is drawn. The other two rules are homogeneity by being precise in composition of the corpus, and finally the relevance of the documents chosen.

Then comes the exploitation of the documents, which is certainly the longest phase of the process. This is the quantification phase par excellence. This is where categorisation, coding and counting take place. Categorisation consists of classifying the relevant elements of the corpus by theme, dividing them into categories and making a classification. For Robert and Bouillaguet, the relevant elements of the corpus are identified by applying Lasswell's scheme to it. "With the questions "to say (or mean) what?" and "how?", we enter the central phase of a content analysis: categorisation" [2]. Note that the first two questions in the diagram, on the sender (who?) and the receiver (to whom?), could be applied during or following determination of the corpus. These elements are essential to the understanding of documents submitted to the analysis, which, let us remember, is not limited to quantification without deep understanding. For the sake of scientific rigour, the categories are also subject to criteria [2, 3]. They must be relevant by reflecting the corpus and by expressing the problematic in an appropriate and adequate manner. Completeness is also one of the criteria that categories must meet. They are exhaustive when they include all relevant elements of the corpus. Furthermore, categories are subject to an exclusivity obligation, in the sense that the same element can only appear in one category. The criterion of objectivity, on the other hand, could be that different coders can make an identical classification. On the other hand, "coding is the process by which raw data are systematically transformed and aggregated into units that allow an accurate description of relevant characteristics of the content" [3]. This is one of the key points of content quantification. In particular, one determines the segment of content retained to fill in one's analysis grid (unit of recording), the way in which one decides to carry out one's counting (unit of numbering) [2, 3].

Once the data has been coded, categories applied to the corpus and analysis grid completed, the results can be processed manually or computerised using dedicated software (as is often the case) such as Nvivo7 and Lexica. Usually at this stage, statistics are generated. Depending on the orientation and objectives, the researcher will tend to turn either to rather quantitative elements such as frequencies, or to more qualitative elements such as the presence or absence of certain themes [2]. Results that may allow inferences to be made are also taken into account. In fact, once the results have been obtained, direction of their processing depends on the researcher's objectives. Once the results have been processed, they will need to be interpreted. "Interpreting consists of inferring, that is, performing a logical operation by which one draws from one or more propositions (in this case the data established at the end of the application of the analytical grids) one or more consequences that necessarily result from them" [3]. Furthermore, in interpreting, the researcher specifies the relationship between the initial hypotheses and the results obtained, as well as any other element that seems decisive in the context of the study.

Broadly speaking, this is how content analysis in its most traditional sense is carried out. However, being "one of the most frequently employed techniques by communication researchers" [1], content analysis has not escaped the reconfiguration that the web and digital social networks have practically imposed on humanities and social sciences research.

3   Web Impact on Research in the Humanities and Social Sciences

It is becoming increasingly obvious that the evolution of the web has not only brought about social changes, but also methodological changes in research, particularly in the humanities and social sciences [10]. One of the main changes is the abundance of information in a context where research in the humanities and social sciences was at times limited in terms of data. This is expressed by Giles who argues that "after suffering from a chronic lack of data on their subjects of study, the social sciences are suddenly overwhelmed by an avalanche of traces produced by the development of electronic media" [11]. Let us note that this reality marks the era of massive data or big data. Beyond quantitative aspect of information, it contains, one of particularities of the web is the fact that it constitutes a device often described as a sociotechnical device [12]. According to Foucault, in an interview dating from 1977 and subsequently transcribed, a device is "a resolutely heterogeneous whole comprising discourses, institutions, architectural arrangements, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral, philanthropic proposals; in short, the said as well as the unsaid, as well as the whole of the relations that can be established between these elements" [13]. As a device, the web is also characterised "by its socio-technical thickness which, at the same time, contributes to structuring mediations within it (online mediations) and outside it (offline mediations), and is itself the result of this set of mediations which participate in tracing its contours (technical, functional and usage)" [14]. This system of multifactorial intermediations and inter-influences contributes to the complexity of dealing with the web. However, the changes brought about by the web and the digital are not necessarily to be seen as a rupture to develop new research methods. Researchers such as Marres [15] and Barats [16] consider that it is a question of a redistribution leading to a necessary adaptation of existing research methods to the realities of the web. Marres has thus established a categorisation of methods in the web era [15]. "The typology proposed by Marres makes it possible to sketch a cartography of methods and to present an overview of the major methodological orientations that structure research in a digital context" [16]. Marres' mapping consists of four types of methods.

First, there are traditional or classical methods which advocate the use of traditional research techniques in the humanities and social sciences. The application of these techniques to digital text is done in a systematic way, without any form of willingness to adapt. Then come the computational methods relating to the systematically computerised and automated processing of large quantities of data from the web. "In contrast to the first position, this one considers that digital technology has made possible new developments in modelling techniques and, therefore, new predictive capacities, thanks to the analysis of network dynamics more in touch with the "real world" and on scales previously rarely possible" [16]. In terms of virtual methods, they focus on adapting traditional

techniques for use in a digital context. Although they have an ethnographic bias, they also take into account other methods in the humanities and social sciences. Finally, there are digital methods whose "approaches are often mixed and rely on the complementarity of virtual and computational methods" [16]. They strive to combine quantitative and qualitative methods. Digital methods are concerned with adapting and contextualising their techniques according to their objects. Obviously, this typology is not without its critics. As much as the approaches it presents, taken individually, the typology itself has shortcomings in its entirety. By way of illustration, some approaches are criticised for not giving enough space to the specificities of digital technology, while others are criticised for giving it too much. Taken as a whole, this mapping is criticised for wanting to favour the digital approach [16]. Beyond its shortcomings, such a mapping remains useful in our opinion, as it has the merit of providing a more or less clear idea of changes that have occurred and the current state of research in the humanities and social sciences as a result of digital developments. As digital social networks are themselves a component of the web (mainly web 2.0), we thought it would be useful to discuss the impact of the web in general on social science research and its methods, and incidentally on content analysis.

4 Analytical Trends and Limitations in Digital Social Network Content

Digital social networks have been the subject of numerous studies using their content. We have therefore chosen to discuss some of the specificities of these networks by identifying the trends that emerge from these studies. We will then discuss certain risks and limits linked not only to the trends and content, but also to the way these social networks operate. These aspects will be explored in greater depth in the next few lines of this work.

4.1 Analysis Trends

In the wake of the so-called Web 2.0 or social web, digital social networks, as part of the web, are at the forefront of the reconfiguration of research in the humanities and social sciences. Drawing on Boyd and Ellison [17], Coutant and Stenger propose a definition of digital social networks. According to the authors, "they are web services that: (1) allow individuals to build a public or semi-public profile within a system, (2) manage a list of users with whom they share a link, (3) view and navigate their list of links and those established by others within the system; and (4) base their attractiveness essentially on the first three points and not on any particular activity" [18]. Without wishing to over-generalise, this definition presents common aspects of most digital social networks and how they operate. That said, this section does not aim to describe in detail how digital social networks work. Rather, it seeks to highlight the areas in which analyses of digital social network content are most often directed, specifically within communication studies or related disciplines. To do this, we have based ourselves on a corpus of fifteen empirical studies, mainly French scientific articles published over the last ten years and dealing with Facebook, Twitter and Instagram content. The first

observation that emerges is that the content analysed is mainly comments, publications and Tweets from official pages and accounts of public figures, politicians, companies or public institutions. Secondly, trends emerged. The main themes of these articles refer to marketing (commercial, social, political, personal), journalism and political participation of citizens. All these areas have undergone forms of change with digital social networks. It is no longer unusual to see election campaigns around the world being conducted partly on digital social networks [19]. Similarly, still in the political field, the logic of permanent campaigning marking the third age of political communication [20] has taken on another meaning with digital platforms. It has been amplified by the possibility, indeed the necessity, for political figures to build an image and popularity, or simply to maintain them, on these platforms. In addition, many companies from various sectors are present on digital social networks, and this presence is becoming increasingly important. Management of their digital communities, a function born with the evolution of digital social networks, responds to issues of institutional communication and public relations such as image, reputation and identity. As much as digital social networks allow companies to present a valued image to the public, they are also a means of evaluating more or less how they are perceived [21]. In addition to the institutional aspect, there is a more obvious commercial purpose with the possibility for companies to advertise via digital platforms that allow sponsoring publications with precise targeting. For their part, "the media are no longer content to provide all or part of their articles online on their own website. They are part of the wider ecosystem of "social" tools of digital communication" [22]. Thus, journalists and so-called traditional media are also very present on digital social networks to which they have adapted to reach their audiences in this culture of immediacy marked by digital technology; a culture in which the conditions for disseminating information are no longer the same as before. Indeed, these media no longer have a monopoly on the dissemination of information through their traditional channels. Hence the need for this adaptation to digital social networks, notably with the reduction of the length of journalistic texts in an ecosystem where the use of these platforms encourages shorter and quickly readable texts. Moreover, "the right to speak in public is expanding to the whole of society" [23], and this possibility has allowed digital social networks to occupy a prominent place in the participation of citizens in public and political debates [24]. The notion of 'e-democracy' is also part of this logic of increasing participation, whether effective or not [23, 25].

It seems that all the above reasons militate in favour of making the contents of digital social networks the object of analyses and empirical studies (among others) of a scientific nature, such as those which have made up our corpus. However, there are risks associated with these contents, and it would be important to take them into account when trying to constitute a corpus for analysis. On the basis of the above-mentioned trends, we will mention some of the limitations and risks that may be associated with them.

4.2 Some Limitations and Risks

The limits of content analysis of digital social networks are primarily those linked to the weaknesses of content analysis in its most traditional sense. Gauthier [26] already questioned risks linked to the reliability of the development of categories and coding, the validity which "refers to the postulate that a measurement instrument does indeed

carry out the measurement that it is thought to carry out" [6] and to the corpus which he considered to be too voluminous. With big data, the volume of data is still a risk today. Indeed, the limits in relation to the web and digital social networks "rest on two confusions associating quantity and representativeness on the one hand, and automation and objectivity on the other" [16]. In other words, just because the content accessed is vast, as digital social networks can be, does not necessarily mean that it is representative of reality. Furthermore, "overabundance has paradoxical effects. This way, if everyone can claim to be a journalist [especially with digital social networks], everyone can also choose different sources according to their interests. At the risk of only going to sources that confirm one's beliefs, or only sharing with those who adopt the same point of view. At the risk of a certain autism" [27]. As an extension of the confusion that can exist between quantity and representativeness, we can underline the practices that consist in usurping or instrumentalising reactions or opinions. This is notably the case of astroturfing, which "is a communication strategy whose real source is obscured, and which falsely claims to be of citizen origin" [28]. The author identifies several types of astroturfing strategies. Her typology consists of four elements:

- The action: when it is a one-off and unique operation.
- The campaign, referring to a few articulated and structured actions with a specific aim.
- The conjunctural astroturf group, which is a strategy based on a front group with alleged or real popular support. Where this support is real, membership has been made on a deceptive basis. This strategy has a one-off objective.
- The perennial astroturf group, like the previous one as a group. The difference lies in the aims. This one, unlike the previous one, aims to support several actions or campaigns over time, repeatedly.

The risks of bias in this type of case can occur especially when the analysis concerns comments on digital social networks. The latter are considered to be the preferred terrain for the implementation of this type of impersonation strategy [28, 29]. In the same vein, appearance and proliferation of bots and trolls contributes to this impulse to impersonate, as well as to attempts at manipulation on digital social networks. Note that trolls are accounts created and managed by humans, often by presenting fictitious identities, with the aim of disseminating biased or erroneous information; whereas bots are computer programs that mimic accounts managed by real people and interact with other users who generally do not suspect anything [30]. Both are used to disseminate and relay often false information in order to create a controversy or influence other users to a greater or lesser extent.

Moreover, digital social networks are far from being platforms that could be described as neutral. This is associated with the confusion that links automation with objectivity. As sociotechnical devices, they operate on the basis of algorithms that "are nowadays mathematical objects of great complexity. Algorithms make use of a gigantic number of variables (more than a hundred thousand for Facebook's) whose weighting can vary in real time" [31]. In the case of digital social networks, their mission is to select and suggest content to users based on their usage habits. This personalisation aims to keep the user on the platform as long as possible. Referring to false beliefs that present algorithms

as objective programs, Richard argues that "those who make algorithms often present them as more "objective" or "neutral" than humans - who are inherently prone to bias and mood swings" [31]. Algorithms could seemingly direct the uses of digital social networks according to commercial, political or other logics. "The most obvious case is YouTube and its 1.5 billion users. It is estimated that 70% of the one billion hours of videos viewed daily are the result of algorithmic recommendation" [22]. Given this type of example, the fact that algorithms are not neutral and not necessarily objective should be considered by researchers in their content analyses.

However, the possible influences on users and their uses remain to be relativised because "recent studies dedicated to Facebook underline the public's capacities for distancing and criticism and thus remind us of the importance of articulating the macro and micro levels (Cardon, 2015; Mercier, 2018; Badouard, 2017)" [32]. However, the researcher must be more vigilant in a digital context.

Ultimately, one of the biggest risks in looking at the content of digital social networks is that we do not pay enough attention to the context. Whether it is the geographical, cultural, social, etc. context, it is necessary to understand the logics behind them, as uses differ according to realities and neglecting the context would lead to a biased analysis.

5   Conclusion

This work had no pretension of being exhaustive in its approach, even less of setting up a 'new' method to be called 'content analysis of digital social networks'. Rather, its aim was to recall the fundamental principles of content analysis while highlighting the specificities and, above all, the risks associated with the content of digital social networks. In course of our development, we felt it was essential to show how the web as a whole has reconfigured the social landscape and research in the humanities and social sciences. On the basis of this reconfiguration, in a context where mass data predominates, we believe that qualitative aspect of content analysis should be put forward in a more pronounced way in order to be able to take advantage of all the potential that this method can offer and so avoid the trap that would like to systematically rhyme "quantity and representativeness on the one hand, and automation and objectivity on the other" [16]. Not necessarily rightly, determining factors such as image and reputation, among others, are evaluated on digital social networks simply from the point of view of numbers. Whether it is the number of subscribers, the number of comments, the number of 'likes', the strongly quantitative trend is clearly at centre of perceptions. By the way, "despite a certain refinement in its definition and use, content analysis remains very quantitative" [6]. This remark made in 1991 still seems relevant, and even amplified in the era of data massification. However, the quantitative trend in content analysis should be put into perspective. It is in this perspective that the conditions of production, dissemination, and reception of content on or from digital social networks play a determining role. And in this sense, they should also be the subject of a closer look in the context of the necessary understanding of what will constitute a corpus of analysis. In the end, it seems difficult to reduce all the uncertainties relating to content analysis. Thus, the use of mixed methods appears as a possible solution, because "the new digital traces do not only require to be treated successively by quantitative methods and by qualitative methods, they also

and above all require to be treated by new qualitative-quantitative methods (Venturini, 2012)" [11]. Indeed, adding content analysis to another research method is likely to lead to much more conclusive results given the complexity of digital social networks both as an object and as a research field.

Further, our study opens several avenues. Insofar as we have chosen to focus on writings that are predominantly French-speaking, the main possibility would be to extend the review to English-speaking writings in order to have a more global vision of the issue, or to make a comparative study between writings in French and those in English. Moreover, limitations and shortcomings related to the content of digital social networks are far from exhaustive and could be the subject of a more detailed development, and even of a specific study in a perspective that could be multidisciplinary or transdisciplinary in order to better grasp all the subtleties and contours.

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