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Facebook Infodemic in Algeria: A (Factual) Qualitative Content Analysis

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Dedication

To my parents

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Abstract

Untrue and unverified information have their consequences on the public opinion. When the information in the time of a pandemic is false, the case may be worse. An infodemic has emerged with the starting alert of the COVID-19 pandemic. Algerian Facebook users participated in some ways in the dissemination of the infodemic through explaining the symptoms, suggesting preventions, expecting a vaccine, describing the government actions, etc. This dissertation addresses the types of information disorders and infodemic in Algeria. It explores the pandemic-related mis-, dis-, and mal-information shared on Facebook. Besides, it aims at revealing how the linguistic and content features contribute to the (dis)factuality and (in)validity of such information. The study is based on a corpus of forty Facebook posts and it adopts two different qualitative methods. First, a factual analysis is conducted for the purposes of categorizing the information and showing their degrees of harm. Second, a qualitative content analysis is used for the purpose of highlighting the major linguistic features used in those categories of infodemic. The results revealed that misinformation is the common level of shared infodemic among Algerian Facebook users. Besides, the linguistic aspects of the posts contributed to a considerable extent to the verification of the information type and the actors' intentions to mislead and/or harm.

Keywords: infodemic, linguistic features, factual analysis, qualitative content analysis, Facebook, Algeria.

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General Introduction

With the earliest alert of the COVID-19 pandemic, the world health organization (WHO) warned the world that the pandemic is accompanied with an 'infodemic'. The latter means the amount of untrue/unverified information about health-related issues that can rapidly cause a social or even a political crisis. Due to the socio-psychological effects of the pandemic, several official and unofficial organizations and individuals communicated untrue information for the purpose of expressing their diaries, explaining the symptoms, notifying about a vaccine, providing prevention guides, etc.

Like other countries, Algeria witnessed a wave of an infodemic represented in the most commonly used social media platform, Facebook. Journalists, doctors, experts, and TV channels have communicated their opinions about the pandemic, how the Algerian ministry of health is combating it, how the whole world is working on a vaccine that reduce its death toll, etc. As observed by the researcher, some information has been falsified for several reasons. A problematic has occurred here regarding the effects such fake news may bring.

The present research explores how Algerian users of Facebook disseminate mis-, dis- and mal-information about the COVID-19 pandemic. The study also attempts to extract the content and linguistic features from the posts to confirm how they contribute to the (dis)factuality of information. To achieve the objectives of the study, these two research questions are raised:

- What kinds of COVID-19-related information did the Algerian users of Facebook commonly disseminate?
- To what extent could the content and linguistic features of these information contribute to the verification of their accuracy and correctness?

It is hypothesized that:

- The Algerian users of Facebook commonly disseminate misinformation about the COVID-19-related issues.
- The content and linguistic features of the posts shared by Algerian users of Facebook contribute to a considerable extent to the verification of the factuality of information as well as the harm they include.

A corpus of forty Facebook posts by Algerian official and unofficial organizations and individuals is built in order to be analyzed. Two methods of analysis are adopted. First, a factual analysis is conducted in order to identify the type and degree of information disorders. It also brings insights on the effects expected from each type of information. Second, a qualitative content analysis is conducted on the corpus items to descriptively explain how linguistic features contribute to the information (dis)factuality and effect. Some examples of these linguistic features are repetition, stylistic devices, the use of adjectives, modality, generic phrases, etc.

This dissertation consists of three chapters. The first chapter introduces the conceptions about information and information disorders. It thoroughly distinguishes misinformation, disinformation and mal-information. The chapter also introduces the infodemic with a brief review of literature. The second chapter provides the research design and methods description. It presents the rationale, describes the corpus compilation and provides the framework of analysis. The third chapter is devoted to the factual analysis as well as the qualitative content analysis of the infodemic in Algerian Facebook posts (from the corpus items). It also presents the major results of the study and discusses them.

CHAPTER ONE

THEORETICAL BACKGROUND

Introduction

The media and tele-communicative tools have impacted widely on humanity in terms of information spreading. However, this double-faceted weapon is undeniably harmful when it is used inappropriately by governments and institutions. Nowadays, even individuals have become effective members on social networking sites, thus, the information and misinformation potentials have raised. In this chapter, the researcher introduces the major conceptions relevant to information spreading by defining the types of information disorder (mis-, dis-, and mal-information). Then, the core theme of the research, the infodemic, is presented with thorough illustrations from the recent pandemic era that witnessed a major infodemic status in the world. A brief review of literature is also provided by the end of this chapter.

1. Information

Information as a concept is related to information systems. Ackoff (1967) provided that there is a lack of understanding when it comes to the nature of "information". As there is unlimited numbers or norms of definitions that describe truth as quality information. As classically defined, Wiener (1954) introduced an information as "the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it" (p. 17). In addition, Brock and Dhillon (2001) presented many definitions of the term 'information' and concluded that everything and anything can be an information.

Information is compared with 'data'. The latter are raw created or collected facts, yet the former are data with meaning. Also, the meaning of data is context-bound, and its validity is in the knowledge that leads to rational action (Ulrich, 2001, p.56). Walsham (2001) clarifies that we cannot perceive data if they have no meaning, yet information can be rendered as idiosyncratic.

To explain, the meaning of an information may not be accessible. In this respect, the concept of information has become more widely related to machines that process them. In addition, technology helps us easily and quickly collect and process information.

Therefore, the machine-readable formats and aspects of information create new issues. Straub and Collins (1990) noted mobility and reproducibility as the major problems. Further, the verifiability and quantifiability of any technically-used information have been discussed by Bloomfield and Coombs (1992). Because information has more or less been treated by and through technology, an information disorder may occur either by errors or intentionally by the interference of humans in either the creation or distribution of information. At this point, it is necessary to highlight the meaning and types of information disorder.

2. Information Disorder

Wardle (2017) discussed the common types of information disorder and noted that information factuality and truth can simply lead to positive effects. However, the disorder of information leads to negative ones. The levels of risks and negativity of an information determines its type. In this section, we present a conceptual background of mis-, dis-, and mal-information.

2.1 Misinformation

The first type, misinformation, is defined differently. Tilbury (2017) defines it as “inaccurate information because of an honest mistake” (p. iv). Wardle (2017) considered misinformation as commonly non-verified information that people spread without the intentions of changing the world or expecting outcomes. In the time of internet, several shared contents and rich information are provided about any world event on social media. Yet, these networks and

platforms are diluted with many forms of misinformation like spam, rumors, and malicious news. As social media is hardly controlled and monitored, every user is free anonymously or non-anonymously to post and share any quality of ideas. For that, political and academic considerations neglect social media as not being a trustworthy space.

Online information diffusion has been the concern of researchers since the emergence of the internet. Recently, many researchers, like del Vicario et al. (2016) and Vosoughi et al. (2018), have found that misinformation is transmitted faster among -and reaches broader- audiences than factual and true information. The nowadays social media platforms confirm that sharing any kind of information has become easier and faster.

2.2 Disinformation

When there is a misleading information that is purposefully disseminated, it is a disinformation. The latter is accompanied with an aim of deception. Unlike disinformation, misinformation is a false idea that is not spread intentionally. That is how Wardle (2017) distinguished between both concepts. Disinformation is also defined as “the inaccurate and misleading information with an intended purpose to deliberately mislead and/or deceive” (Tilbury, 2017, p. iv).

Public policies are concerned about a major shape of disinformation which is ‘fake news’. The latter are mostly represented in ideas and stories attributed to affecting a common or influential political events. Researchers, therefore, started to check how disinformation makers impact human cognition and behaviors (Persily and Tucker, 2020).

Disinformation and fake news are sometimes used interchangeably. However, the latter is more politicized as it is used by political elites who have weaponized the term to undermine trust

in the media (European Commission, 2018). Besides, both terms imply the difference between true and false information (Wardle, 2017). Yet, a wider range of deceitful content is covered by disinformation. Here, we notice half-truths or mal-information. Intention is always involved, but there always exists a cognitive driver in them that leads to online deceiving. (Hancock, 2009).

Wardle and Derakhshan (2018) clarify the difference between both terms by stating that:

Misinformation is information that is false, but the person who is disseminating it believes that it is true. Disinformation is information that is false, and the person who is disseminating it knows it is false. It is a deliberate, intentional lie, and points to people being actively disinformed by malicious actors. (p.43)

Moreover, O'Shaughnessy (2019) states that "all propaganda is not disinformation but all disinformation is propaganda" (p. 135). This means that disinformation is intentional and can be a part of a propaganda even out of politics. For instance, commercials are raw sources of any forms of consumer manipulation. That is why disinformation may occur for an economic or commercial aim (Subramanian, 2017).

2.3 Mal-information

According to the level of harm, a mal-information is considered the most harmful. When information is reality-based yet inflicting harm on individuals, communities, institutions, etc., it is called mal-information. Even true ideas (information) can be mal-information when created or distributed in order to mean harm and not serve justice or any public interest. For instance, violating someone's privacy or the unjustified use of news against journalistic ethics are mal-information. (Wardle, 2017)

The figure below demonstrates the level of harm and differences between the three aforementioned information disorder shapes.

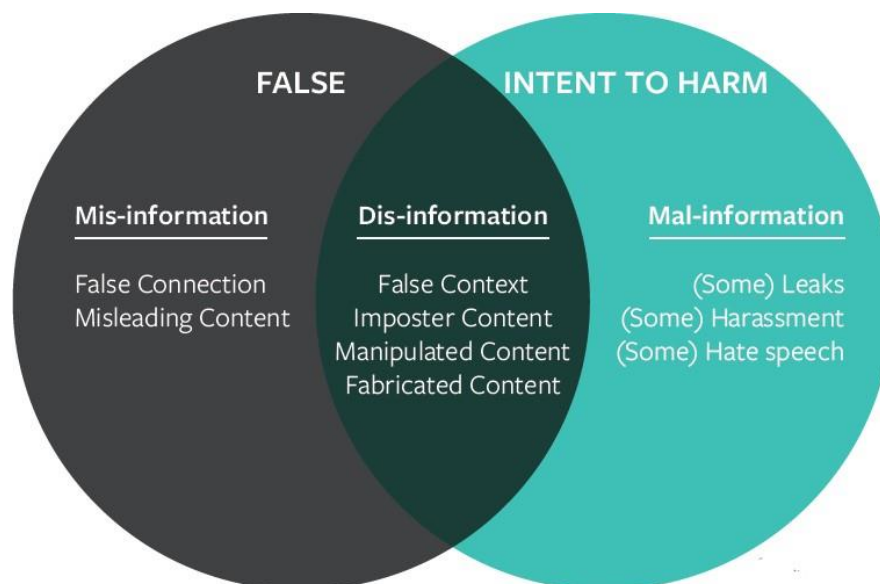


Figure 1. Information Disorder (Wardle and Derakhshan, 2018, p. 44)

3. Infodemic

Health-related rumors, fake news and misinformation, namely those of the recent pandemic have been labeled as 'infodemic'. Zarocostas (2020) defines an infodemic as an overabundance of information – some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it (p.676). When information volume increase in a short time in a specific or urgent event, it is known as infodemic. In this COVID-19 pandemic, many of the information disorder shapes occurred and rumors circulated in the news on TV or on social media particularly.

As the information is spreading faster than a virus, an infodemic may cause several types and levels of harms to people, institutions and countries (PAHO, 2020, p.2). An infodemic like

that appeared with the pandemic can affect all aspects of life, namely those who have mental health issues. Indeed, searching for coronavirus updates jumped from 50% in February to 70% in April 2020 across all generations.

Undoubtedly, false, fabricated and misleading ideas and news can be shared online with or without a background or a quality. The WHO confirmed that an infodemic motives in this era is based on conspiracy theories, aspects of the epidemic, origins and treatment of the disease, etc. The majority of the audience may absorb any information quickly in the time of health alerts. Therefore, the COVID-19 pandemic has been made severe due to harming more people only by the shared unjustified information.

3.1 The COVID-19 Infodemic

Noticeably, people are not always aware of the information they consume online. Thus, they are at risk of non-verified information anytime, namely from the social networking sites. Since December 2019, the World Health Organization (WHO) marked an increasing alert of a novel coronavirus originated in Wuhan, China. Since its starting alert in China and throughout its spread, the COVID-19 pandemic has been accompanied with news and information that are classified as false and misleading.

Since information about the COVID-19 pandemic started to occupy the internet, particularly social media, an infodemic has been alerted by international institutions and organizations. The rapid spread of all COVID-19-related information, thus, has made a difficulty for experts and ordinary people in finding more factual sources and effective solutions to certain health problems. (Ashrafi and Kazempour, 2020)

The WHO stated that people should look for trustworthy sources and reliable guidance (WHO, 2020). From the several aforementioned definitions and backgrounds, it is inferred that an infodemic revolves around volumes of several information images like disinformation, misinformation and mal-information.

As fast in spread as a virus, an infodemic can easily be amplified through social media networks (Zarocostas, 2020, p. 676). That is why, an infodemic rhymes with a pandemic lexically and phonemically as both of them spread rapidly, widely, and shortly.

Indeed, people need information about the realities and updates of what happened and may happen in the world, in their country and in the lands of their lovers and relatives. Moreover, the information they share and seek are responses of government departments to specific statistics, preparation of clinical cares and trials, the available treatments, the accessibility to airports and other important checkpoints, the numbers of confirmed cases and deaths, etc. Therefore, people are exposed to all kinds of sources in every corner on TV channels, Facebook, Twitter, Instagram, etc.

However, one may imagine the number of informants and informed who take and absorb all information without taking time to filter out false messages, to check the extent of the sources' reliability, and to question any contradictory information. The healthcare status during a pandemic such the COVID-19 has made policymakers, decision-makers, health sector workers and authorities address, absorb, share and communicate information easily and shortly for the aim of activating immediate orders and announcements to save lives. Thus, more doors to rumors and misinformation have been opened even by official representatives of societies.

3.2 Fighting an Infodemic

Despite the difficulty of verifying and checking information on the web, there are always already-verified, reliable and secure information sources. Some companies and websites of international organizations could manage, guide and protect the distribution of information by noting the type of information, its accuracy and the official providers of the relevant sources.

The WHO and many governments' official health departments websites launched campaigns and developed applications to provide factual and verified information in order to fight any infodemic risks from social media users and other benefiting organizations. The WHO created the Information Network for Epidemics (EPI-WIN), available at www.who.int/epi-win, it is to control the information order and truth and stand against dis- or mis-information.

By using computational techniques, it has become easier for developers to train machines on detecting fake news. In some works in the literature, they devote some space to fake news detection as a way to fight misinformation. Raj and Meel (2021), for instance, reviewed eighty research works that tackle common detection techniques by machine learning and deep learning algorithms. Their review addressed how researchers detected misinformation on images, videos, and their combinations with text.

4. A Brief Review of Literature

Several research works addressed the theme of information disorder since the advent of information and communication theories. Moreover, many researchers tackled the issues of infodemics with relevance to earlier health emergencies in the 20th century. However, a large amount of research has been conducted on the COVID-19 infodemic. Arriaga et al. (2021) reported the major mass media roles and effects in the Coronavirus information spread. They

collected works of many researchers with relevance to the recent infodemic properties like stigmatization, risk perception, self-protective behaviors, digital communication during social distancing, etc.

In addition, Pian et al. (2021) synthesized the relevant literature of the COVID-19 infodemic's causes and impacts. Also, they proposed several strategies to fight such an infodemic. They found that the use of social media, the lack of health/eHealth literacy, and unverified publications are the major causes of the infodemic. Besides, the way humans perceive and treat rumors as well as the anxieties of the health emergency were mentioned as the major aspects of this infodemic. Through the papers reviewed by Pian et al. (2021), it seems important to address the way internet users consume and seek information.

Chowdhury et al. (2021) could provide knowledge from the literature about misinformation during previous pandemics and infodemics outbreaks. Their aim was to enable policymakers and health institutions control and understand how misinformation would affect and worsen the pandemic's status and increase its damages. They found that misinformation is consumed due to individuals' lack of scientific knowledge and governments' lack of control over the unregulated media.

In the same vein, Radu (2020) explained how several governments launched guidance missions to social media companies on dealing with contentious pandemic content. She also described how this reached the extent of establishing special units to combat disinformation as in the EU. Thus, she demonstrated how malicious coronavirus falsehood has been criminalized through mentioning illustrations of potential public health risks. After that, many researchers addressed the short-term and long-term effects of any legislations that targeted the COVID-19 disinformation on mass media and social media.

From media to social media, the focus of researchers was on specific platforms. For instance, Lopez and Gallemore (2021) prepared a large dataset of 2.2 billion tweets to be intensively analyzed. Their aim was to help researchers find how misinformation was spreading in the world during the COVID-19 pandemic (January 2020 to September 2021).

Among the studies that are of interest to the current study, we mention Ahmed et al. (2020) who collected 454 Facebook posts most of which were spread by verified accounts. They found serious COVID-19 information with common information disorders including misinformation. Such a study could quantify the misinformation and test Facebook's fact-check policy. Indeed, less studies used Facebook posts as datasets for checking types and degrees of infodemic. The example of Ahmed et al. (2020) and following studies worked on accuracy evaluation of any spread contents on common social media platforms.

Conclusion

The present chapter has highlighted the major conceptual frameworks regarding information, information disorder, and infodemic. Through the studies conducted on Infodemic during the COVID-19 pandemic, it is remarked that less studies have been contextualized in Algeria. For that, this study tends to shed light on the COVID-19 infodemic in Algeria through studying how social media helped spreading misinformation and disinformation. The following chapter describes in details the choice of context, settings, methods, and procedures of analysis.

CHAPTER TWO

RESEARCH DESIGN & METHODS

Introduction

Based on the theoretical background presented in the previous chapter, the present part of the dissertation provides descriptions of methodological features of the research. First, the rationale and research design are presented. Second, the research instruments are provided with relevant introductions to the setting and context. Third, the chapter contains a description of the corpus to be studied. At the end, the procedure of data filtration and preparation for analysis is presented.

1. Rationale and Research Design

The infectious novel coronavirus disease caused a rapid rise in the cases and deaths tolls from December 2019 and throughout the following year. Being worldwide spreading, it became a pandemic that the humanity fears and works on combating it. Eventually, several websites and TV channels started to publish or broadcast information about the COVID-19 pandemic. People started sharing different instructions on how to prevent the spread of the virus.

Among the waves of news, social media users have become more active information sources that disseminate all types of information to the public. Indeed, social media represents the closest source to all layers of the society even individuals who experienced isolation during hospitalization. The research works on how social media covered the pandemic news have started since the outbreak of the virus. In several cases, data are collected manually or through programmed interfaces from social media networks.

As mentioned in the previous chapter, the Algerian context has not been widely studied for the aim of checking infodemic rates and effects. Yet, there are some studies that highlighted how misinformation can negatively affect public opinion like Lahmar (2020) who targeted fake

news among Algerian social media users. Besides, Rahmouni (2021) studies the misleading news among Algerians on social networks, and suggested some ways to combat it. From another perspective, Djaballah and Meribai (2021) tackled the issue of false news in Algeria in relation to the media law and the Algerian penal code.

Starting from April 2020, the Algerian authorities have launched a campaign against what they described as "fake news promoters" on social media platforms, which has raised quickly with the emergence of the Coronavirus in the country (Gibril, 2020). Further, the Committee to Protect Journalists (2020) reported that the Algerian Ministry of Information blocked three news websites in April 2020 which are *Interlignes*, *Maghreb Emergent*, and *Radiom*, and criminalized them for sharing fake news.

The Algerian Press Service (2020) then announced the legal amendment regarding the criminalization of the dissemination of fake news. Researchers have started to study the false news in order to understand the incentives behind sharing them. At the level of language, less attention was drawn on how linguistic devices were implemented for the service of manipulating or fabricating information. For this reason, the present research attempts to scrutinize how Algerian users of Facebook disseminate information about the COVID-19 pandemic. The researcher raises these two research questions:

- What kinds of COVID-19-related information did the Algerian users of Facebook commonly disseminate?
- To what extent could the content and linguistic features of these information contribute to the verification of their accuracy and correctness?

This research highlights the media and communication features, yet there is always a focus on linguistic aspects. The level of language has helped researchers to collect data easily by searching for hashtags and common expressions. It also helped official websites and organizations to create machine-based systems that verify the truths in posts shared by social media users. In this respect, we note that verifying the information can easily be done through these online information checkers; however, studying the content and language of the shared information will also contribute to expecting the intentions from the dissemination and measuring the level of harm.

At this point, we mention that this study is exploratory in nature and it depends on a mixed-method approach. The target data is to be qualitatively and quantitatively treated. In the following sections, detailed descriptions of the corpus and the methods are provided.

2. The Corpus of the Study

The nature of the target corpus is textual. That is, the data to be processed are Facebook posts by Algerian users of Facebook. The researcher tends to search even for images and then convert them into texts for data treatment. Even video captions or descriptions are considered. The target texts that needed to be contained in the corpus are all public posts (accessible to non-logged-in users, or non-group-members).

All posts are from Facebook platform posted in the period from March 2020 till December 2021. They are posted by Algerian Facebook pages (representing brands and famous figures), Algerian groups' members (venues for public conversation), and/or Algerian personal accounts. The criteria of data selection are mentioned in the table below.

Criteria	Conditions
Country of Events/News	Algeria
Nationality of Disseminators	Algerian
Social Media Platform	Facebook
Timeline of posts	March 2020 – December 2021
Hashtags /search keywords	#كورونا #فيروس #جائحة #الكورونا #الجزائر #عاجل #بارطاجي #شارك #الجيش_البيض #آخر_خبر #كوفيد19 #اللقاح #العدوى #احكم_دارك #Corona #COVID-19 #Coronavirus #Urgent #Algeria #Algerie #Vaccin #Lockdown #Quarantine #Symptoms #the_white_army #contagion #stay_home
Number of collected posts before filtration	75
Fact Checkers	Google Checker toolbox.google.com/factcheck Misbar www.misbar.com Fatabayyano www.fatabayyano.net The Algerian Press Service www.aps.dz
The number of corpus items	40

Table 1. Criteria and Steps of Corpus Building

As shown in the table, 75 posts were in the results of the search on Facebook in different modalities (text, images, videos). Indeed, some posts share partially or fully the same content. For

that, a filtration process took place before creating the corpus. The online fact-checkers were used to confirm the quality of information.

Four trusted websites have been used: Google checker, Misbar, Fatabayyano and the Algerian Press Service (APS). It is important to include in the corpus only information that lack validity and accuracy. After filtration and verifying fact-checkers, forty items are chosen as the final dataset for the investigation¹. All these steps are within the pre-analysis procedure.

3. Research Methods

This study adopts a mixed-method approach in the course of factual and qualitative investigation of infodemic in Facebook. After describing the dataset to be studied, this part introduces both methods used briefly in their order of use.

3.1 Factual Analysis

Factual analysis is defined by Reid (2017) as the act of estimating the probability of a suspect's guilt or innocence based on investigative findings. In the sense of information dissemination, factual analysis is a method that focuses on the information and its context to prove whether it is true or false.

Lossau, (2020) emphasized the separation of the conceptual analysis from the factual one. The former is concerned with ordinary meanings, and the latter is concerned with questioning 'what' about whatever our language corresponds to in the world (p.92). This conception of the method has helped many researchers to use it as an initial method for their works that require fact-checking, be it mentioned in the research process or not.

¹ Data are available as screenshots online
<https://drive.google.com/drive/folders/ludcRoeUbDeofVp4daqEwVR3PFb-33vPv>

In this respect, the present research tends to factually check the information shared in terms of accuracy and validity. Language is a major key that leads to clarify the discourse's participants, intentions and reactions expected. This method contributes to categorizing of information according to their themes, intents and harms. However, in order to discover more about and interpret the incentives behind such intents and fabrication, a linguistic analysis should be conducted.

3.2 Qualitative Content Analysis

As a textual analysis method, Qualitative Content Analysis (QCA) has been defined differently. Mayring (2000) introduced it as an approach of empirical, methodological controlled analysis of texts within their context of communication. Thus, the analyst follows the content regardless to quantification. Another definition was proposed by Hsieh and Shannon (2005), who considered QCA as “a research method for subjective interpretation of the content of the text data through systematic classification process of coding and identifying themes or patterns.” (p.3)

The target data in QCA is text, and always contexts are considered systemically and analytically. Hsieh and Shannon (2005) contended that QCA is stretched to three forms: summative, conventional and direct. The latter form is adopted for the present research. It directly categorizes items within the content for systemic qualitative analysis. Linguistic features of the corpus will be studied through QCA by checking repetition of words, tone, inclusive and exclusive language, warnings, etc. More details on the procedure of analysis are provided in the following section.

4. Analysis Framework

After creating the corpus including forty Facebook posts, the researcher follows certain steps throughout the analysis. First, online fact checking is conducted through verifying the information validity and accuracy in the four fact-checkers mentioned earlier (Google checker, Misbar, Fatabayyano and APS). Most of these trusted platforms provide sources to facts and explain the reasons behind the dissemination of information. Yet, through critical reading of posts, the study provides extra explanations from the Algerian context.

Second, factual analysis is conducted after checking the fact source and the relevant infodemic instance in the corpus. Based on the model of Wardle (2017, p.49), a list of items is checked in the course of analysis. In this step, it is necessary to reveal the actor (the one who posted), the actor type (individual, organization, TV channel, etc.), intended audience, intent to mislead or harm, accuracy, and actions taken (reactions, comments, shares).

Finally, after checking the frequency of misinformation, disinformation and mal-information in the corpus, the linguistic features of posts are qualitatively analyzed in order to confirm the intention of misleading or harming. The focus is on the repetition of certain expressions, the use of adjectives, neologized lexicons, metaphors, implicature, and other stylistic features that contribute to the quality of information shared.

Conclusion

The present chapter has presented the methodological issues of the study. It started by the research design through mentioning the rationale of the research. Further, the research questions are posited to centralize the concerns of the study. The chapter also included a detailed description of the corpus created for the analysis. It is a body of forty COVID-19-related infodemic Facebook posts by Algerians. Besides, the methods of analysis were described. Finally, the chapter set the steps of treating data in the analysis. The latter will be practically clear in the following chapter.

CHAPTER THREE

DATA ANALYSIS & FINDINGS

Introduction

After the description of the research methods and the compilation of the corpus, the present chapter provides the analytical study of Facebook infodemic in Algeria. First, the factual analysis is presented with illustrations from the corpus. Second, the qualitative content analysis takes place. Several instances from the corpus are demonstrated in order to show their category, level of harm and qualitative insights. Third, the chapter contains an overall discussion of the results. At the end, some relevant recommendations are suggested.

1. Data Analysis

This section provides the analysis of the infodemic in Algeria by Facebook users. The corpus items will first be factually analyzed, then samples of different information disorders types will be qualitatively treated.

1.1 Factual Analysis

Based on the model of Wardle (2017, p.49), the researcher checked the phases of creating and distributing information in order to decide the level of harm and effect they cause. Posts by individuals were 25 (62.5%) and by organizations were 15 (37.5%). Additionally, official posts by TV channels pages were only 8 (20%) while the unofficial posts were 32 (80%).

Through the discourse presented and discussed (through comments and shares), and by the pragmatic features of posts, 29 (72.5%) posts had the intention to mislead. Information that held hate speech, discrimination or illusion tended to be harmful, and they are only 5 (12.5%). The following table demonstrates in details the statistical features of the factual analysis of infodemic from the corpus.

Criteria	Features in Posts		
	Actor:	Individuals	Organizations
25 (62.5%)		15 (37.5%)	
Actor type:	Official	Unofficial	
	8 (20%)	32 (80%)	
Intended Audience:	Members	Social Groups	Entire Societies
	3 (7.5%)	8 (20%)	29 (72.5%)
Intent to Mislead:	Yes		No
	29 (72.5%)		11 (27.5%)
Intent to Harm:	Yes		No
	5 (12.5%)		35 (87.5%)
Accuracy:	Misleading	Manipulated	Fabricated
	11 (27.5%)	18 (45%)	11 (27.5%)
Action taken:	Ignored	Shared in support	Shared in opposition
	8 (20%)	29 (72.5%)	3 (7.5%)

Table 2. Quantitative Distribution of Infodemic Features in the Corpus

After checking the validity and accuracy of the forty posts within the corpus through the four fact-checkers: Google fact, Misbar, Fatabayyano, and Algerian Press Service, three levels of accuracy were counted, and the manipulated type of posts were dominant. 18 (45%) posts were manipulated; 11 (27.5%) posts were misleading; and 11 (27.5%) others were fabricated. As table 2 demonstrates, the public reactions to posts were also taken into consideration. 29 (72.5%) posts included supportive reactions through maximum numbers of shares and comments with profile tagging. Besides, 8 posts received neutral comments and minimum numbers of shares. Only three

posts that received opposition with comments that provide facts, attack the action or notify people with the harm of the post.

Based on the factual analysis statistics, the following table summarizes the categorization of infodemic instances found in the corpus data.

	Misinformation	Disinformation	Mal-information
Number	19	16	5
Percentage	47.5%	40%	12.5%
Total	40 (100%)		

Table 3. Types of Information Disorder Found in the Corpus

The misinformation found circulated around the symptoms and prevention guides of the COVID-19 pandemic. Moreover, some posts delivered unverified information about government's actions during the quarantine. The major quality in the misinformation found is the rumor. As for the disinformation, qualities like discrimination, stigma and satire are found. The mal-informed content in the corpus includes the conspiracy theory and ineffective remedies for the prevention purposes.

Based on the factual analysis, the degrees of harm vary according to the type of information as well as the intents of the actors. Throughout the infodemic shared by Algerians on Facebook, the language was a key element that constitutes the realities, validity and integrity of information. In this respect, the following part qualitatively analyzes the content of several items from the corpus in order to confirm how the linguistic features could contribute to the verification of the infodemic and its effect.

1.2 Qualitative Content Analysis

In this part, we present some examples from the corpus and discuss the linguistic features within the content. A translated form of the content is presented in the caption cell.




Figure 2. Misinformation Example (Official)

Caption: Ivermectin Vaccine: Scientists from Australia *discovered* a vaccine that *destroys* coronavirus in 48 hours and *stops* its spread in the *body cells*. Dr. Cailey Augustov: “we found that *one* dose *can remove basically* all of RNA of the virus.” Now, search is made on determining the human efficacious dose to confirm that the level used in the lab is safe for humans. Source: AlHuraa, the American TV Channel.

The Algerian TV channel Echorouk hurried to post a misinformation full of content fails. Initially, allusion, which is the indirect reference of a figure, is apparent in the post when the doctor’s name was mentioned. Indeed, when a quote by a doctor -even an imaginary name- is delivered, the post will tend to have much validity. The underlined words in the caption refer to ambiguous or fabricated figures. One must question ‘what scientists?’ and ‘what lab exactly?’. Again, a contradiction is found in the use of one-dose effect and the progressive work on an

efficacious dose. When it is read in the source language, words like ‘discover’, ‘destroys’ and ‘remove’ were not the best choices.



Figure 3. Misinformation Example (Unofficial)

Caption: The project of the *largest* medical edifice to detect the Coronavirus in Setif. The room holds 1000 to 1500 chairs with 1.5m of inter-chair space. The project came by *an initiative of 24 associations* from Setif community, and it was approved by the mayor and authorities.

It was easy by different press agencies to debunk such an information. The word ‘project’ in the source language refers to a plan that will be achieved later. The announcement of this information is sarcastic because the Algerian authorities did not claim any plan to claim that it had been made in such a short period of time. Again, ‘the largest’ as a superlative adjective attracts the reader especially when they check the pictures. However, the word ‘initiative’ was delayed and the period of time was not mentioned. Besides, the figurative language contributed to

the ambiguity of the event. That is, a medical ‘edifice’ in the source language does not refer to a specific place like a hospital, a Clinique, or a treatment center.



Figure 4. Disinformation Example (Official)

Caption: Replying to Pasteur Institute: we received Pasteur institute’s reply with a great sorrow after a long waiting period. We -as the creatives’ organization team- know that it is not within the authority of the #Algerian Pasteur Institute to opine about the efficacy of the vaccine. We just wanted to reveal its pharmaceutical composition in order to start marketing for it. After finishing **initial actions**, we’ll move to **the competent authorities**. We **re-confirm** to all the Algerian people and the whole world, the vaccine discovered by our organization is **100% efficacious**, and it is a medication made by Algerian and Iraqi experts in our organization, and it was not only me who discovered it.

Mr. Loth Bonatero, organization head

#Share

The Algerian researcher Bonatero announced on several occasions that some Algerian and Iraqi experts could develop a medication for the novel coronavirus. On a TV interview, the aforementioned researcher claimed that he is ready to be prisoned if the vaccine would not work. The fact was screened yet the information was manipulated by some journalists and Facebook users. Bonatero used certainty in the text in bold. The italicized text denotes the tone of certainty about the efficacy of the vaccine despite the contradictions mentioned.

The actor used ‘we’ and ‘them’ to describe a battle of ideologies. The actor used also an inclusive language as in ‘our organization’ and ‘we’ excessively. This could misdirect the audience from the paradox made when the aim cited was to show the composition of the medication and the actor insists on its efficacy. From the post, one may notice the hurry that the actor lives in to market for the medication without clear references to names. The paradox of waiting from the institute and claiming to have no opinion was also posited implicitly. The closure of the text reflects how the actor is avoiding responsibility by including himself within a team. In addition, the hashtag used at the end is not usually formal or used in officially-verified content.



Caption: A *sudden* disappearance of sterilization vehicles + a *sudden* absence of

In this disinformation, the actor attempted to raise people's attention to an action that may have stopped for a while in their town or street and lead others to re-speculate about the absence of that health campaign. The actor used evaluative adjectives like “sudden” and “complete” before words like “disappearance” and “absence” and this made it an exaggeration. Also, there is an anaphoric structure in the source language of the post by repeating the words *اختفاء* and *غياب* twice as starting points in the sentences. This anaphora example with the negative tone does not represent a valid and objective information. Besides, the last sentence of the post did not reflect the risk level of the pandemic because it was made in April 2020, that is, it was still a starting health emergency case in Algeria.



Caption: The COVID-19 pandemic: a reality

Among the common unsubstantiated claims on several occasions is the conspiracy theory. The actors defending on the idea that there are planned events in the world use rhetorical devices to convince the audience that nothing happens without the early plan of the secret ruling system of the world. Rhetorical questions are used in this infodemic to lead the audience to watch the content and make imaginary interpretations for the origins of the virus. However, such news in Algeria may not have the same harm as in the virus home, China.

The following table provides some extracted contents from the corpus. The linguistic devices are cited along with descriptions of the impacts.

Excerpts	Linguistic Features	Effect on information
#لماذا_عدد_الوفيات_بِكورونا_كبير_في_الجزائر ? #Why is the number of Corona deaths large in Algeria?	Question, paradox	Opening the information with a rhetorical question makes the audience concerned about the content. Besides, the paradox is situational because the time of the post was in March 2020 when the case was not highly dangerous.
كوفيد 19 خدعنا جميعا all COVID-19 fooled us	Personification, satire	The actor provides a figurative description to re-think over the origins of the virus and let the audience speculate the purpose of the information.
الجميع يتحدث عن عقار افيجان نظرا لنتائجه الجيدة والجد مبهرة مع عدم وجود أي أعراض	Hyperbole, judgmental	The public is used as an agent to make it a hyperbole. Describing the vaccine

<p>جانبية</p> <p><i>Everyone</i> is talking about Avijan because of its good and <i>very impressive</i> results with <i>no</i> side effects</p>	<p>adjectives, certainty in negation</p>	<p>evaluatively and being certain of having no side effects determine how the actor is unaware of such viruses' cases. Yet, their intention seems to be spreading hope amongst the community members.</p>
<p>منظمة الصحة العالمية تؤكد حاليا أن الجزائر خارج دائرة الخطر وتعلن سيطرتها على فيروس كورونا وتتوقع عودة الحياة من جديد في الجزائر</p> <p><i>of danger</i> and The WHO currently <i>control</i> over the Algeria is <i>out</i> expects life to return announces its Coronavirus and to Algeria again.</p>	<p>Metaphors, paradox</p>	<p>This was posted in March 2020. It seems that the actor attempts to share hope but with false news. The paradox is situational because at that time official news claimed the rise of deaths and cases tolls.</p>
<p>الأقنعة الواقية اليوم بسعر ٠٠٢ دينار في الصيدليات خافوا ربي يا ناس الوقت وقت تضامن مش وقت الربح السريع.</p> <p>Protective masks today for 200 dinars in pharmacies. Fear my Lord, people, it is time for <i>solidarity</i>, not time for <i>quick profit</i>.</p>	<p>Generic phrase, juxtaposition</p>	<p>The actor here notifies the audience with the necessity to call for free masks. Being generic meant that all pharmacies sold them with that price.</p>
<p>متحور خطير يسمة هيهي يتوقع أن يقتل خمس ملايين</p> <p>A <i>dangerous</i> variant named <i>Hehe</i> is expected to kill <i>five million</i></p>	<p>Evaluative adjective, satire, hyperbole</p>	<p>The variant name was fabricated for fun. The number mentioned was not yet reached by the COVID-19.</p>
<p>بوناطيرو يقول أنهم لم يتركوه يجرب الدواء ولم يتركوه ينفذ الأشخاص</p> <p>Bonatero says that <i>they did not allow</i> him to try the medication, <i>nor did they allow</i> him save people</p>	<p>Ambiguity, generic phrase</p>	<p>Despite the factuality of what Bonatero claimed on TV, the post included 'they' as unknown agents. It was ambiguous in the generic choice of objects as well.</p>

Table 4. Some Linguistic Features and their Effects

The infodemic instances here represented several cases of exaggeration, manipulation, fabrication, misleading and detailed descriptions. Such content features misdirect the readers and listeners and contribute to conventional dissemination of any quality and level of information. Such features are considered as the main strategies that can convey mis-, and dis-information through the stylistic and linguistic devices. Among the major explained ones, we mention generic phrases, evaluative adjectives and figurative language.

Algerian sources of infodemic shared on Facebook varied from official to unofficial. Yet, the health information that is conveyed by Algerians on Facebook tended to be (over)simplified. Even official sources did not seem professional in delivering the information objectively. Less attention was paid to the neutral tone, preciseness, accurate terminology, etc. For that, the language of the fact has its intrinsic power of being free of personal attitudes, figurative aspects, useless repetition, paradox, etc.

2. Findings and Discussions

The present research revealed that misinformation is the major type of infodemic disseminated by Algerians on Facebook. The study also found that the integrity of information can be corrupted simply through the way actors deliver it. The language aspects contributed in several items within the corpus to the logical interpretation of whether the information is factual or not. The major linguistic features that had been extracted are figurative language, evaluative adjectives, generic phrases, and rhetorical devices.

Indeed, during the few first months of the pandemic and the health emergency case, it was difficult to check the factuality of some potentially harmful information. This is due to the novel nature of the virus, the lack of scientific evidence, and the daily-updated suggestions and

regulations from official organizations. The challenge to risk communicators is posed by the high uncertainties surrounding the pandemic.

Facts are not opinions, for that the majority of actors in the corpus were making predictions and influencing attitudes. Besides, the linguistic devices evoked the reader's critical thinking, provided information through different angles, and portrayed variant attitudes and judgments. Many of the debunked misinformation could easily be debunked by checking the language. Therefore, the linguistic features of the content analyzed contributed to shaping attitudes and assessing the validity of the information.

As occurred in the world, some statements, claims, and discussion of various theories related to the origin of SARS-CoV-2 and its malicious goals appeared among Algerians on Facebook. Only one item in the corpus that reflected on the conspiracy theory. Actors attempt to seem logical when mentioning past events in order to convince the audience that the pandemic is a fabricated event. The mal-information qualities come when doctors, presidents or public figures stand with such ideas to provide a seemingly-logical explanation for the crisis.

The infodemic in Algeria has been represented through various types of scams. The actors exploited people's fear of the coronavirus and the uncertainty surrounding the pandemic to disseminate unverified information. The themes of such mis-, dis- and mal-information were about the origins of the virus, symptoms, prevention guides, vaccines, the government's actions to manage the crisis, etc.

Major mal-information targets are tricking people, increasing their anxieties, providing them with false / ineffective remedies. In Algeria, less mal-information instances existed. Some families whose members died because of the virus believed unverified information and reacted

violently in hospitals. Some doctors were treated badly for the misconceptions that patients may have had about the disease. Yet, the mal-informed content in Facebook by Algerians was related to the conspiracy theory and remedies to fight the COVID-19.

As a way of portraying the Algerian cultural, social and linguistic features, some neologized words appeared with the coronavirus outbreak. Different structures and word classes of 'Corona' have been used in different dialects to ironically and satirically express information about the pandemic. For instance, يتكورن as a verb means to catch the coronavirus, مكورن as an adjective means being affected by the virus. Using such words in posts will surely indicate that no official/verified content is shared.

This study and other similar research may bring new insights into why Algerians believed different untrue information about the COVID-19. Understanding the reasons why people consume such information easily would help the immunization program and safety protocols be realized in the country.

Conclusion

The present chapter dealt with the analysis of infodemic posts on Facebook through two research methods: a factual analysis and a qualitative content analysis. After checking the types of information disorder and the level of their harms, some posts from the corpus were analyzed qualitatively. The analysis focused on linguistic features that contribute to the dissemination of the infodemic. Further, the major findings were presented and discussed.

General Conclusion

Not all the information we communicate are true. Indeed, people mislead, manipulate, fabricate and disseminate all qualities of information. With the advent of technology, communication has become easier, and the information can reach the whole world rapidly. Moreover, social media has allowed people to express themselves and contact one another easily. However, this weapon can be used negatively by some individuals and organizations. Intentionally or unintentionally, false/fake information can be disseminated and can affect the public opinion.

The present dissertation explored how Algerian users of Facebook disseminate mis-, dis- and mal-information about the COVID-19 pandemic. The objectives of the study also targeted the content and linguistic features that contributed to the (dis)factuality of information. The findings of the study revealed that misinformation is the most commonly disseminated type of infodemic by the Algerian users of Facebook. This confirms the first hypothesis of the research. Additionally, the linguistic features within the posts were clearly contributing to the depiction of the intended mislead or harm by the actors. This also confirms the second hypothesis of the study.

The methods of analysis adopted in this research are a factual analysis and a qualitative content analysis. The former was for the identification of the information type and effect. The latter descriptively explained how the language used in posts could reveal much about the actor's intentions, the post's validity and the way such features could reflect the level of harm caused by the shared infodemic.

This research included three chapters. The first chapter presented the theoretical background on information and infodemic. The second chapter dealt with the research design, corpus building, description of the methods, and analysis framework. The last chapter was devoted to data analysis and findings. It included the factual analysis as well as the qualitative content analysis of the infodemic examples on Facebook by Algerian users. The chapter also presented the discussion of the major results.

The corpus of this study may be considered as small, yet it could arrange various types of information with different levels of harm. It is recommended for further research on the same topic to be on a larger corpus, and why not a multimodal corpus that includes pictures and videos. The theme of information and language is mostly regarded from a single perspective. For that, language is not well-considered in similar research on infodemic.

However, official fact-checking associations and websites have depended on language to automatically detect the information and label them. Several platforms have been developed for such a purpose. The Algerian press service, unfortunately, announced that combating misinformation in Algeria is still traditionally-treated. For that, it is recommended that Algerian experts in computer science and language processing to create an online platform that provides facts and falsifies non-factual posts on social media.

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APPENDIX


These are some screenshots taken from public / accessible Facebook content by Algerian individuals and organizations. For the full corpus data, check this link

<https://drive.google.com/drive/folders/1udcRoeUbDeofVp4daqEwVR3PFb-33vPv>



Ennahar Tv الجديد 

December 2, 2020 · 

#تربية: 50 بالمائة تعويض تكلفة "تحاليل كورونا" و منحة تصل ل 50 ألف دج للمصابين 

#سلامتك_في_كماملك 



Ness El Médea - ناس المدية

July 30, 2021 · 

جمال بلعمرى يتبرع بـ 500 من مرخيات الأكسجين للمستشفيات والتي سيتم إرسالها يوم الجمعة. جمال انت فخرنا والله لا راجل وفحل غيور علي الوطن كم انت كبير يا بلعمرى 



March 30, 2020 · 

#هام

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