Government communication as a means to combat disinformation in Spain and Flanders: the case of Covid-19

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Abstract: The COVID-19 crisis was accompanied by an "infodemic" of disinformation on an unprecedented scale. Governments had to tackle the detrimental effects of disinformation on society by adopting various communicative strategies. This study uses a critical discourse analysis to investigate to what extent and in what ways government communication campaigns promoting corona vaccination in Flanders and Spain interacted with disinformation. First, the regional determinants of disinformation are considered, along with important theories and strategies of government and health communication. Consequently, a limited analysis of disinformation in Spain and Flanders is completed, followed by an analysis of the communication campaigns to observe whether the strategies were applied in the campaigns and adapted to the socio-cultural reality. The analysis indicates that the materials did interact with disinformation but that the strategies were only partly adapted to the context of the regions. It is concluded that governments need a deeper understanding and awareness of the nature of disinformation and its consequences on the population. This awareness allows to efficiently adapt communication campaigns and effectively fight disinformation through government communication.

Keywords: critical discourse analysis; disinformation; government communication; health communication

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1. Introduction

Disinformation is a phenomenon that has posed challenges for country leaders, administrations, and government institutions even before news reporting itself became an established industry, with observations about falsified or distorted claims being disseminated dating as far back as the sixth century AD (Burkhardt, 2017). However, in recent years and especially since the USA presidential elections in 2016, so-called "fake news" is perceived as a growing threat by international legislators (Gelfert, 2018). As the scientific literature on the phenomenon grows, it becomes clear that disinformation is a complex concept in which form and diffusion can vary from region to region based on several factors such as demographic features, communication habits, and citizens' trust in government, media, and scientific experts (Blanco-Herrero et al., 2021; Elías, 2020). In addition, it is increasingly identified as potentially harmful to businesses, society, and democracy (Tenove, 2020). The outbreak of the corona pandemic at the end of 2019 and the beginning of 2020 caused a surge in the dispersion and the awareness of disinformation. As the coronavirus spread worldwide, the World Health Organization (WHO) declared an ongoing "infodemic" of disinformation accompanying the health crisis. Fake news and misunderstandings were distributed on an unprecedented scale (WHO, 2020).

This "infodemic" left governments and their institutions with the challenge of counteracting the adverse effects of disinformation while considering the unique features of the phenomenon in their region (Sánchez

Duarte & Magallón Rosa, 2020). The academic literature points to government communication as a suitable and vital tool to oppose disinformation (Rzymski et al., 2021). During the corona pandemic, government institutions generally employed several communication strategies and distributed various communication campaigns, e. g. to promote vaccination. However, it remains unclear to what extent governments were aware of disinformation and incorporated strategies in their communication campaigns to counter this phenomenon.

This study attempts to address this gap in the literature by analyzing disinformation in two distinct regions, Flanders and Spain. Consequently, it investigates the interaction between the disinformation and the region's campaign materials to promote vaccination and compares the data from both territories. More specifically, it aims to answer the following research questions: «Do the government communication campaigns on vaccination in Spain and Flanders interact with disinformation? If yes, to what extent and in which ways?»To provide an answer to these questions, an analysis of a selection of disinformation in Flanders and Spain was executed alongside an analysis of the government campaign materials promoting vaccination. Special attention was given to the following subquestions: «What are the differences and similarities in the spread and subject of disinformation in Spain and Flanders?»; «What are the similarities and differences between the communication campaigns in Spain and Flanders?»

In the next section, we first provide an overview of relevant literature, which supplies the context and basis for the study.

2. Background of the study

2.1. Disinformation and COVID-19 vaccine hesitancy

According to the European Commission, disinformation is defined as: "false, inaccurate, or misleading information designed, presented and promoted to intentionally cause public harm or for-profit" (De Cock Buning, 2018, p. 10). Even though disinformation can spread fast, in large volumes, while covering all sorts of topics (Zhang & Ghorbani, 2019, pp. 2-3), it seems to impact only a limited group of people fundamentally (Tandoc, 2019, pp. 3-4). This group appears to be locked in so-called echo chambers on social media, in which the algorithm of an application only shows the user what they want to see. These chambers can be formed and reinforced through confirmation bias, meaning the «tendency to search for, interpret, notice, recall and believe information that confirms their pre-existing beliefs» (Bakir & McStay, 2017, p. 161). If governments attempt to address disinformation in their communication campaigns, it is essential to target the groups of people within their region that have ended up in these echo chambers.

Research has shown that disinformation can significantly impact the likelihood of a population getting vaccinated against COVID-19, as it can cause vaccine hesitancy (Ghaddar et al., 2022). Vaccine hesitancy is «a rejection, reluctance, or delay in vaccination despite the availability of efficacious vaccines» (Garett & Young, 2021, p. 1). Concerns may include possible side effects of a vaccine, the speed with which the vaccines have been developed, or disinformation such as the hoax that COVID-19 is an artificial virus. As a positive vaccine intent is needed for a person to get vaccinated, campaigns might want to focus on alleviating vaccine hesitancy rather than on countering disinformation (Rzymski et al., 2021).

2.2. Government and Health Communication

In general, government communication relies heavily on the communicative strategies developed within marketing communication, social marketing, and Public Relations (Weyts, 2016, p. 8). What differentiates government communication is the social value that communication by a government institution is supposed to bring. A subgenre of government communication that focuses heavily on this social responsibility is communication for behavioural change. This communication genre tries to solve social issues by stimulating the population to adapt its behaviour (Pol et al., 2009, pp. 15-17). For this reason, communication for behavioural change is also common within health communication. For this communication to be successful, it is important to take into account the following strategies.

Target group segmentation

The environmental and personal determinants of a specific behaviour differ for every person. Consequently, every message recipient is unique and can be convinced to exhibit behaviour differently. It is impossible to cater a message to the specific characteristics of every reader, nor can a government use the same message for its entire target audience (Haustein & Hunecke, 2013). Therefore, so-called target groups with similar characteristics need to be identified and addressed. Which segmentations are the most relevant should be determined based on the socio-cultural context (Weyts, 2016, pp. 53-54).

Choice of medium

According to the Elaboration Likelihood Model, a theory for behavioural change, planned behaviour, such as receiving the COVID-19 vaccine, is subject to strong arguments (Petty & Cacioppo, 1986). Processing arguments takes time; hence texts that can be processed for more extended periods of time, such as flyers and posters, are more efficient. An advertisement on TV or radio is less suitable because of the fleetingness of the media. Nevertheless, these advertisements may draw attention to other communication materials and may evoke emotions. As such, they may be more relevant for those initially uninterested in the topic (Pol et al., 2009, p. 69).

Influencing attitude

The most relevant strategies to influence attitude are improving knowledge, persuading and structuring the message. The lack of knowledge is clearly linked to disinformation, as the spread of false information leads to wrong assumptions about the vaccine (Rzymski et al., 2021). To improve knowledge, it is essential that the information comes from a source that is perceived as credible and competent, and the information is seen as relevant (Pol et al, 2009, p. 120). In addition, persuasive techniques based on strong arguments such as perceived susceptibility, severity, benefits and barriers play a vital role in tackling vaccine hesitancy (Burke et al., 2021). Through a mechanism of emphasis framing, that is placing the focus on those specific aspects of a situation that encourage certain interpretations and discourage others, the reality is simplified, which enhances the influencing potential of the message. Another persuasive technique is the use of emotional appeals (WHO, 2017, p. 29). Negative emotions should be handled with care as the pandemic has already aroused emotions of fear and anger in certain individuals. However, since disinformation minimizes the effects of COVID-19, fear appeals may be highly useful to those apathetic toward the vaccine and unaware of the dangers of not vaccinating. Finally, structure plays an essential role in influencing behaviour. This can be achieved by organizing the text with discursive, multimodal and interactive elements (Bouvier & Machin, 2018). Also, the language used should be accessible and culture and gender inclusive. A well-structured, comprehensible and attractive text is essential for those with a lower level of education. This group also tends to be more susceptible to disinformation (Shmueli, 2021).

Creating trust

Trust is another vital element in health communication. If people do not trust the person communicating, they are less likely to believe the message (Shore, 2003, pp. 13-14). This is especially true in the case of vaccine hesitancy and disinformation (Ozawa et al., 2016). According to the WHO, governments must focus on six factors in their communication to create and maintain trust: competency, objectivity, fairness, consistency, sincerity, and faith. People should be under the impression that the communicators are competent and objective. In addition, the provided information must be fair. It must reflect all sides of the argument. Messages must be consistent. Information within the campaign materials cannot be contradictory. The communicator also must come across as sincere. Transparent communication is key here. Finally, the population must be able to have faith in the communicator. This can be achieved by expressing empathy and listening to the population's concerns. In addition to these six factors, the message must be communicated in an easy-to-understand language. Furthermore, the message must be repeated regularly, even when no new information is available. Building trust is an ongoing process that requires constant communication (WHO, 2017, p. 25). The process of building trust has become more complex over time. Whereas decades ago, governments were able to make a decision and enforce it, they now must focus on building support for their policies (Weyts, 2016, p. 107). The rise of social media has given more power to the audience to select which information they want to process. Therefore, a bigger effort must be made to engage the population. This can be achieved by using multimodal texts by including images and infographics and interactive elements, such as links to websites and social media or phone numbers (Bouvier & Machin, 2018).

2.3. Socio-cultural and institutional context of Flanders

Flanders covers the northern half of Belgium and has Dutch as its administrative language which is also a native language for the majority of the 6,65 million inhabitants (Statistiek Vlaanderen, 2021). Although research on disinformation in Flanders is scarce, there is evidence that it is small but growing, especially since the coronacrisis and mainly among younger and right-wing individuals (Newman et al., 2021; Willaert et al., 2021). Regarding the relationship between disinformation and vaccine hesitancy, the results of two national surveys in 2020 indicated that antivaccination messages and a lack of trustworthy information on vaccination are directly quoted as reasons for vaccine hesitancy (University of Antwerp et al., 2020a; De Motivatiebarometer, 2020). The lower the level of education of the respondents, the lower the vaccination intent, both for themselves and for their children. Women and younger people, especially those between 18 and 24 years of age, seemed all the more reluctant. Regarding trust in the government, the Motivation barometer (2022) showed a negative trend in trust in the government both amongst the vaccinated and the unvaccinated. Because of the split responsibility between the regional and federal levels of government, the Belgian healthcare system is a constant source of confusion and irritation. For example, when the pandemic took a foothold in Belgium, it became apparent that no less than nine ministers were responsible for handling the health crisis and healthcare in the country (Arnoudt, 2020). Faith in the government to address the pandemic dwindled in the first few months of the corona crisis (University of Antwerp, 2020b). By January 2022 (the start of the vaccination campaign for 5–11-year-olds), only 33% of the vaccinated and a meagre 3% of the unvaccinated believed the government was competent to handle the corona crisis. Tendencies in trust in the government mirror those of vaccine hesitancy and belief in disinformation, with those with lower education and those under 50 exhibiting lower levels of trust. However, the lower government trust did not seem to impact the Flemish belief in scientific experts, as they were given a very high score in a survey by the University of Antwerp (2020b). Once more, though, trust was higher in those with higher education. Trust in the news media can also be linked to vaccine hesitancy and belief in disinformation (Ghaddar et al., 2022). Trust in the media in Flanders is higher than in many other European countries, with 61% of the Flemish population indicating that they trust the overall news coverage of the media (Newman et al., 2021, p. 66). However, women and those with a lower level of education again show lower levels of trust. Also, there

seems to be a negative correlation between mainstream media consumption and the tendency to believe disinformation and vaccination hesitancy (Motivationbarometer, 2021). Therefore, campaign material should also be spread via other media.

2.4. Socio-cultural and institutional context of Spain

In Spain, disinformation has been studied more extensively than in Flanders. It seems that belief in disinformation is more widespread in Spain, with 57% of Spanish respondents indicating that they had believed a piece of information that later turned out to be false compared to 45% of Belgians in an Ipsos study (2018, p. 16). Researchers fear most for young adults who use social media and messaging applications more frequently, encounter disinformation often, and at times lack the skills to recognize disinformation (Herrero-Diz et al., 2021). With respect to vaccine hesitancy, disinformation is cited in various studies as a determining factor (Eguia et al., 2021; Iguacel et al., 2021; Rodríguez-Blanco et al., 2021). Women, those under 60, those with a lower level of education, and those with a right-wing political affiliation tended to be more refusing of the vaccine. Regarding trust in the government, the turbulence in Spanish politics is visible in the lack of it the Spanish put in their government. According to the Eurobarometer in the spring of 2021, only 22% of Spaniards trust their government compared to an average of 37% across the EU and 41% in Belgium (European Union, 2021a; European Union, 2021b). The same barometer showed that 39% of the population was "satisfied" with how the national government handled the pandemic and the measures taken. The average for the EU is 53%. The numbers for the regional governments were more comforting, with 56% being satisfied with the measures taken on a regional level, compared to an EU average of 61%. Furthermore, unlike the situation in Flanders where the trust in scientific experts is high, the trust scores for scientists in Spain are somewhat contradictory. The Reuters Digital News Report of 2021 puts trust in scientists and medical professionals at 7.81 out of 10 (Newman et al., 2021). Yet, a European Council on Foreign Relations survey puts trust in scientific experts at only 21% (Krastev & Leonard, 2020). An explanation for these results might be that the Spanish population does not trust scientists from government-funded scientific institutions, as they might be perceived as being too closely related to the untrustworthy government (Elías, 2020). Finally, the average trust in the media in Spain is low relative to the European average (Newman et al., 2021, pp. 102-103). Also, the trust scores of Facebook and Whatsapp surpass those of some of the least trusted mainstream newspapers (Newman et al., 2021, p. 103). This is concerning considering that these two channels can be regarded as the main dispersers of disinformation (Blanco-Herrero et al., 2021, p. 9).

3. Methodology

3.1. Critical discourse analysis

Critical discourse analysis is a qualitative research method based on the idea that texts are undeniably connected with the context they are produced in. As a result, a textual analysis cannot be performed without considering this context (Fairclough, 1989, 2012). The critical discourse analysis studies the text, the context, and the interaction between the two. In practice, the method is used to study various topics such as power relations and societal change through discourse (Huckin et al., 2012).

A critical discourse analysis is performed on three levels: the macro—, meso— and microlevels. The macrolevel studies the socio-cultural context of the text and how the text functions within this context, which in this study is determined by the influence of disinformation in both societies. The mesolevel lists the characteristics of the discursive genre(s), namely government health communication, and inspects whether and how the text displays these characteristics. The microlevel constitutes an in-depth analysis of the text's linguistic persuasive features, such as word choice and grammar. While critical discourse analysis traditionally has a textual focus, this study will also include multimodality and interactivity, given the hybrid nature of the data (Bouvier & Machin, 2018).

The program for qualitative research Nvivo (version 1.6.1) was used to perform the discourse analysis. The content of the theoretical framework was translated into a code tree containing parameters. All files from the corpora (cf. next section) were then carefully coded for the relevant parameters. A second coder analysed 10 entries (5 Flemish and 5 Spanish) from the government communication corpus to ensure that the coding was accurate. Consequently, the interrater reliability for these files was determined by calculating the Cohens Kappa coefficient for each parameter. For all parameters Cohen's kappa was over 0.80, which is considered almost perfect agreement (McHugh, 2012).

3.2. Data

Two separate analyses were performed to come to conclusions about the interaction between disinformation and communication materials on vaccination. To this end, two corpora were gathered: one corpus containing articles on disinformation from fact-checking websites and one containing campaign materials from the government vaccination campaigns in Flanders and Spain.

The corpus on disinformation contained a total of 64 entries (Table 1). All entries were gathered from websites performing fact-checks of disinformation for a period of three months. As an ending point, the beginning of the vaccination campaign for children in both countries was selected. For Flanders, data was collected from October until December of 2021. For Spain, this was September until November 2021. Articles were collected from three Flemish fact-checking websites VRT NWS (5), Knack Factcheck (15) and Factcheck Vlaanderen (5). Since more material was available from Spanish fact-checkers, only two websites were selected: Maldita.es (29) and Newtral (10).

Table 1. Overview of the corpus on disinformation per region and fact-checker

Region	Fact-Checker	Number Of Entries
Flanders	VRT NWS	5
	Knack Factcheck	15
	Factcheck Vlaanderen	5
	Total	*25*
Spain	Maldita.es	29
	Newtral	10
	Total	*39*
Total		64

The corpus of government communication materials contained 103 entries, of which 51 entries were distributed by the Flemish government and 52 by the Spanish national and regional governments. All entries were collected from government websites in December of 2021. For Flanders, this was the Flemish information page on vaccination laatjevaccineren.be. Since fewer materials were available from the Spanish national government, for Spain pages from all autonomic regions were checked for campaign materials, and eventually entries from the national government (16), Aragon (4), Catalonia (19), Canary Islands (1), Navarra (7) and Basque country (5) were selected. The materials from Catalonia are in Catalan. All other materials are in Spanish. Materials, in general, covered both vaccinations for adults and children and contained a variety of text types. For Flanders, the corpus included: 16 videos, 4 radio commercials, 20 posters, 4 flyers and 7 folders. For Spain: 25 videos, 6 radio commercials, 19 posters and 2 folders. As such, both corpora present a mix of online and offline media. The division of the text types per region can be found in Figure 1 and Figure 2. It should be noted that the analyses were based on the format of the files, as the actual dissemination of the corpus entries could not be confirmed. Hence, a file classified as a TV commercial might have been spread via social media as well.

Figure 1. Text types corpus government communication Flanders
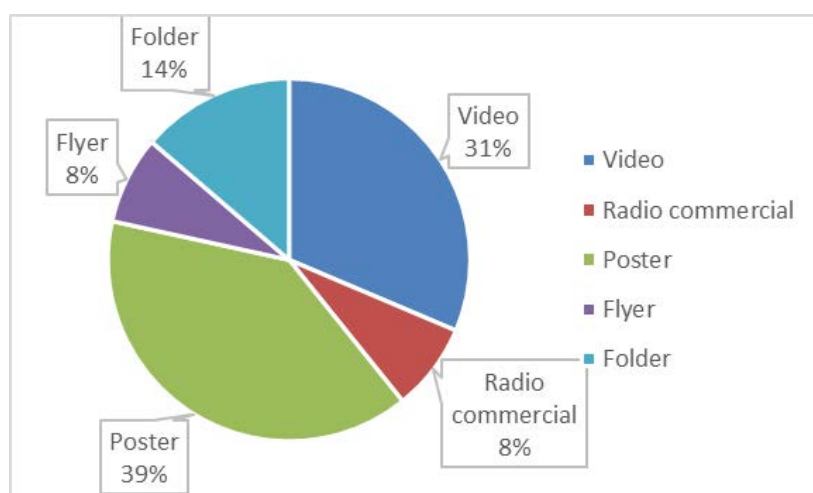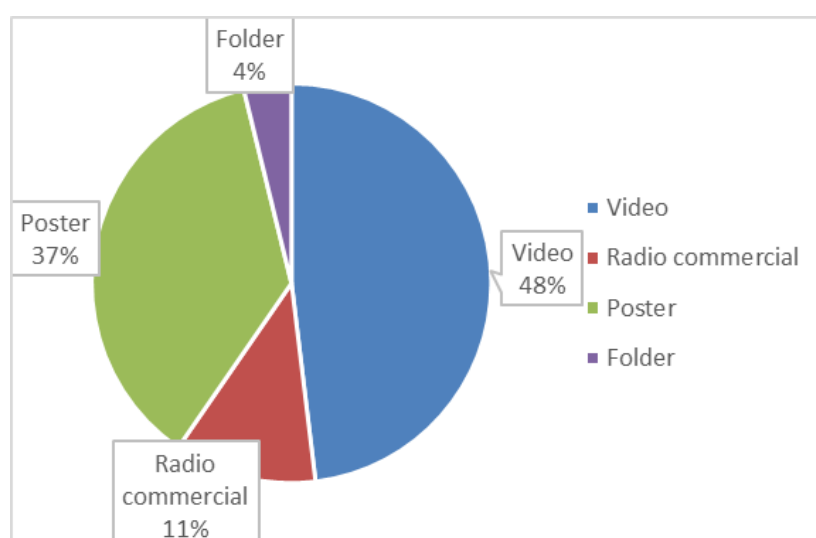

Figure 2. Text types corpus government communication Spain

4. Results

4.1. Disinformation

The corpus containing disinformation delivered interesting information on the spread of disinformation both in Flanders and Spain. The Flemish corpus showed a clear trend of disinformation on social media. Especially Facebook, Twitter and Youtube, proved to be popular channels. Messaging applications such as Telegram and Whatsapp were only indicated as a source of disinformation in a small minority of the articles. A large majority of the articles in the Flemish corpus referred to false information about the side effects of the corona vaccines. The most extreme side effect quoted was death, yet many side effects ranging from cancer and AIDS to infertility and miscarriage were found. A smaller number of articles quoted disinformation on the efficiency of the vaccine.

The Spanish corpus on disinformation confirmed Spain's more general spread of disinformation. Articles referenced social media, messaging applications such as Telegram and Whatsapp, and websites as three significant sources of disinformation. This confirmed that social media and Whatsapp are common sources of disinformation in Spain, as was advanced in section 1.3. Also, the Spanish entries covered a wider range of topics that could be subdivided into three categories: side effects of the vaccine, politics, and the production process of the vaccine. As in Flanders, death was the most common falsely quoted side effect. Disinformation on politics referred to false quotes by politicians, presumed bans on vaccines, and the hoax that the vaccine contained a tracking chip. Disinformation on the production process was related to the vaccine's ingredients and its packaging and transportation.

4.2. Macrolevel

Regarding the interaction between the campaign materials and the disinformation corpus, the Flemish materials addressed disinformation topics mostly indirectly. Multiple folders, flyers, and some posters and videos contained a section on the vaccines' possible side effects. The following text was on multiple flyers:

> (1) Zijn er bijwerkingen? Dat kan, maar ernstige bijwerkingen zoals een allergische reactie zijn zeldzaam.
>
> *Are there any side effects? There may be, but serious side effects such as an allergic reaction are rare.*

As the theoretical framework indicated that youngsters might be more susceptible to disinformation, it was expected that they would be targeted in at least part of the corpus. However, this targeting was usually achieved using images of young people only, without adapting the textual information (see example 2).

(2)

In contrast with the Flemish materials, the Spanish materials addressed fewer disinformation topics, but in a more straightforward manner. The material from Catalonia contained a video and a poster detailing «how to recognise fake news» (See example 3). There were also more subtle references, such as a poster from Navarra assuring readers to «consult official sources to inform "themselves"».

(3)

Also, the Spanish materials for youngsters were targeted more strongly and contained text that was specifically catered towards a younger audience. Especially the national government's testimonies by Irene and Germán were fully adapted for youngsters. The national campaign contained a video, radio commercial and poster in which the two students talked in a highly personal manner about their experience with COVID-19 and why they chose to be vaccinated.

(4) Me llamo Germán Gómez y soy estudiante. ¿Cómo no nos vamos a vacunar? Después de todo el confinamiento, de las clases del insti online, de no ver a mis amigos. La verdad, vacunarse ni tan mal. En casa están todos vacunados y yo no me la quiero jugar. Lo que está claro es que la vacuna funciona. Ahora nos toca a nosotros. Yo me vacuno, seguro.

My name is Germán Gómez, and I am a student. How can we not get vaccinated? After all the confinement, after all the online classes, after not seeing my friends. Actually, getting vaccinated is not so bad. At home, everyone is vaccinated, and I don't want to risk it. What is clear is that the vaccine works. Now it's our turn. I will get vaccinated, for sure.

As for vaccine hesitancy, this was amply addressed in both corpora. Reassurances that the vaccine is safe were common. In fact, the materials could be divided into two categories: short texts that mainly functioned as a cue to action, and longer texts that were meant to provide information and arguments in favour of vaccination. In Spain, however, the information on the vaccines was not always easily accessible because of the, at times, complicated language. For instance, the video excerpt below featuring a scientific expert is clearly not adapted to a lay audience.

(5) Pues, la protección se genera como lo he dicho. Los linfocitos B y los linfocitos C generan anticuerpos, intervienen los T helper, intervienen muchos tipos de células, otras células que sirven para exponer los anticuerpos. No se sabe cuánto tiempo van a ayudar.

Well, the protection is generated as I have explained. The B and C lymphocytes generate antibodies, the T-helpers intervene, many different types of cells intervene, other cells serve to expose the antibodies. They do not know how long they will help.

With respect to trust-building strategies, the Flemish corpus went all out for consistency and repetition. The same slogans, with slight adaptations based on the target audience, and the same government logos were repeated in all files. In Spain, in addition to the national government, several local governments designed their own communication campaign. The Spanish corpus on government communication contains materials from various Spanish regions as a result. Consequently, these separate campaigns do not deliver a consistent

message to the reader. Different slogans, logos and messages can be found in different regions. Furthermore, regarding the use of healthcare professionals and scientific experts as messengers to increase credibility, this strategy was mainly present in the Spanish corpus. Surprisingly, the high trust in Flemish science and healthcare was only minimally exploited in the campaign materials. Images of medical and scientific professionals were used as a targeting device rather than a way of increasing trustworthiness on the basis of authority.

4.3. Mesolevel

At this level special attention is given to those strategies of government communication that can be used to battle disinformation. With respect to target group segmentation, the Flemish materials could be divided into 5 main groups: general audience, parents and children, elderly, youngsters and health care workers. There was minimal overlap between the different groups, although much of the information was the same, hence the consistency cited in 3.2. A noteworthy observation is that targeting based on gender seemed absent despite the fact that according to the theoretical framework Flemish women are especially prone to vaccine hesitancy. In the Spanish materials the overlap was more important, as most texts were suited for a general audience. Another stark difference between the Flemish and Spanish materials concerns the references to cultural minorities, which are present all throughout the Flemish corpus. Several posters have a woman wearing a hijab or a man or a child with a darker skin tone. Remarkably, the Spanish materials feature references to indigenous cultural groups by providing materials in local languages, but foreign cultural minorities are not included. The reassurance that the vaccines do not contain pork (and as such are haram) is the only acknowledgement of cultural minorities in this corpus.

For a campaign that wants to stimulate health behaviour, strong arguments matter. Hence the importance of the choice of medium given the fact that longer texts, that can be reread over and over, are most efficient to stimulate argent-based reflection. These permanent texts can be supplemented by texts of a more fleeting nature, such as TV and radio commercials. In the Flemish corpus about 60% of the materials were categorized as being of a permanent nature (posters, folders, flyers). However, some of these seemed to serve primarily as an eyecatcher while the long videos in the fleeting category revealed to be highly informative. Furthermore, all Flemish materials included the encouragement to visit the government website, providing the possibility to consult not only thorough information of a permanent nature but also updated with the most recent information, a benefit none of the other materials could offer. The Spanish materials were also divided into texts of a fleeting and permanent nature. As for the Flemish corpus, this division was not entirely relevant, as not all texts showed the typical characteristics of the category they belonged to. Many videos were over 2 minutes long and often contained detailed information on vaccination. Most of the posters, on the other hand, included minimal information. One very noticeable absence in the Spanish campaign materials concerned references to information sources of a permanent nature. For texts of a fleeting nature to be truly efficient, it is wise to include a link to a source of a permanent nature in the material. This happened in only 13 texts, most of which were of a permanent nature already. This means that there were many texts of a fleeting nature or short texts containing only limited information that did not include a reference to a source of a more permanent nature (See example 6). This might discourage those that are hesitant about vaccination.

(6)
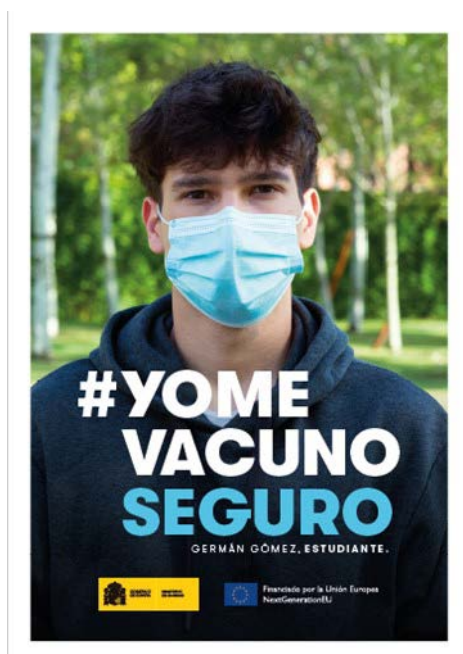
A third strategy that was laid out in the theoretical framework is the use of framing and argumentation to influence the behavioural intention. The Flemish campaign materials commonly used arguments for percei-ved benefits and for perceived barriers. As such they attempted to influence the attitude towards vaccination primarily by pointing to the positive benefits of vaccination or by minimizing the barriers that people might experience. Typical benefits mentioned were the protection that the vaccine brought, and that people could

resume their normal lives if enough people were vaccinated. Barriers were commonly minimized by stressing that the vaccine was safe and free, and that vaccination was a quick process. Therefore, most arguments were gain-framed (see example 7).

(7) Door je te laten vaccineren voorkom je dat je COVID-19 krijgt. Bovendien bescherm je zo niet alleen jezelf, maar ook de medebewoners, familie en het zorgpersoneel. Hierdoor krijgt het zorgpersoneel meer ademruimte om jou de beste zorgen te geven. Een brede vaccinatie zorgt ervoor dat we de strenge corona maatregelen geleidelijk kunnen loslaten. Dat we weer opgelucht kunnen ademhalen. Opnieuw kunnen samenzijn, onze geliefden kunnen omhelzen en ons leven weer kunnen oppakken.

By getting vaccinated, you prevent yourself from getting COVID-19. Moreover, by doing so, you protect not only yourself but also fellow residents, family members and care staff. This gives the care staff more breathing room to provide you with the best care. A broad vaccination ensures that we can gradually let go of the strict corona measures, that we can breathe a sigh of relief again, can be together again, embrace our loved ones and resume our lives.

Moreover, most of the Flemish texts contained a cue to action and thus tried to influence behavioural intention. The cues to action to be vaccinated were often softly worded orders such as "Je laten vaccineren is het beste plan, zodat het leven straks weer starten kan." (Getting vaccinated is the best plan, so life can start again soon.) What's noteworthy is that the campaign did not only tell people to get vaccinated but also to inform themselves and go to the information page laatjevaccineren.be. The cue to action here was not to be vaccinated but to be informed about vaccination and make a conscious choice. The order "Kijk op laatjevaccineren.be" (Look at laatjevaccineren.be) or a variation was the most common cue to action in the corpus. A link with disinformation became apparent here.

As well as in Flanders, arguments referring to perceived barriers were common in the Spanish texts. Most of these arguments contained reassurances that the vaccine was safe and that side effects were limited. These arguments were so prevalent that the slogan of the national campaign, #YoMeVacunoSeguro (Sure, I will be vaccinated), even incorporates a reference to the safety of the vaccine by playing with the double meaning of the word 'Seguro', which means both 'sure', and 'safe'. Arguments for perceived benefits were the second most used but were relatively less frequent. Most of the arguments were gain-framed, although loss-framed arguments were more common than in Flanders. Unlike the Flemish corpus, the Spanish materials stressed the effects of vaccination on society the most. Often, vaccination was portrayed as a gesture of solidarity that could protect society from further harm first (see example 8). Less attention was given to the vaccination's protection for the individual or their direct environment, which prevailed in the Flemish corpus. Finally, the Spanish corpus contained significantly more texts that serve as a cue to action than texts that provide information.

(8) ¿Qué por qué me vacuno?
Lo prometo por mis pacientes, por mis padres, por mi hermano que tiene cáncer, por cortar las cadenas de transmisión y poder abrazar les de nuevo.

Me vacuno por los hosteleros, por los bares de viejo.

Me vacuno porque quiero volver al Sadar e ir a animar a Osasuna.

En definitiva, me vacuno por responsabilidad y sobre todo para salvar vidas.

Why do I get vaccinated?

I promise it for my patients, for my parents, for my brother who has cancer, to cut the transmission line and to be able to embrace them again.

I vaccinate for the innkeepers, for the old bars.

I get vaccinated because I want to go back to the Sadar and cheer Osasuna on.

In short, I get vaccinated out of responsibility and, above all, to save lives.

4.4. Microlevel

At the microlevel the analysis focused on readability, accessibility, the use of emotions and the engaging nature of the materials, as these were identified in the theoretical framework as key principles for behavioural change. Two online readability tools allowed to determine the readability of the texts: Tscan for the Flemish texts (Van der Sloot et al., 2020) and Legible (Muñoz Fernández, 2019) for the Spanish ones. The entries in Catalan were excluded from the analysis since no reliable tools were found for this language. Since both applications returned diverse results, two relevant parameters featured in both were selected, namely word length (letters per word) and sentence length (words per sentence), as it is assumed that texts with longer words and longer sentences are (usually) harder to read (Meade & Smith, 1991). Although conclusive research on the average word and sentence length in Dutch does not exist, the average word would be anywhere between 5 and 10 letters long, depending on how data is gathered (Brandt, 1984, p. 122). An average sentence should be between 15 to 20 words long. It is discouraged to use sentences shorter than 10 words and longer than 25 words (Onze Taal, 2021). The average word in the Flemish corpus was no longer than 5.28 letters. The average sentence was 10.72 words long. Only one text exceeded the advised sentence length of 25 words. This means that, in general, the Flemish texts should be relatively easy to read for most audiences, including those with a lower level of education. According to Frías Delgado (2009, p.761), the average word length in the Spanish dictionary is 9.16. The average sentence length in

advertising Spanish texts is about 11 words (Rey, 2010, p. 144). The average word in the Spanish corpus was 4.78 letters long, and the average sentence was 9.35 words. However, some outliers in the corpus have much longer sentences. 3 texts have an average sentence length that is longer than 26 words. These texts are the videos with experts as a messenger. According to these parameters, the texts in the Spanish corpus should be easy to read for most audiences. However, the three entries with longer sentence lengths might be less accessible. Regarding accessibility (diversity and inclusion), a small number of the Flemish vaccination materials were available in various other languages, such as French, German, and English, but also languages such as Arabic, Spanish, and Turkish. This way, at least part of the information could also be accessed by minority groups in Flanders. Some of the videos also contained subtitles. They were only available in Dutch but allowed those that are hard of hearing to understand the message. For those that are analphabetic, have difficulty reading or have a limited command of the Dutch language, there were some texts in visual language or simplified Dutch. In the Spanish corpus no specific intent to enhance the accessibility of the materials could be observed, apart from providing the same materials both in Spanish and the local languages such as Catalan, Euskera, Gallego and Valenciano, including in the use of subtitles. Only the materials from Aragon were available in foreign languages, such as English, Chinese and Romanian. Some videos also had a sign language interpreter in the bottom corner.

To detect the use of emotions, the 100 most frequent content words in the corpora were coded for their emotional connotation, be it neutral, positive, or negative. Once again, the texts in Catalan were excluded from the analysis as they distorted the frequency results for the Spanish corpus. The results indicated that the Flemish corpus contained more emotional words than the Spanish materials. Words with a positive connotation (such as safe, protected and playing) and words with a negative connotation (such as ill, virus, and contagion) were equally frequent. While the Spanish materials contained more neutral words, those words with an emotional undertone tended to have a negative connotation, such as pandemic, risk and disease.

Finally, the materials were analyzed for their engaging nature, such as elements of interactivity, modality and structure. The Flemish vaccination materials proved to be highly interactive. Almost all texts contained an interactive reference. In addition, the Flemish materials were also highly multimodal. Many texts contained visual elements such as pictograms and images and, in the case of the materials aimed at parents with small children, also some cartoons. The multimodality of the campaign was reflected in the two pictograms that were the main feature in all texts of the corpus, the pause and play buttons that symbolise how life was on pause during the corona crisis and how vaccination allows the people to continue their lives (see example 9). Regarding structure, the longer texts used paragraphs, bullet points and headers. Also, they started and ended with arguments for perceived benefits, which is in line with the literature on government communication that suggests that the better arguments should come at the beginning and at the end as that is when they are best retained (Pol et al., 2009).

(9)
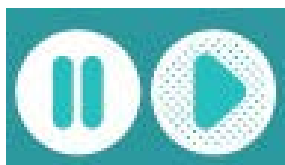
The Spanish government texts were, on average, less interactive, less multimodal, and less structured. About half of all texts contained an interactive reference. Hyperlinks were most common. Some texts contained a QR code, telephone number or advice to contact a doctor (Example 10). The number of multimodal elements was smaller. Images were still most common and were present in about two-thirds of the texts. Far fewer texts contained pictograms or cartoons. One text contained an infographic. When spacing was considered, it became apparent that the texts used fewer structuring devices than the Flemish materials. Only a quarter of the texts had paragraphs. Even fewer ones contained headings. Only five texts included bullet points. This observation may be explained by the many short texts that did not call for structuring devices such as paragraphs. Based on this information, it was concluded that the Spanish corpus materials were less engaging and structured than the Flemish entries.

(10)

5. Discussion and conclusions

The results of this study provide evidence for the theory that disinformation is subject to the peculiarities of each region in terms of subject and spread (Biswas et al, 2021; Burke et al, 2021). The analysis of the corpus of fact-checking articles disclosed that the nature and dissemination of disinformation about vaccination differ somewhat between the two studied areas. Whereas the articles from both regions addressed disinformation about the side effects of the vaccines, the Flemish articles also reported the efficiency of the vaccines. In contrast, the Spanish articles focused on the production of the vaccine and the political management of and involvement in vaccination. Disinformation was commonly spread via social media and websites in both regions, but the high prevalence of disinformation meant that it was more widespread in Spain.

On the macrolevel, both corpora displayed awareness of the challenge of disinformation as they explicitly mentioned disinformation to some degree. Especially the Spanish campaign regularly acknowledged "fake news" or disinformation. The Flemish materials amply covered the most common topics from the disinformation corpus. However, both corpora only partly succeeded in taking the socio-cultural context for disinformation into consideration. Although according to the literature the level of (dis)trust in the political system, the mainstream media, the healthcare system, medical experts, and scientists all influence the tendency to believe in disinformation, the Flemish campaign failed to exploit the high trust and authority in healthcare experts in the region, while the Spanish corpus showed inconsistencies, which according to the literature inhibits trust-building. Trust in politicians and the governments is low in both regions, but trust in the health-care system and non-government scientists is high (European Union, 2021b; De Motivatiebarometer, 2020). In light of this, the choice of the Flemish campaign no to use healthcare professionals as a source of authority but merely to target these professionals themselves, seems like a missed opportunity. Instead, the materials explicitly mentioned that they were part of a government campaign. Sometimes texts contained as many as three government logos. This might have been emphasised less. The Spanish corpus, on the other hand, regularly used scientists and medical professionals to deliver the message. Here, the high Spanish trust in the healthcare system and non-government scientists was successfully exploited. However, in this corpus different information from both the national and the local governments was provided in different materials. A choice could have been made to let either the local governments or the national government distribute all materials, so the audience would not encounter inconsistent materials.

On the mesolevel, both regions thoroughly applied the most important principles and theories of government and health communication, as was proven by the targeting of segmented groups, strong argumentation, and the conscious combination of texts with an informative function and function as a cue to action. However, these principles were only partly adapted to the practical reality in society created by disinformation. In the Flemish corpus, targeting was often limited to the use of an image and minor textual adaptations. The groups more susceptible to disinformation and vaccine hesitancy were addressed in only a few entries. As a result, the texts may not have been as appealing to the targeted group as intended. The Spanish corpus targeted vulnerable groups more often, but a surprising observation was found. There were almost no references to cultural minorities in the corpus materials. Whereas the Flemish texts contained multiple images of people with Middle Eastern or African features, no such images could be found in the Spanish materials. One text containing a reassurance that the vaccine does not contain pork was the only element that addressed cultural minorities. By contrast, ample content acknowledges the various Spanish ethnic groups, for example, by providing content in local languages. This finding is remarkable as Spain can be considered a highly multicultural society. In 2021, no less than 15% of Spanish citizens was foreign-born (Instituto Nacional de Estadística, 2021). Furthermore, there is some evidence in the literature on disinformation that these cultural minorities are more susceptible to disinformation and vaccine hesitancy (Roozenbeek et al., 2020). Therefore, the examined materials failed to identify and acknowledge a vital target group which may have been detrimental to the campaign's success.

There may be several explanations for this conclusion. One line of thought is that the government communication campaigns were designed to raise general awareness for vaccination and reach as large an audience as possible. This may explain the large number of texts serving as a cue to action and the superficially targeted materials or materials containing information most suited for a general audience. Achieving behavioural change in those most hesitant to be vaccinated may not have been a goal of the campaigns or only a secondary objective. A second cause may be that at the point in time when the campaigns were launched, there was not enough information available to fully understand the implications of disinformation for the population. The gaps in the literature on disinformation in Spain and Flanders may confirm this train of thought. A third explanation is that the information about disinformation was present but that it was not efficiently incorporated into the government campaigns. This would mean further training of those responsible for the communication campaigns may be needed, or reforms are needed to streamline the communication. The inconsistencies in the government materials in different regions in Spain are an example. Whatever the explanation, the theoretical framework indicated that disinformation is a large and growing disturbance to Flemish and Spanish societies. This merits efficient strategies to tackle disinformation through communication. For this, a deeper understanding of the nature and socio-cultural context of disinformation is needed.

Furthermore, during the analysis a remarkable contrast in the argumentation of the two government campaigns became apparent. This may uncover a new socio-cultural dimension that was not considered in the theoretical framework. In Flanders, most of the arguments referred to the individuals themselves or their close environment, by listing the benefits of vaccination for the individual, for example. In Spain, more

arguments referred to the effects on society. Vaccination was commonly portrayed as an act of solidarity that impacted the population as a whole. This discrepancy hints at a more profound cultural difference between the two regions. "Culture" is a difficult concept to define, as are the intuitive differences between cultures. To allow the comparative study of cultures, Hofstede (1983) developed his Cultural Dimensions Theory, in which nations are scored on 6 dimensions. One of the dimensions, the Individualism versus Collectivism dimension, may explain the contrast in the argumentation between Flanders and Spain, as Belgium scores significantly higher than Spain on individualism (75 vs. 51; Hofstede, n.d.).

On the microlevel, the discourse analysis demonstrated that the Flemish corpus materials were highly interactive, multimodal, and well structured. As a result, the Flemish texts were highly engaging for the readers. An analysis of the 100 most common content words in the corpus revealed more words with an emotional connotation than in the Spanish corpus. Emotional language may draw the attention of less committed readers but can also be detrimental to the trustworthiness of the communication (World Health Organization, 2017, p. 29). The Spanish materials returned the opposite results as they showed lower interactivity, less multimodality, and more limited use of structure than the Flemish materials. This means that overall, the texts were less engaging. Nevertheless, the texts were more objective since they contained fewer content words with an emotional undertone. This objective style emanates more trustworthiness. In short, on the microlevel, the corpora show different strengths and weaknesses. The Flemish texts are highly engaging but may be perceived as less trustworthy, whereas the Spanish texts are less engaging but can be perceived as more trustworthy. In an ideal scenario, both dimensions are strongly represented in all materials to encourage behavioural change effectively.

Finally, there were several limitations to this research. Firstly, several remarks can be made about the corpora used for the analysis. The corpus containing government communication consisted of materials from only one region for the Flemish corpus but multiple regions for the Spanish corpus. The Spanish materials were naturally more inconsistent. However, this choice was made to ensure that the corpus was sufficiently balanced as significantly more materials were available from the Flemish government than from the Spanish national government. The lack of information on how the materials were disseminated proved to be an analytical barrier that might have been overcome by contacting the respective governments. However, as both regions have an intricate government structure, finding and contacting all responsible agencies and obtaining the necessary information was not realistic within the scope of this study. Moreover, the scale of the research was very limited as only one campaign from each region could be studied.

Notwithstanding these reservations, the results of this study undeniably show that governments need a deeper understanding and awareness of the nature of disinformation and its impact on the population. Such awareness would allow government communication campaigns to be designed efficiently and disinformation to be combated effectively. It is the responsibility of applied linguists and communication professionals to advise and assist governments in this endeavour.

Author CREdiT Contribution

Order of authors according to 'Sequence-determines-credit' approach (SDC). All three authors declare that they have participated in the conception and design, or in the acquisition of data, or in the analysis and interpretation of the data of the work that has resulted in the article; have participated in the drafting or critical revision of the text; have approved the version that will finally be published.

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