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ENGAGEMENT STRATEGIES ON MEDICAL YOUTUBE CHANNELS

Abstract

The study focuses on the strategies of engagement employed by medical doctors in YouTube videos. The goal of the analysis is to investigate multimodal strategies used in selected videos on the most popular medical YouTube channels in Poland. The study is conducted against a theoretical background that considers previous research on engagement strategies in science and popularization discourse (Hyland 2010; Luzón 2015, 2019; Sokół 2018). Engagement strategies involving reader pronouns, directives, questions, shared knowledge as well as humour, expression of opinions and emotions are investigated, as well as headings, visuals and music. The analysis reveals that medical doctors employ a vast array of diverse engagement strategies which do not form a unified set of practices across the channels. The differences concern the frequency and type of strategies, such as the use of headings, visuals, special effects and music. The study also reveals considerable differences between the videos as to the degree to which the authors exploit the affordances of the audio-visual medium. The formats of the videos comprise both the more traditional, such as slides with a voice-over, as well as more novel approaches, such as presentation films. The strategies employed show that the authors attempt to form a distinctive and recognizable style of interaction with the audience.

1. Introduction

The advent of online technologies and media has influenced to a considerable extent health and medical communication, by the incorporation of new channels of

communication and new means of expression. This contributed to a significant transformation in the traditional participant roles with regard to the exchange of medical knowledge. As previous studies have observed (Luzón 2015; Sokół 2018), the major change involves a movement away from a top-down approach in which laypersons are only receivers of the content produced by the practitioners, towards an equality approach, in which collaboration and interaction between both groups is possible and indeed highly desired. The novel approach is possible online in the main because new communication media provide access to different sources of information, allow interaction and an exchange of knowledge among diverse audiences (cf. Luzón and Pérez-Llantada 2019: 9).

YouTube is one of the most popular global internet platforms in use nowadays.[1] Its popularity is undoubtedly associated with the variety of the content it offers, with channels owned by both professional and amateur YouTubers, as well as institutions and the mainstream media. The platform has also become an important means of interaction within the fields of medicine and health. YouTube is used in health promotion for both lay-professional and professional-lay interactions, as well as in both specific and more wide-ranging medical education. It is a platform that allows an exchange of knowledge and information between healthcare experts, patients and those simply interested in the subject.

The present study focuses on the strategies of engagement employed in medical videos on the platform. The aim is to identify and compare the strategies used in selected videos on popular Polish medical YouTube channels. The goal is also to determine how the different focus, structural organization and overall number of subscribers influences the engagement practices employed in the videos. An additional purpose of the analysis is to elicit if the participatory and interactive character of YouTube enhances the employment of different strategies of engagement. It was hypothesized that the wide array of affordances offered by the platform, comprising different modes of expression on the one hand and the proliferation of channels, as well as the competition between the creators on the other, cause YouTubers to search for new solutions in order to engage with the audience, enhance the attractiveness of the content, and stand out in order to gain viewers and rise within the ranks of popularity and visibility on the platform.

The outline of the paper is as follows. The first two sections introduce the phenomenon of science and health communication on YouTube and provide a short review of previous research on engagement in scientific and medical interaction. This is followed by the presentation of the material and a discussion of the findings with specific engagement strategies discussed individually. The paper closes with the conclusions from the investigation.

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[1]   YouTube has around 2 billion users worldwide [available at: https://www.globalmediainsight.com/blog/youtube-users-statistics, accessed: 16 March 2023], and around 20 million active users in Poland [available at: http://www.portalmedialny.pl/art/58400/youtube-w-liczbach-ponad-20-mln-uzytkownikow-w-polsce.html, accessed: 16 March 2023].

2. Science and medical videos on YouTube

YouTube has had a considerable influence on the phenomenon of science communication in general, and medical communication in particular. Its success in those areas results from the above-mentioned diversification of content and the participatory nature, with YouTube allowing both experts and amateurs to participate in the communication (Brossard 2013; Boy et al. 2020). The participatory format of the platform also results in it being more independent of gatekeeping and agenda setting practices typical of the traditional mainstream media.

Extensive research has already addressed science communication on the platform, with studies considering such aspects as the role of the platform (Kousha et al. 2012), the influence of its participatory character on science communication (Dubovi and Tabak 2020), and the motivations behind watching online science videos (Rosenthal 2018, 2020). Studies have also analyzed differences between user-generated and professionally generated content (Welbourne and Grant 2016; de Lara et al. 2017), with the success of amateur YouTubers resulting from the style of content presentation and their interactive approach to the audience. It has been suggested that amateurs' videos tend to be more popular since such authors frequently present the content in a more creative, more authentic, and indeed more entertaining manner (Welbourne and Grant 2016). Amateur YouTubers usually address and interact with the viewers in both the videos and the comments sections, inviting viewers to make suggestions, requesting subscriptions, and responding to the community of users in order to appear more approachable (Welbourne and Grant 2016).

Research has also been undertaken on the types and structural characteristics of science videos on YouTube. The study by Muñoz Morcillo et al. (2016) identified the most popular science channels and determined the most frequent trends influencing the videos. The analysis found a wide variety of genres and subgenres among the videos including the following: traditional media formats, such as documentary, reportage, animation, as well as novel formats, such as entertaining monologue, question-answer or whiteboard video and live experiment. The most frequent formats comprise short documentary, animation and reportage. A more recent study by Boy et al. (2020), analogically to the research by Muñoz Morcillo et al. (2016), identified videos based on both traditional television formats and novel genres. The former comprise narrative explanatory films (diversified, combining animations, interviews, narrative and informative components) and expert films (presenting researchers and their work), whereas the latter include animations and presentation films (with the scientist addressing the audience in a monologue). The researchers suggested that it is mainly the genres which exploit the participatory affordances of the platform, i.e. presentation films, that are particularly popular and successful. Their popularity, the authors claim, is a sign of a change in the trends and preferences within science communication, which currently favours more personal, interactive and entertaining forms of expression (Boy et al. 2020).

In contrast to the wide-ranging analyses relating to YouTube science videos, less research has considered medical communication on the platform. Studies addressing health communication on YouTube have mainly focused on analyzing the quality of the videos, the credibility of the broadcasters and the disseminated information, as well as the usefulness of the channel in promoting and educating viewers about general and specific health conditions (e.g. Pandey et al. 2010; O'Mara 2012; Pant et al. 2012; Gabarron et al. 2013).

3. Multimodality and engagement

Multimodality, broadly speaking, refers to the incorporation of different modes, that is semiotic resources, in the process of meaning creation. Modes comprise visual (image, moving image, writing) and auditory (sound, speech) resources. Research on multimodality emphasizes that different modes may be chosen and used in the process of meaning-making depending on the context of the communication. Such factors as the channel of communication and the participant structure may play an important role in the selection of semiotic resources (Jewitt (ed.) 2009; Kress 2009: 54; Jewitt 2013).

The concept of engagement in written texts, as introduced and defined by Hyland (2001), is "an alignment dimension" (Hyland 2005: 176) associated with relating and connecting with the readers, acknowledging their presence and recognizing them as participants in the discourse. Engagement strategies allow the author to interact, create or confirm common ground and trust, as well as arouse interest and entertain. Hyland (2005) identified five main strategies of engagement, i.e. reader pronouns, personal asides, appeals to shared knowledge, directives and questions. The analyses concerning engagement strategies have focused on a range of discourses and genres, including not only academic discourse, but also legal and business discourse, as well as popularization texts (Hyland 2005, 2008; Lafuente-Millán 2014; Pilkington 2018; McLaren-Hankin 2019; Sala 2019).

The advent of online communication has triggered interest in the engagement strategies employed in online genres. The studies mainly focused on weblogs, a genre that is particularly popular in the context of science communication and popularization, primarily owing to its characteristics and participant structure. Blogs are said to combine public and personal spaces, enabling a connection with diversified audiences, establishing a public forum for discussion, but also allowing the blogger to create a personal link with the audience (Luzón 2013; Mehlenbacher 2019; Freddi 2020). Luzón (2013) investigated engagement strategies in science blogs and demonstrated that scientific knowledge may be successfully recontextualized by not only organizing the content in a specific way and tailoring the information to the needs of the audience (e.g. through using visuals to convey information, comparisons, explanations, examples from daily life), but also by engaging the reader in various ways (e.g. through pictures, questions, positive/negative evaluation, inclusive pronouns and references to those reading the text, self-disclosure, as well as references

to popular lore). Engagement within science blogs was also investigated by Freddi (2020, 2021). Using corpus linguistics methods, the author studied such discourse properties as self-expression, subjectivity, immediacy and audience involvement. The analysis revealed questions, second person pronoun references to the readers, and directives, which serve to signal interactivity and engagement typical of spoken conversation, were present to a significant degree. The study also showed that signals of interactivity are especially frequent in the comments sections, which the author attributes to their interpersonal function as responding utterances.

The development of online means of communication and online genres has raised questions about engagement realized multimodally. Zhang (2019), for instance, investigated the visual resources of engagement in websites and showed that website users may be engaged by means of different semiotic resources, e.g. by image, colour or sound. The author observed that the variety of malleable semiotic resources enhances the entertaining potential of the content.

Research has also considered engagement strategies used in multimodal genres, such as videos. The strategies were, for instance, investigated as part of Luzón's (2019) analysis of science videos. Following her previous research, the author investigated the recontextualization of scientific knowledge in online science videos, with a primary focus on the multimodal strategies employed to achieve this purpose. Engagement strategies were identified alongside other strategies of recontextualizing knowledge for a wider audience, that is the strategies to establish a group's identity, construct persuasive arguments and tailor information to the audience's needs. The strategies to engage the audience encompassed such categories as creating intimacy and dialogic involvement (by means of the inclusive *we*, references to viewers, questions), attracting or focusing the audience's attention, raising interest (by means of images, statements or a problem to solve), as well as expressing feelings. Engagement strategies were also analyzed by Xia and Hafner (2021), who focused on TED Talk videos. The study indicated that in this genre of popularization videos such modes of communication as speech, gesture, gaze, visuals, and types of shot constitute important tools in engaging viewers.

Similarly to the studies of engagement in online genres within a scientific context, most of the analyses considering medical communication have also focused on the weblog genre. Among the studies in this area it is worth mentioning Luzón's (2015) analysis of medical weblogs, where engagement was once again investigated as a means of recontextualization of medical knowledge. The author applied the classification of strategies identified in her previous research (Luzón 2013) to determine the means of popularization used in medical researchers' weblogs. The strategies of popularization comprised tailoring information to the users' needs (e.g. links, visuals, explanations, comparisons and metaphors) and engaging readers (e.g. as using pictures, questions, markers of positive and negative evaluation, inclusive pronouns, references to readers, personal expression of opinion). With respect to engagement strategies it was found that these help the readers to understand the importance of scientific research and, more significantly, to encourage medical practitioners to apply the results of research in their daily practice. Moreover, strategies of engagement

served to establish a relationship with the blogs' readers, construct communality and "thus align readers' interests and views with their own" (Luzón 2015: 348).

The study by Luzón (2015) served as the basis for an analysis conducted by Sokół (2018). The author investigated recontextualization strategies employed by health-care practitioners in Polish medical weblogs. Sokół (2018) extended the above-mentioned list of recontextualization strategies identified by Luzón (2015) to include additional means of popularization. As a result, the strategies used to tailor information also incorporated the structural organization of posts, with the strategies to engage the reader broadened to include the use of epistemic and deontic modality, meta-textual expressions, references to a blogger's medical practice, humour and irony, as well as a choice of newsworthy topics to be covered in the blog. Both these studies underlined the importance of engagement in popularization discourse and proved that a variety of means of engagement is applied across weblogs. It was shown that popularization and engagement are closely connected with self-expression and self-disclosure on the part of the bloggers. The studies also revealed certain differences between the weblog corpora, mostly concerning the frequency of the strategies. It was observed that healthcare practitioners apply conversational discourse features more frequently and make more references to readers in their blogs. By contrast, medical researchers more often employ explanations, exemplification, comparisons and simplified language. This shows that the concern of the latter group is not so much centred around building intimacy and interaction with readers, but rather around educating their audience.

4. Engagement in medical YouTube videos

4.1. Materials and methods

The study draws on previous classifications of strategies used to engage the audience in popularization discourse on science and medical weblogs and videos (Luzón 2013, 2015, 2019; Sokół 2018). As part of the analysis the use of strategies in both the visual (writing, image, moving image) and auditory mode (speech, sound) was investigated. More specifically, strategies such as reader pronouns, directives, questions, informality, evaluation, expression of opinions and emotions were examined, as well as the use of sound, embedded images, and strategies used in the moving image mode. The investigation of the use of these modes was designed to assess the degree to which the authors exploit the affordances of the audio-visual channel.

The material for the following analysis was collected from popular Polish medical YouTube channels: *Najprościej mówiąc* (NM), *Doktor Michał* (DM), *Brodata Medycyna* (BM), *Instalekarz* (IL), *Paweł Ziora* (PZ). With the exception of the NM channel, which features other actors, the authors are the only presenters in the videos. Ten videos from each channel were selected based on their popularity determined through the number of views. The films were collected in the period between October and December 2022. The choice of the channels was motivated by a number of factors. First, only channels created and authored by certified medical doctors

were selected. Second, only standard, full-length videos were included and such sub-genres of videos as reaction videos, lives, question-answer videos or shorts were not taken into consideration. Table 1 presents the most relevant characteristics of the channels.[2] The channels differ in certain respects: their general popularity, structuring, focus, and potential intended audience.

Most of the channels underline that their primary aim is to share medical information and knowledge in an interesting or entertaining way. Some of the authors additionally emphasize their wish to discuss health knowledge in a clear and accessible manner (example 1); in particular cases this included their own perspective, thus expressing a personal rather than expert viewpoint (example 2). The intended audience comprises the general public, viewers interested in issues concerning health and medicine, but also patients and medical practitioners or students. The latter group appears to be the primary audience of the BM channel (example 3):

(1) Medycyna nie musi być nudna i chcemy pokazać ci ją taką, jaką jest naprawdę. Przydatną, logiczną, ciekawą, a przede wszystkim dostępną dla każdego. (NM)
'Medicine does not have to be boring and we would like to show it to you as it really is. Useful, logical, interesting, and, above all, accessible to everyone.'

(2) Celem mojej działalności w portalach społecznościowych jest w prosty, logiczny i jak najmniej medyczny sposób edukowanie pacjentów z zakresu medycyny i profilaktyki oraz przemycanie wiedzy zdobytej jako mama. (IL)
'The aim of my activity on social media is, in a simple, logical and rather unmedical manner, to educate patients about medicine and prophylaxis, as well as smuggle in my knowledge obtained as a mother.'

(3) Spróbuję opowiedzieć ci o najważniejszych chorobach, diagnostyce i leczeniu, razem dotrzyjmy do LEKu. (BM)
'I will try to tell you about the most important diseases, diagnostics and treatment – together we will study for the medical licensing examination.'

Although the PZ channel fails to provide any information concerning the purpose of the channel, its focus on offering detailed discussions of complex medical and biological phenomena appears to be directed at students and practitioners, as well as patients interested in gaining professional information concerning the conditions from which they suffer.

The channels utilize different genres in the videos, employing a narrative explanatory, presentation or a more traditional slideshow format, and apply the above-mentioned structures to a different extent. The NM channel diversifies the structure of the videos, employing and merging various genres, such as presentation films and narrative explanatory videos. The most frequent genre on the IL and DM channels is the presentation film format, with the author speaking to the audience directly in front of the camera. The slideshow lecture format is the most frequent on the BM and PZ channels, comprising videos evoking a traditional lecture supported by a slide presentation. Videos on the BM channel are mostly slide-based with the speaker's voice-over.

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2 Data as of 12 March 2023.

Channel	Number of subscribers	Min/max length of videos	Min/max number of views	Genre	Primary intended audience	Primary focus
Najprościej mówiąc (NM)	213,000	6–13 min	60,000 – 1,4 m	narrative explanatory films presentation films hybrid narrative explanatory and presentation films	diversified general audience laypersons patients	popularization of health knowledge, medical conditions, disease prevention
Doktor Michał (DM)	54,000	2–16 min	3,000 – 1,1 m	presentation films	diversified general audience laypersons patients	popularization of health knowledge, medical conditions, disease prevention
Brodata Medycyna (BM)	39,200	6min – 1h25min	3,000–50,000	slideshows with voice-over	students practitioners patients	dissemination of knowledge and information about diseases, medical conditions, treatments
Instalekarz (IL)	22,600	3–14min	2,000–350,000	presentation films	diversified general audience laypersons patients	popularization of health knowledge, medical conditions, disease prevention
Paweł Ziora (PZ)	8,700	25min- 1h30min	1,000–74,000	slideshows with speaker or voice-over	students practitioners patients	dissemination of knowledge and information about medical conditions, treatments

Table 1: Channels analyzed in the study

The videos adhere to a standard structure that is typical of YouTube science videos, as identified in previous research (e.g. Muñoz Morcillo et al. 2016). Structural components comprise the following segments: intro, main body and outro. The standard moves found in the intro include a greeting, the self-identification of the speaker and an introduction of the main topic of the video. The sequence aims to attract the viewers and encourage them to watch the video. For example:

(4) Witam serdecznie. Dzisiaj porozmawiamy sobie o domowych sposobach leczenia zapalenia zatok. (DM)
'I would like to welcome you to our discussion. Today we are going to talk about methods for treating sinusitis at home.'

The main body comprises the presentation, followed by a discussion, of the main subject matter of the video. The outro serves as a conclusion, featuring end greetings, appeals to the audience to like, subscribe and comment:

(5) Dzięki bardzo za ten odcinek. Zapraszam do obejrzenia innych odcinków na kanale. A jeżeli chcesz być na bieżąco, zasubskrybuj kanał klikając w guziczek. Możesz również zostać moim patronem i wesprzeć mnie w tworzeniu filmów. Do zobaczenia. (BM)
'Thanks very much for [watching] this video. I invite you to watch other videos on my channel. And if you want to keep up-to-date, subscribe to the channel by clicking the button. You can also become a subscriber and support me in creating videos. See you.'

Both intro and outro moves are crucial from the perspective of engagement as they play an important community building role, performing the function of attracting the audience, encouraging them to watch the video and inviting them to join in further interaction. Such a composition of sequences has been observed in previous research (e.g. Frobenius 2011; Muñoz Morcillo et al. 2016) and points to a degree of conventionalization in the structuring of these moves across the platform.

4.2. Engagement strategies in the videos

The present study has followed the data analysis approach implemented in previous research studies (Luzón 2013, 2015, 2019; Sokół 2018), with particular attention being paid to the classifications proposed by Luzón (2019). The number of posts in which the strategies occurred was counted, rather than the total number of occurrences, due to the different lengths of the videos and the diversification of the strategies within each video. The strategies used in the videos comprise both the practices previously identified in relation to other genres, as well as novel strategies associated with the context of YouTube. The latter include the use of slides, special effects, stylizations, diversified settings, props and sound. Table 2 presents the classification and the occurrence of the strategies identified in the corpus. They have been classified into three broad categories to reflect their most conspicuous functions. However, the categories are not exclusive and many of the strategies can be seen to perform several functions, as will be shown in the following sections.

Examples of each of the categories and strategies will be presented below.

	NM	DM	BM	IL	PZ
Creating intimacy and dialogic involvement					
Forms of address and references to viewers					
Second person singular perspective	8	7	6	8	5
Second person plural perspective	10	10	10	10	10
First person plural perspective [inclusive-*we*]	10	10	10	10	10
Nominal address terms	5	4	2	3	3
Questions	10	10	9	10	8
Directives	9	7	10	6	10
References to personal experience	2	4	5	3	4
Informality	10	7	10	6	10
Expressing opinions and emotions					
Positive and negative evaluation	6	5	2	5	4
Personal expression of emotions	8	6	8	7	5
Attracting the audience and enhancing interest					
Interesting topics of videos	10	10	0	7	0
Embedded images/animations	8	5	0	6	0
Headings	10	7	0	6	0
Humour and irony	7	4	2	2	3
Slides	0	0	10	0	10
Special effects	10	6	0	5	0
Stylizations	10	7	0	5	0
Diversified settings	10	5	0	6	0
Props	10	8	0	6	0
References to popular culture	8	5	0	4	0
Sound	10	9	6	9	4

Table 2: Engagement strategies in Polish medical YouTube channels

4.2.1. Creating intimacy and dialogic involvement

a) Forms of address and references to viewers

The forms of address in the analyzed material comprise both second person singular and plural address forms, first person plural forms, as well as other ways of referring to the audience.

Second person forms of address, according to Hyland (2005: 182), constitute the most obvious way in which the addressee's presence may be indicated in discourse. These forms, typical of popularization discourse, enhance conversational intimacy, as a result of which the speakers may advance the degree of closeness, engagement and interactivity (cf. Zou and Hyland 2019: 726). YouTubers address the viewers using both second person singular and plural forms of pronouns and verbs, which are distinguished by different forms in Polish. The choice of the second person singular form may help the speaker to individualize their communication, as the message appears to be addressed to a specific viewer (example 6). Second person singular address forms are often used in contexts in which the authors discuss common

symptoms, practices and behaviours associated with health. In this case, the form may be interpreted as a generic *you*, meaning 'anyone' (Freddi 2020: 24), as in example (7). The speakers also address their viewers by means of the second person plural pronouns and forms of the verb. These forms indicate the existence of a community of respondents, a community of viewers and followers of the channel (example 8).

(6) Koniecznie zajrzyj, jak nie oglądałeś, bo może znajdziesz odpowiedzi na swoje pytania. (IL)
'Do have a look if you didn't watch it, because maybe you'll find answers to your questions.'

(7) Jeżeli zupełnie wykluczysz go z diety, to twój organizm i tak go sobie wytworzy.(NM)
'If you completely remove it from your diet, your body will create it anyway.'

(8) Zaraz wam wrzucę ten filmik, żebyście mogli się uczyć. (PZ)
'I will upload this video for you [2ND P. PL] so that you [2ND P. PL] can study.'

The use of the first person plural forms of address (including pronouns and forms of the verb) were the most frequent in the corpus across all the channels. As observed in previous studies (Hyland 2005, 2008; Luzón 2013), the use of the inclusive *we* helps the authors to establish a bond with the audience and claim solidarity. The form allows the authors to weave the standpoints of the potential viewers into the discourse and yet articulate their own interests (Hyland 2005: 182), which is particularly relevant in the context of medical communication. In the videos, the first person plural address underlines a sense of belonging to a common group, but a sense of belonging seen from different perspectives.

In most of the cases the speakers highlight aspects which the addressees may find familiar (Hyland 2005: 183), and thus express communality with the viewers as human beings with similar bodies, suffering from or experiencing analogous symptoms and engaging in similar behavioural practices (example 9) In selected cases (as in example 10), first person plural forms are used to underline unity with other medical practitioners, intended as the primary audience of the channels.

(9) Dużo lepiej kojarzymy różne rzeczy, dużo lepiej łączymy i wyciągamy wnioski. To wszystko może się nam przydać w każdym wieku. (DM)
'We associate different things much better, we connect and we draw conclusions. All this can be useful for us at every age.'

(10) Musimy włączyć leczenie farmakologiczne od razu. (BM)
'We must instigate pharmacological treatment at once.'

The frequency of the first person plural forms in popularization and science argumentation results from the fact that they help to guide readers through an argumentation to a preferred interpretation (Hyland 2005, 2008). The use of such terms of address functioning in this way is particularly noticeable in the analyzed corpus. The first person plural forms are used in both argumentation and explanation when referring to body processes and medical conditions:

(11) Zajmiemy się budową nefronu, przyjrzymy się procesowi filtracji kłębuszkowej. (BM)
      'We will address the structure of a nephron, we will look at the process of glomerular
      filtration.'

References to viewers also encompass different nominal forms, including, for example, the form *państwo* [formal V-address form]. This practice signals a transfer of
terms typical of a traditional formal address used in official relations, in such genres as, for instance, formal lectures. The form *moi drodzy* 'my dear [viewers]' evokes
a less formal relationship and may help to establish closeness. The bloggers also address particular groups of users with their advice (example 14):

(12) Życzę państwu żebyście nigdy nie cierpieli na żadną z tych chorób. (DM)
      'I hope that you do not suffer from any of these diseases.'
(13) To jest tyle, moi drodzy, co wam chciałem pokazać. (PZ)
      'That's all, my dear [viewers], that I wanted to show you.'
(14) Drogie panie, pokażcie ten film waszym mężczyznom. (NM)
      'Dear ladies, show this video to your menfolk.'

The first and second person plural address forms proved to be the most frequent
across all the channels, whereas the second person singular and nominal terms occurred less commonly.

b) Questions

According to Hyland (2005), questions involve the audience, invite engagement and
raise the addressee's interest. They serve as engagement strategies across different
genres, encompassing popularizations, text books, as well as academic papers. Questions constitute one of the most frequent engagement devices on the analyzed channels. The acts are used at the beginning of the video to structure the presentation and
establish the content. The speakers introduce the topic, raise a list of questions and
promise to provide answers during the course of the video. This helps the authors attract the viewers' attention and encourages them to watch the whole video. In several
cases, the authors open the video with a series of questions, which may additionally
attract the audience, promising a broad and detailed discussion of the phenomena
in question (example 15). Questions are also used in the main body of the videos to
introduce a topic or problem (as in example 16). The authors ask questions which in
an unmediated dialogue could be asked by the audience. In such cases, the response
to the question posed follows immediately, which may help to draw the viewers more
into the argumentation (Zou and Hyland 2019: 728).

(15) CRP. Co takiego jest i po co w ogóle się to wykonuje. Dzisiaj postaram się rozwikłać
      tą łamigłówkę. (IL)
      'CRP. What is it and why is it done? Today I will try to resolve this puzzle.'
(16) Ciepłe okłady. Jakie zrobić? Przede wszystkim można zrobić je bardzo prosto. (DM)
      'Warm compresses. How to make them? Surprisingly, you can make them very easily.'

As observed before, in science blogs questions may engage users as they promise answers relevant to the users' lives (Luzón 2013: 449). This is especially noticeable in the

context of medical videos, where the questions concern medical conditions, diseases or procedures. Similarly to blog posts, questions fulfil an interpersonal function in the videos, helping the authors to enhance immediacy and the dialogical orientation of the discourse (Zou and Hyland 2019: 728). Questions also decrease the level of formality and increase the dynamic character of the presentation, which can maintain the interest of the audience.

The use of question tags is also worth mentioning, and these are particularly frequent on the BM channel:

(17) Np. tętnicę podobojczykową czy coś, tak? (BM)
      'E.g. the subclavian artery or something, right?'
(18) Mimo, że zakrzepicy nie ma, nie? (BM)
      'Although there is no thrombosis, right?'

The use of question tags clearly reflects the dialogical orientation of the monologue. Their use assumes the presence of an active listener following the presentation and the speaker's argumentation, with the aim of seeking agreement and yet, at the same time, confirming the presented line of reasoning.

Questions have been identified in most of the videos in the analyzed corpus. The acts are used across all the channels with a similar function and frequency. The material confirms the popularity of this strategy in the context of science and popularization discourse in the online context.

c) Directives
Directives, identified in previous research as important engagement strategies, were also found in the present corpus. According to Hyland (2005: 184), directives instruct addressees to perform an action or approach a problem in a way desired by the speaker.

Both textual, physical and cognitive directives can be found in the videos, each type serving a different function. Directives are used to turn the viewers' attention to specific points, emphasize the matters under discussion, and explain to the viewers how these should be understood (cf. Zou and Hyland 2019). Directives most frequently take the form of second or first person plural imperative acts, but also deontic modality expressions (Hyland 2005: 184), which were identified in previous research as a further means of engagement in medical weblogs (Sokół 2018).

Textual directives have the primary function of guiding viewers to certain parts of the presentation, asking them to focus on a particular moment in the video, whereas cognitive directives guide viewers through a specific line of argumentation and discussion. For instance:

(19) Zobaczcie, dlaczego wielu z nas nazywa go złym cholesterolem. (NM)
      'See why many of us call it bad cholesterol.'
(20) Takie rzeczy powinniście sobie w głowie zakodować. (BM)
      'You should remember such things.'

Physical directives, the most prevalent in the corpus, encourage addressees to perform specific actions. Using directive forms, the authors try to encourage viewers to undertake certain steps with regard to their health. The authors ask viewers to take such measures as visiting a doctor, improving their eating habits or having medical tests:

(21) Odżywiaj się zdrowo i używaj suplementów tylko wtedy, gdy twoja dieta nie jest zróżnicowana. (IL)
'Eat in a healthy way and use supplements only when your diet is not varied.'

(22) Przed pomiarem i w czasie pomiaru nie możemy prowadzić żadnej rozmowy. Musimy usiąść i odczekać co najmniej kilka minut. (DM)
'Before and during the measurement we cannot hold a conversation. We must sit and wait at least a few minutes.'

In the majority of the cases, however, the authors encourage the viewers to take actions associated with the channel itself, asking them to subscribe, like the video or comment:

(23) Zajrzyj do mnie na YouTube, gdzie jest film o grypie. (IL)
'Join me on YouTube where there is my video on flu.'

(24) Kliknijcie kółeczko subskrybuj. (DM)
'Click the circle to subscribe.'

Using the above-mentioned directives the authors express their identities primarily as medical professionals aiming to inform and educate their audience, but also as both popularizers of knowledge and YouTubers offering quality content. Additionally they aim to create a community of followers interested in extending their medical knowledge.

Directives appear to be a popular engagement strategy, employed across all the analyzed videos, which provides further evidence of the usefulness and potential of this form to engage the audience within a context of professional and lay communication. Differences as to the frequency of particular types of directives can be observed. Cognitive directives proved to be the most common in the BM and PZ videos, while physical directives about treatment were the most frequent on the NM, IL and DM channels.

d) References to personal experience

The authors also include descriptions of their own personal experiences into the presentations. Sharing personal experiences makes the speakers more convincing and credible, but, most importantly, shows them as human beings with whom the viewers may relate (Sokół 2018: 20). This enhances personalization and creates a closeness with the audience. Moreover, mentioning real-life examples may make the content more relevant to the viewers:

(25) Ja moim dzieciom nie robię tego badania przed szczepieniem, ponieważ ja wierzę w badanie lekarskie i wiem, że jak moje dziecko, jak u nich rozwija się infekcja, to ja to widzę od razu. (IL)

'I would not do this test before a vaccination, because I trust the medical examination and I know that if my child, if an infection is developing in them, then I can see it right away.'

(26) Ja cierpię na migreny i kiedy przykładam sobie zimne okłady na czoło, od razu czuję sporą ulgę. (DM)
'I suffer from migraines and when I apply cold compresses to my forehead, then I feel great relief at once.'

Expressions of personal experience were found most frequently on the NM, IL and DM channels, i.e. the channels with the greatest tendency towards popularization. Such forms enhance closeness, but also have an important persuasive potential.

d) Informality

Engagement is also achieved through informality (cf. Luzón 2013, 2019; Sokół 2018), which is seen on both the lexical and syntactic levels. In all the analyzed videos, the authors employ colloquial means of expression, which may help to establish a rapport and affinity with the audience, as well as diminish distance. Examples of informality include for instance:

(27) Żeby pacjent nam się nie przefikołkował na stole operacyjnym. (BM)
'So that the patient does not die [COLL.] on the operating table.'

(28) Więc nie pijmy piwka przed snem to nie ma za bardzo sensu tym bardziej wódeczki. (DM)
'So let's not drink beer [DIM.] before bed, it doesn't make sense, the more so vodka [DIM.].'

Signs of informality signal a more relaxed approach to the presented content and may increase interest in the presentation. Differences in the use of informality and slang can be seen in the corpus. Colloquialisms were found infrequently in the IL and DM videos, with a greater incidence noted on the NM, BM and PZ channels, i.e. the channels recorded by the younger authors.

4.2.2. Expressing opinion and emotions

a) Positive and negative evaluation

Previous research into science blogs has also identified positive and negative evaluation as a means of engagement. Evaluative commentary can be observed in medical videos too. The doctors most frequently evaluate the phenomena and topics discussed as interesting, complex or easy, controversial or important. Evaluation also concerns the patients' practices, treatment methods, medicines, as well as the state of medicine and medical care more generally. Finally, it refers to the quality of the video and presentation as a whole. Evaluation enhances the degree of subjectivity and the personalization of expression, and in this way may diminish the distance between the participants. For instance:

(29) Przede wszystkim kroplówka z glukozą – super skuteczny lek. (DM)
'Above all, a glucose drip – a super effective medicine.'

(30) To już koniec tego bardzo bardzo długiego odcinka. (BM)
      'That is the end of this very, very long video.'

Individual instances of evaluation occurred across all the channels. In every case the highest frequency of evaluative devices concerned the content and quality of the videos. The authors appear to refrain from a public assessment of the treatment methods and medicines, as this could be perceived as a potential recommendation to the viewers.

b) Expression of emotions

In addition to the expression of evaluation and opinion, engagement may also be constructed by the expression of the authors' emotions. The analyzed material features expressions of emotions concerning aspects of medicine, such as medical care, health practices, as well as those associated with the YouTuber's personal life. Most of the expressions of emotions concerned the presented content, with the authors expressing the hope that the video was interesting, appreciated, and liked:

(31) Nikt nie lubił fizyki. Ja uwielbiałam. Wstyd się przyznać, ale już zapomniałam. (IL)
      'No one liked physics. I loved it. It's shameful to admit it, but I have forgotten it.'
(32) Mam nadzieję, że się podobało i że jest to zrozumiałe. (PZ)
      'I hope that you liked it and that it is clear.'

A similar frequency of verbal expressions of emotions was observed in all the videos.[3] References to personal emotions may help the authors to establish a closer and more personal relationship with the viewers and contribute to building a community with the audience.

4.2.3. Attracting the audience and raising interest

a) Interesting topics in the videos

The previously identified strategy of using interesting topics as an engagement strategy can also be seen in the case of YouTube medical videos. It needs to be underlined, however, that the question of what is interesting is very much dependent on the audience. In the analyzed corpus the authors discuss different topics and resort to different strategies in the creation of the titles of their individual videos.

   The videos on the channels aimed at a general audience (NM, IL, DM) discuss common diseases and conditions which viewers may find relevant as they are related to their everyday lives. The topics covered concern, for instance, immunity, hypertension, treatment of the common cold, coughs and/or fevers, as well as obesity and diabetes. Moreover, the videos also consider a number of common concerns in everyday life, such as the consumption of alcohol, overcoming hangovers, problems with sleep, approaches and attitudes towards an individual's sexual life and/or the

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3   Expressions of emotions and opinions are also realized visually through gestures. However, a complete description of the gestures in the videos is beyond the limits of this discussion and is worthy of a separate analysis.

use of dietary supplements. The titles employ strategies which aim to increase their persuasive appeal, i.e. questions, evaluative words, irony. For instance:

(33) Jak leczyć kaca? Działanie alkoholu według lekarza. (DM)
'How to treat a hangover? The workings of alcohol according to a doctor.'
(34) Jak wzmocnić odporność i uniknąć chorowania. (IL)
'How to improve immunity and avoid being sick?'

On the channels aimed at medical practitioners, more specialized topics are common. The topics comprise such themes as kidney dysfunction, the structure of the nephron or the ECG. For example:

(35) Niedokrwistość 3: niedokrwistość z niedoboru żelaza. (BM)
'Anaemia 3: anaemia due to iron deficiency.'
(36) Hematologia: wstęp. (PZ)
'Haematology: an introduction.'

We can also see that the phrasing of the titles is primarily informative, without the use of persuasive strategies. Nevertheless, it is this phrasing that the audience may find appealing, as it identifies the content in a clear and straightforward way.

b) Headings

Strategies of engagement also comprise the use of the headings and annotations posted in the videos (Figures 1, 2), used mainly on the NM, IL and DM channels. The headings have a conversational form, employ references to the viewers, questions or the use of humour (the heading in Figure 1: "When are we attacked by viruses? When are we attacked by bacteria?", and in Figure 2: "Only 30% of you have PMS! Sorry girls"). Though such dialogic strategies occur also in spoken language, their use in the written mode additionally diversifies the content, which some of the viewers may find attractive.

Figure 1: (IL; available at: https://www. youtube.com/watch?v=1HDcdZ CNQcc&t=120s, accessed: March 2023)

Figure 2: (NM; available at: https://www. youtube.com/watch?v=rAOPvjQ hWFc&t=375s, accessed: March 2023)

c) Embedded images/animations

Multimodal engagement strategies involve the use of embedded visuals in the form of images or animations (Figures 3, 4). They may be used to organize and tailor information, and in this way contribute to meaning-making, but their mere presence also constitutes an important means of attracting the viewers by making the presentation of the topics more diversified and enjoyable.
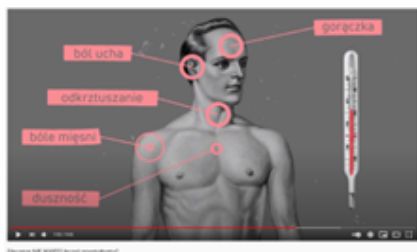

Figure 3: (NM; available at: https://www.youtube.com/watch?v=ShO9T6KAfV4&t=57s, accessed: March 2023)

Figure 4: (DM; available at: https://www.youtube.com/watch?v=WUCFvk7Xodk&t=57s, accessed: March 2023)

The channels differ with respect to the frequency of such visuals and their diversity. The greatest variety of content can be seen in the NM videos, as they encompass graphs, animated visuals, images and collages. Individual visuals used in selected videos only were found on the IL and DM channels.

d) Stylization

The audio-visual form of the videos, in contrast to written genres, creates the opportunity for the application of different video formatting, with choices relating to the setting of the recording and speaker presentation. Engagement, in this case, may be achieved by the manner in which the speaker is stylized and the setting of the recording. Stylization may help the vlogger to develop an original identity and in this way influence the audience's perception of themselves, making the video more attractive (Tereszkiewicz 2013). In most cases, the authors are involved in their own stylization – this is achieved by stylizing their appearance, that is their overall choice of clothing and, more specifically, what is worn in instances of fictional role-play. The authors played the roles of, for instance, an elderly person, a sportsperson, a builder, a road worker, or a car mechanic. Stylization also involves the use of props, gadgets or tools which are used in the presentation and explanation of medical conditions. The props present in the videos included, for example, a pressure gauge or bottles of supplements (Figures 5, 6).

Stylization is also associated with creating a carefully designed space in which the video is recorded. The examined videos were set outside, in open spaces (e.g. a park, construction site, city centre, street), as well as in closed spaces, such as a doctor's office, hospital room, laboratory, or in a home-like space (a living room, bedroom, kitchen). The choice of a particular setting is predominantly a strategy which that

Figure 5: (IL; available at: https://www.youtube.com/watch?v=3TmBPB 3bPR8&t=150s, accessed: March 2023)

Figure 6: (NM; available at: https://www.youtube.com/watch?v=jzR6Fe7 NbBk&t=196s, accessed: March 2023)

may assist the authors in tailoring the medical information in order to facilitate comprehension of the topics discussed. However, it may also help the authors to engage the audience and increase their interest, as well as establish a relationship with the viewers. The choice of a doctor's office and medical attire (Figures 6, 7) may allow the author to establish greater trust and credibility, positioning themselves as practitioners who may be relied upon as far as topics relating to health and medicine are concerned. The choice of the setting may also help the authors to convey intimacy and affinity with the audience. This applies in particular to the videos recorded at home – with the author sitting in the living room in an armchair or on a sofa (Figure 8), at the kitchen table or in the bedroom. Filming videos in a home setting has been observed to be a typical practice of fashion video bloggers, as it contributes to establishing a rapport with the audience. In addition, the vlogger is positioned as a "friend" of the audience, with the interaction structured as a casual meeting or conversation with friends (Frobenius 2011). The positioning of the speaker in such settings is also worth mentioning. In most the cases where the speaker is present they are positioned using a mid-type shot, that is the upper body is shown and the gaze is direct (Figures 7, 8), which creates a sense of intimacy and closeness to the audience.

Figure 7: (DM; available at: https://www.youtube.com/watch?v=DQQx5 YIi_-U&t=17s, accesssed: March 2023)

Figure 8: (IL; available at: https://www.youtube.com/watch?v=uHy0Jxo rfrU&t=49s, accessed: March 2023)

Stylization also encompasses the employment of special effects. The authors stylize their videos by choosing different formatting, filters (coloured, black-and-white) or different patterns of segmentation and montage.

The above-mentioned solutions used in stylizing the videos enhance evocativeness, make the videos more engaging, dynamic and distinctive. The analyzed channels, however, differ considerably with respect to stylization. The NM, IL, DM channels try to modify the setting in consecutive videos, with the probable aim of making the channel more attractive and the content more diversified. There are also cases in which the setting does not vary, which may point to the author's wish to develop a recognizable, individual style of presentation (e.g. PZ).

e) Humour

Humour, a further engagement strategy, is used as a phatic device to establish rapport, to strengthen a relationship and construct common ground (Giannoni 2008: 222). Humour in the videos is expressed not only visually, by employing amusing stylizations, as mentioned above, but also verbally. For example:

(37) Zamykając oczy wciągamy nosem powietrze. To jeden z moich ulubionych sposobów. Przypomina trochę taką medytacje chińską i człowiek czuje się od razu taki bardziej uduchowiony. (DM)
'Closing our eyes we inhale air through our noses. It's one of my favourite ways. It resembles Chinese meditation a little. A person feels at once more soulful.'

(38) Dzień dobry, Andrzej śpioch, jestem anestezjologiem. Będę pana dzisiaj znieczulał. (NM)
'Good morning, Andrzej Sleepyhead, I'm an anaesthetist. I will anaesthetize you today.'

Instances of humour and irony lend the videos a more playful and informal tone. A degree of jocularity may make the discussion more engaging and appealing to the viewers, which may be especially significant considering the often serious and difficult matters discussed. However, there were only individual instances of humour in the analyzed corpus, with the highest frequency in the NM and DM videos.

f) References to popular culture

The attractiveness of the videos and the viewers' interest is also enhanced by references to popular culture. Inclusion of intertextual references occurs in different modes of expression, encompassing spoken language, visuals (Figures 9, 10) as well as stylization and sound. The strategy shows that the authors try to increase the appeal of their videos, make the discussion of difficult medical content more approachable and enjoyable.

(39) Adam Małysz i Andrzej Gołota, Donald Trump i Barack Obama, a może Albert Einstein i Ewa Chodakowska? Wydaje ci się, że różnią się od siebie. (NM)
'Adam Małysz and Andrzej Gołota, Donald Trump and Barack Obama, and maybe Albert Einstein and Ewa Chodakowska? It may seem to you that they differ from one another.'
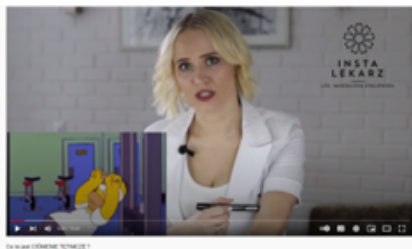
Figure 9: (IL; available at: https://www.youtube.com/watch?v=3TmBPB3bPR8&t=150s, accessed: March 2023)

Figure 10: IL; available at: https://www.youtube.com/watch?v=8SK5jxkYHv4, accessed: March 2023)

As with the previous strategies, considerable differences can be seen between the channels in the degree of intertextuality. References to popular culture occurred most frequently on the NM channel, with fewer such allusions in the videos by other authors.

g) Sound

Apart from the spoken and written language, as well as images serving as modes of engagement, videos also employ the mode of sound. Sound may be a form of engagement as it may attract the viewers, increase interest, enhance the overall impression of the videos and influence the audience's perception of the content. Sound effects constitute an engagement device and increase the appeal of the video, making the video more enjoyable and entertaining. The channels vary, however, with respect to the use of this mode, with selected videos not employing it or using only intro signature sounds (BM, PZ). Other channels, however, introduce a variety of musical components, encompassing both opening and/or closing signature tones, single sounds, and diversified music throughout the video (NM, IL).

5. Discussion and conclusion

The analysis indicates a diversity of practices as far as engagement strategies are concerned. The authors employ a range of solutions associated with engaging viewers, raising their interest, and acknowledging their presence. These strategies, as in the case of previous studies (cf. Luzón 2013, 2015, 2019; Sokół 2018), enhance the videos' attractiveness, as well as constitute evidence of discourse dialogic character and expressiveness. The channels can be placed along a continuum of engagement reflecting the diversity of the practices used and their frequency.

Both similarities and differences can be seen with regard to the engagement devices used by the authors. The sub-strategies of engagement oriented towards creating intimacy and dialogic involvement proved the most frequent across all the analyzed videos. All the channels employ such strategies as addressing viewers, using

questions and directives, as well as informality to a similar extent. This indicates and confirms the previously observed transfer of devices employed in written and spoken popularization discourse within traditional media to the new context of online communication. The use of strategies associated with expressing opinions and emotions appeared far less frequently. The use of personal evaluation, as well as the expression of emotions and personal experiences seemed not to be a common engagement strategy. The greatest diversification between the channels concerns the use and frequency of strategies within the sub-category of attracting the audience and raising interest. The use of visuals, music, and stylization was less common on the PZ and BM channels, while being the most frequent and varied in the NM videos. It can, thus, be seen that with respect to engagement the channels reflect a different degree of diversification regarding certain strategies, namely viewer acknowledgment, appeal and interactivity.

The practices associated with engagement are closely connected with three other dimensions along which the channels could be positioned, i.e. focus and intended audience, genre affiliation and the degree to which YouTube's affordances are exploited. The degree of engagement is clearly associated with the focus of the channels. Engagement devices were observed most frequently and with the greatest level of diversification on the channels oriented towards popularization, i.e. those which addressed a varied audience, predominantly comprising laypersons and viewers interested in general medical information. The use of a variety of engagement and interaction strategies may make it not only more enjoyable for the viewers to watch the video, but most importantly may make the content more accessible and easier to understand, which is significant bearing in mind the complexity of the issues discussed. The degree of engagement, reflected in both the frequency and diversification of the engagement devices, is markedly lower on the channels with an informative and educational focus, whose target audience is in all probability medical students and professionals. Enhancing the appeal of the presentation does not seem to be the primary focus of the authors, but instead the emphasis is on providing a matter-of-fact discussion of the relevant medical issues. A limited use of engagement adds to the seriousness of the discussions, enhances their information-orientation and their focus on the presentation of knowledge. It can, therefore, be seen that the channels exemplify a continuum between a more data-oriented and a more audience-oriented approach, between those focusing on a transfer of challenging medical science and those concentrating on a basic educational approach to medical conditions presented in a pleasant and attractive way.

The degree of engagement is also associated with the genre of the videos and the degree of their technological complexity. The videos exemplify different formats and realize different genre conventions, which can be placed on a continuum ranging from a slideshow, through a fictionalized narrative explanatory video to a presentation film. It can be said that within medical channels, videos replicating more traditional genres co-exist with novel generic forms, in addition to classical videos co-existing with dynamic and innovative productions, both of which corroborate the observations of Muñoz Morcillo et al. (2016) concerning YouTube videos in general.

Engagement is noticeably greater in the videos exemplifying novel generic forms, such as presentation films, as well as in structurally more complex films combining presentation films with fictionalized narrative explanatory genres. The generic structure and formatting of the video is closely associated with different levels of exploitation of the affordances provided by the platform. In other words, the channels and videos differ with respect to the degree to which the authors utilize the modes of expression and functionalities available on YouTube. The continuum ranges from limited use of such functionalities to complete exploitation thereof. The videos on BM or PZ, for instance, mainly recordings of slideshows with a voice-over, exemplify a restricted use of the functionalities, whereas the NM videos reflect a complete exploitation of the technological innovations. An increase in the degree and variety of engagement strategies can be seen as the reason behind and the result of utilizing the medium's affordances. A degree of interconnectedness can be observed between the above-mentioned three dimensions, i.e. focus, genre, and technological complexity. The expert- and information-oriented channels and videos most often employ the traditional structure of slideshows with limited use of the platform's functionalities, while the popularization-oriented channels more often utilize a variety of genres with an enhanced exploitation of the affordances in their productions. It can be seen that the diversity of modes and the multiplicity of affordances furthers the appeal of the productions, that is the engaging rather than informative potential of the videos, which confirms a previous observation by Zhang (2019).

As for the correspondence between the popularity of the channel and the degree of engagement exhibited by the videos, no simple correlation can be observed. Such a relation can be noted only in the case of the NM channel, which enjoys the greatest popularity, presumably owing to its creative, interactive, and entertaining content. The relative popularity of the BM channel, whose videos exhibit low levels and limited diversification of the engagement strategies, is worth highlighting, as it constitutes evidence that engagement is not necessarily the primary factor enhancing the popularity and visibility of YouTube videos. It would appear that this is not the principal requirement or expectation in attracting the audience.

Further research, encompassing a user-oriented perspective, is needed to determine the hierarchy of the strategies with respect to the level of engagement they create. Such factors as a user's age, cognitive skills, and learning style (visual, auditory) would need to be taken into consideration to appropriately assess the engagement potential of the strategies.

The videos, however, confirm previous observations that YouTube constitutes a useful means in communicating health information and sharing knowledge concerning medical issues. Polish medical channels are used as a tool to educate, promote knowledge of health issues, and engage with the public. The channels cater to the needs and expectations of a diversified audience. The open, participatory nature of the platform allows the authors to form a distinctive and recognizable style of interaction with their audience, thus building a community of users who find this particular individual style of presentation and content-orientation interesting and rewarding.

Acknowledgements

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DM = Doktor Michał [available at: https://www.youtube.com/@DoktorMicha/videos, last accessed: March 2023].

IL   = Instalekarz [available at: https://www.youtube.com/@INSTALEKARZ/videos, last accessed: March 2023].

NM = Najprościej mówiąc [available at: https://www.youtube.com/@NajprosciejMowiac/videos, last accessed: March 2023].

PZ   = Paweł Ziora [available at: https://www.youtube.com/@paweziora6168/videos, last accessed: March 2023].

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