



Enhancing Research  
Understanding through Media

**REPORT: CONTROVERSIAL TOPICS REPRESENTED  
IN MEDIA**



# Controversial topics represented in media

GENERAL REPORT

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Co-funded by the  
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## Imprint

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Project-Nr.: 2019-1-AT01-KA203-051482

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# 1. General Introduction

Not all information that reaches us through the media – in particular social media – is based on facts. On the contrary, false information can be distributed relatively easily and quickly, especially through new communication channels online (Broadbent, 2019; Colliander, 2019; Mintz, 2012; Napoli, 2019). Whether the source of the information made an honest mistake or intended to deceive, incorrect information is spread out daily (Hernon, 1995). ERUM intends to tackle this issue by proposing new methodologies and learning material to students and lifelong learners to equip them with transversal skills such as critical thinking, creative problem solving, etc. to best improve their resilience towards misleading media content and raise awareness about its impact on our society.

Based on five case studies, this report is therefore devoted to the subject of mis- and disinformation in the media. This report is furthermore intended as a resource for university lecturers and university students since it provides case studies, in the form of sub-reports to improve critical media literacy.

When we speak of media, we are referring to means of communication for disseminating content to the public, which in addition to classic printed or analogue media (nowadays specifically called print media, e.g. newspapers, magazines) include audio-visual media such as film, radio, and television as well as electronic and digital media (e.g. websites, social media or online services). The case studies, however, took into account above all articles that have been published in mainstream media, i.e. mass media, which have the highest number of readers as printed publications and that are accessible online.

This report, as well as the project, refers to the concepts of mis- and disinformation rather than just addressing “fake news” as the term itself is highly political and as such contested. Cooke (2018, p. 7) describes misinformation and disinformation “as two sides of the same coin”. While misinformation “is simply information that is incomplete” or “information that is uncertain, vague, or ambiguous” but still contains a kernel of truth, disinformation has to be understood as “the dissemination of deliberately false information” (Oxford English Dictionary). In contrast to this, Rob Williams (2018, p. 56) defines “Real news” as “information that is recent, relevant, reliable, historically framed, hegemonically hip, and multi-perspectival.”

Incorrect information, which is being spread through the media, can either invent facts, misinterpret, completely twist or manipulate them, or pull them out of context, ranging from smaller falsehoods and untruths to the spreading of conspiracy myths (Brodnig, 2017; Hendricks & Vestergaard, 2018; Sachs-Hombach & Zywiets, 2018). Disinformation, however, can also be used to specifically target certain people, organisations, parties, etc. through incorrect or misleading information for personal, political or economic reasons and, finally yet importantly, it also must be seen as a major threat to democracy. For example, it has been shown that before elections, attempts are repeatedly made to influence election campaigns by the misuse of wrong information and, as an example, in India false reports about child abduction have led to lynching (Samuels, 2020). The targeted dissemination of disinformation can fuel fears and resentments and increase the dynamics of exclusion (Brodnig, 2017; Sachs-Hombach & Zywiets, 2018). Also, Cooke (2018, p. 3) emphasises that “there is another, darker dimension of information”, which she particularly recognises in the “excessive amount of web-based information that is both sensational and malicious, to the point of being harmful and even dangerous.”

The focus on topics that are highly controversial, polarising and creating emotions is not uncommon in this context. In her book, *Fake news and alternative facts. Information literacy in a post-truth era* (2018) Cooke mentions the “reasons why fake news has become so inescapable, and consequently, why it’s so hard to combat and interrupt the production and dissemination of deliberately false information”. She points out the fact that we are living in a “post-truth era”, in which media consumers are more likely to believe information that matches with their emotions and personal beliefs, rather than looking for verified facts. “People’s information consumption is being increasingly guided by the affective, or emotional, dimension of their psyche, as opposed to the cognitive dimension.” (Cooke 2018, p. 3). The fact that the dissemination of false information through online media, especially social media channels, is so successful also has to be seen in connection with filter bubbles and echo chambers. This means that people who are already susceptible to mis/disinformation often get their information from forums where there are mostly like-minded people who share and reinforce the existing false beliefs about certain information. Additionally, algorithms suggest similar content, therefore reinforcing misconceptions. Corrective measures that counteract the spreading of false information or correct untruths, however, can rarely be found in these filter bubbles. Furthermore, the frequent repetition of incorrect information leads to it being believed and adopted at some point, but also the lack of time to review the information and the targeted search for contributions that strengthen one’s own opinion contribute to the credibility and effectiveness of false information.

Nevertheless, mis- and disinformation are not a marginal phenomenon that may only be found on insignificant websites, but a phenomenon that again and again can also be identified in the news systems of mainstream and even quality media. In this sense, in their publication *Journalism, 'Fake News' & Disinformation. Handbook for Journalism Education and Training* Cherilyn Ireton and Julie Posetti (2018, p. 9) underline:

“Today, journalists are not just bystanders watching an evolving avalanche of disinformation and misinformation. They find themselves in its pathway too. This means that:

- o journalism faces the risk of being drowned out by the cacophony;
- o journalists risk being manipulated by actors who go beyond the ethics of public relations by attempting to mislead or corrupt journalists into spreading disinformation;
- o journalists as communicators who work in the service of truth, including ‘inconvenient truths’, can find themselves becoming a target of lies, rumours and hoaxes designed to intimidate and discredit them and their journalism, especially when their work threatens to expose those who are commissioning or committing disinformation.”

Accordingly, it happens that also serious journalists sometimes only poorly and inattentively try to verify information or do not check the facts at all. Furthermore, some journalists work with scandals, emotionalisations and exaggerations or present one-sided perspectives on a certain topic to arouse the interest of their readers. In this way, they also contribute to the dissemination of false information, although not always consciously or deliberately.

However, it is certainly not enough to point the finger at journalists, who themselves are being exposed to major challenges such as the ever-faster production of content, and the pressure to generate clicks in online media. Additionally, penalties for disseminating incorrect information will

neither lead to changes in the long term nor will they sensitise people sustainably to competent media usage behaviour either. After the dissemination of dis- and misinformation should contradict (quality) journalism, the question arises as to the importance of journalists, but also professional standards or journalistic ethics.

These considerations also feed the concerns of the ERUM project, which aims to investigate how journalistic work and information quality can be improved, as well as to develop strategies for students to raise awareness for critical media consumption and to equip them with respective skills to recognise and question incorrect mis- and disinformation. False information is becoming less and less recognisable as such since it often imitates credible journalism by also referring to studies, scientific knowledge or scientists. Usually, either a statement or an event is being presented in the form of a journalistic contribution, although it does not correspond to the facts, but was deliberately invented or falsified and personal opinions are framed as objective pieces of information. Williams Troy Hicks and Kristen Hawley Turner (2018, p. 33) also point out, that especially “evidence presented in a digital text may come in many forms”: “A hyperlink may lead to a web page that shares an expert opinion; an infographic embedded in the text may present statistics; a video may relate a first-person anecdote.” Each of these media, according to the two authors, can be cited as evidence, and it is up to the reader to question the quality of the evidence and why it has been chosen to prove certain arguments. Given this complex evidence base and the wealth of information, it is becoming increasingly difficult for readers to “distinguish between the reality of fake news [...] and ‘a legitimate news source’” (Thomas, 2018, p. 12). As Thomas says, further challenges arise from the fact that “(1) mainstream media are rushing to cover fake news, but only to distinguish it from ‘legitimate’ news, and (2) mainstream media refuse to take a stand on credible sources, warranted claims, and naming lies as ‘lies.’” (Ibid.)

In this respect, it becomes obvious that journalists also play an important role in containing the spread of false information and that they can make a significant contribution to raising awareness for critical media use. In particular, journalists and the media can act as a virtual, publicly effective corrective when they rely on trustworthy sources that provide them with the basics and content for their reporting, including facts that in turn are based on research results from scientific practices. Facts from empirical analyses are the answer to “alternative facts”. They have the potential to be the needle that could burst filter bubbles in social networks.

It is the task of science communication to effectively translate scientific facts and research results into statements that should be understandable for the media and the public. This task becomes more important in the digital public because more and more people focus on the selective effect of algorithms in their news feeds and only allow receiving information that fits their own subjective opinion. Therefore, science communication as well as science journalism, which is aimed at target groups outside of science, also play a crucial role in the transfer of scientific knowledge to counteract mis- and disinformation.

Once false information circulates, it is relatively difficult to stop it from spreading. “Even if such information is corrected or disproved, the audience’s attention has long shifted, the damage has already been done, and the original misinformation continues to float around online for future discovery.” (Cooke 2018, p. 3) There are now several organisations across Europe that try to counteract false information, for example through educational work or fact checks. At the same time,

it also seems to be of enormous importance to strengthen people's information and media literacy, understood as the ability to select, evaluate and process information from a variety of (online) sources independently, confidently, responsibly and in a targeted manner (Goering & Thomas, 2018; Himmelrath & Egbers, 2018).

Although children and adolescents today grow up with a variety of media channels, especially online, and also the majority of adults regularly use the Internet, a lot of people have difficulties to critically assess information and to evaluate (online) sources. The ethical and responsible use of information is an important prerequisite for the democratic functioning of society. Information and media literacy have consequently become an important key factor in the digital age. In this sense Brian McNair (2017, p. 86) underlines that “now, more than ever, is a time when digital media literacy becomes an important sup-report of democratic political cultures, empowering individuals to play a proactive role in assessing the status of the information they access online.” Thomas (2018, p. 8) also emphasises, that “if we genuinely believe in universal public education as a key mechanism for democracy and individual liberty then we educators must be well versed in critical media literacy, and then we must make that central to our classrooms.” For a critical and competent handling of the information distributed both in the offline and in the online media, on the one hand, it would be necessary to raise the awareness of the topic and the development of corresponding learning opportunities on the other.

Therefore, the ERUM project aims to develop a transversal educational offer on the topic of “quality of information between mis- and disinformation today” for higher education students who are partaking in the shaping of the present and future of the information and knowledge society. We aim to improve media usage behaviour by sensitising postgraduate students to critical media consumption and equipping them with skills like recognising and questioning incorrect information and differences between “providers and provocateurs of information” (Cooke 2018, p. 4), and finding fact-based information. It also causes a shift in the way higher education institutions and media are collaborating vis-a-vis evidence-based and research communication.

The core objectives of the project lie in the quality of information today, between mis- and disinformation or so-called “fake news”:

- to improve the educational offer on the topic of quality of information in higher education and equip students with transversal skills that are necessary for the exercise of democratic citizenship;
- to foster structured collaboration between higher education and media and contribute to the policy discussion about the role of universities and media in the knowledge and information society;
- to improve the quality of information regarding research-based communication.

Based on five case studies, questions about media representation gaps have been identified by investigating mis- and disinformation in the media coverage of different topics ranging from the 5G technology, coronavirus and climate change to reporting on refugees.

The present general part of the report, which starts with a short introduction to the topic within this introductory report, intends to outline the development of the methodological framework and to explain the chosen methods in more detail. In a first step, below we will explain the connection between media policies and journalism in democracy with the hope of contributing to a better understanding of the effects of media policy on current journalism and the resulting challenges for

democracy. Secondly, we will outline the selection of the topics of the respective case studies and the selection of the sample in more detail. Thirdly, we will provide reasons for our methodological choices. The core of this introductory report will be devoted to a more detailed explanation of the four selected methods by summarising the most important key points as well as the theoretical considerations, as well as giving an overview of the relevant scientific literature informing our choices. In the foreground of the following section, a summary of the added value of the individual methods for the analysis realised in the case studies will be provided. Lastly, some teaching and learning strategies collected in the case studies will also be summarised.

Several partners of the ERUM consortium have been involved in the development of this general introductory report. The University of Vienna (UV) was in charge of the introduction, of merging the different sections of this resource, of the development of the analysis perspectives as well as the explanations about Critical Discourse Analysis and the educational implications derived from the case studies. The Vytautas Magnus University (VMU) wrote the section about *Media policies and journalism in democracy*. Based on their expertise, the partners from the Aristotle University of Thessaloniki (AUTH) contributed with the section about data visualisation and the partners from the Cyprus University of Technology (CUT) with explanations on Content Analysis. The colleagues from the University of Alcalá (UAH) shared their knowledge of Discursive News Values Analysis and wrote the related parts of the sub-report.

## 2. Media policies and journalism in democracy<sup>1</sup>

Journalistic performance in a democracy varies depending on several factors. Changing governmental policies, economic asperities, increasing fragmentation, and challenges imposed by new technologies are frequently listed among significant forces curtailing media freedom and affecting ideals of professional journalism.

Although media pluralism, generally, is highly appreciated in European policies, the growing stress and advancement of neo-liberal (or even neo-authoritarian, as in Hungary and Poland) ideals in governmental thinking have eventually produced reversed results such as growing media concentration and new oligopolies in the European news markets. Media deregulation and various attempts of re-regulation through increasing state intervention have not improved diversity and pluralism; instead, mainstream views and mainstream audiences have taken over, whereas niche interests have been marginalised. As a reaction to the emerging dominant interests and popular views in conventional media, the rise of digital communication has generated new uses of media, which created far more diverse, fragmented and polycentric, but also more confusing, messier and even “toxic” informational environments. Though social networks have contributed to a certain pluralisation of the news, these have resulted in severe outcomes in terms of the quality of distributed news and growing social and political polarisation, and even the radicalisation of certain populist views and beliefs in those countries that earlier were described as consensual — such as the Nordic ones. European media policymakers have traditionally perceived and understood information users as citizens rather than news consumers. However, is the ideal of informed, knowledgeable and, hence,

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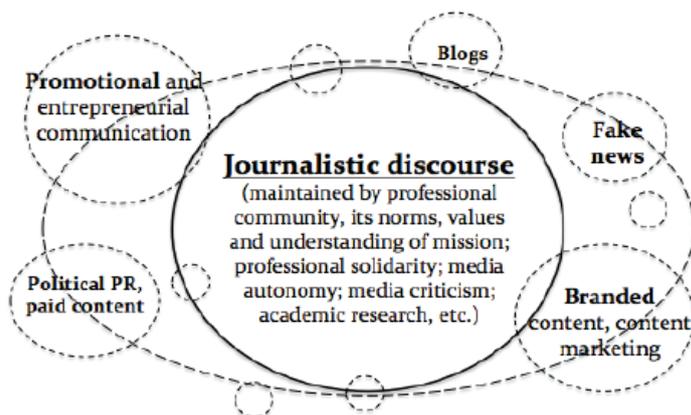
<sup>1</sup> This chapter is an adaptation of the article by Balčytienė, Auksė (2017). Informed Citizenship, Journalistic Professionalism, and Democracy: What Is Old, What Is New, and What Is Unresolved? In: P. Bajomi-Lazar (ed.). *Media in Third World Democracies*, L'Harmattan, pp. 45–58.

rational citizens still appropriate for the present day? Where do contemporary news environments and journalism stand in the relationship between citizens and democracy?

As seen from recent experience, with increasing possibilities for individual media choice and preference selection, serious societal shifts are observed, including growing social and political polarisation, a decline of trust in democratic institutions, and reduced voter participation and community involvement. For the past century, (Western) journalism’s power and professional logic mainly rested in the monopolistic position of the news media as an information gatekeeper to select news for large numbers of people (Waisbord, 2013). Equally so, journalism used to maintain its distance from the political field by defining a form and style of political representation that fits its criteria of objectivity, autonomy, accountability and public service (Kunelius & Ruusunoksa, 2008). This is not a reality any longer. In a communication environment that is increasingly shaped and fixed by hybrid media logics, i.e. increasing interaction between new and old media (Chadwick, 2014), and audience loyalties and preferences, the journalistic discourse is much more diversified and is exploited for different purposes such as the attaining of promotional, brand-building, propagandistic, opinion-making or even plain falsehood-oriented goals. The outcome of these shifts is the variability and fluidity of journalism, which results in journalistic genre mixing, blurring boundaries between news and opinions, information and amusement, and fact and fiction (see Figure 1). It has also been observed (Mancini, 2013) that the outcome of these shifts results in societal reconfigurations and regroupings turning into new forms of communalisation and identity formation through the use of alternative, semi-alternative, or niche media channels.

Figure 1

*Classical ideals of journalism and its contemporary discursive variants*



Source: Balčytienė (2017)

As observed from various cases in Europe, the political, economic and technological conditions necessary for the media to properly function have been significantly destabilised and weakened in recent years (Starr, 2012; Wiik & Andersson, 2013). In most countries, the media have not been able to fully recover from the difficulties caused by the global economic crisis. As result of unsteady economic conditions, economic thinking has taken over professionalism ideals in many newsrooms, and ideologies of “managerialism” and entrepreneurialism (Singer, 2015) have been gaining ground. Economic efficiency and profit have become the biggest focuses of organisational concern in contemporary news organisations (Wiik & Andersson, 2013). Financial uncertainties and fluctuations have affected media operations and business models in weak and strong economies, in small and large markets, in European countries with long-standing traditions of professional journalism as well as in

ones where professional journalism has been under greater political pressures such as the Southern and the Central/Eastern European states (Balčytienė & Juraitė, 2015).

Politically engaged and informed citizens are vitally important for democracy. Yet conventional media use and traditional news consumption have steadily declined, and the idea of citizenship and how it is met in modern democracies is changing towards much more networked, individualised, and emotionally-charged experiences (Deuze, 2008). People tend to use media based on personal sentiments and passions (Grabe & Myrick, 2016) rather than on public needs and long-term commitments, duties and loyalties (Schudson, 1998). As a result, societies are becoming much more differentiated along with their interests, diversified and polarised, and knowledge gaps between citizens have arisen, which endanger informed (and, hence, rationalised) democratic processes and participation.

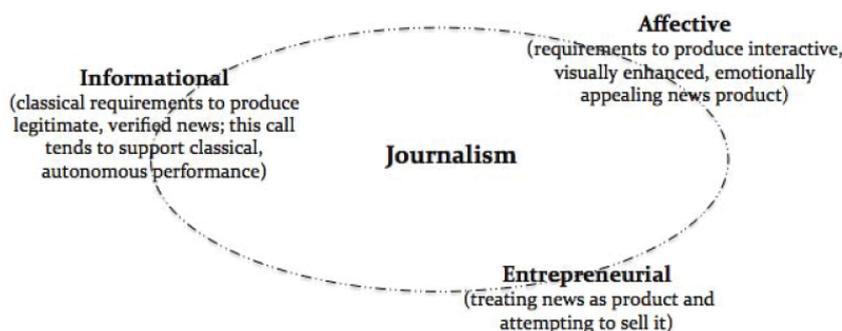
It seems that today’s audiences are longing for individualised, emotionally and personally meaningful, self-expressive, non-hierarchical and inclusive experiences (Grabe & Myrick, 2016). Individual preferences for content also influence political behaviour. As confirmed by research studies with cable television programme choices (Prior, 2013), selective exposure to certain information increases interest and participation in politics. Similar results are revealed by studies on the online media, showing that partisan views are thriving there as well (Gurevich et al., 2009). As emphasised by the reinforcing spirals theory, the solidification of political beliefs is likely to bring a biased approach to political information, which in turn solidifies beliefs even further and adds to social and political divergence and polarisation.

People access, create, share and spread information themselves today, hence the concepts of "informed citizenship" and "democratic participation" need to be reviewed in line with the new qualitative features of both: that of available media channels of their technological affordances as well as that of forms of communication. In other words, one should take into account the interactive and affective aspects of information presentation and engagement (Grabe & Myrick, 2016).

It is reasonable to assume that these shifts in information production and access will also require the revision of the ideals of "journalistic professionalism." If professionalism once seemed to be concerned with the function and standards of information provision, today it is required to take additional factors into account, predominantly those that have to do with the informational, affective and entrepreneurial aspects of news making (see Figure 2).

**Figure 2**

*Hybrid media environment, and multiple (information, affective, entrepreneurial) calls for journalism*



Source: Balčytienė (2017)

It seems that in hybrid media environments the production of “newness” or — as suggested by Waisbord (2013) — “newsiness” rather than professional ideology and ethics and its standards such as serving the social and public good, sets the direction for news making in the media industry. Then it is of no surprise that under such conditions the journalistic discourse becomes increasingly hybridised and guided by various aspirations and serves various purposes. All things considered, we are perhaps entering a new phase or, to paraphrase Daniel Hallin (2006), another moment of “not the end of journalism’s history.”

Indeed, a shorter-term analysis allows us to identify those trends that have just recently begun or were named by scholars (Mellado et al., 2017; Deuze, 2019), such as journalism’s hybridisation and shifts in its boundaries, and the like. In historical terms, journalism develops in cycles. Perhaps a much longer time-spanning analysis could also disclose the cycles and variations of journalistic professionalism. Journalism is a social phenomenon and its (mainly western) history shows how journalism has been shifting between neutrality-seeking and partisan (or interests backing) practices. For example, as seen from the history of journalism in the United States, partisan journalism was more prevalent in times of uncertainty and crisis, and audiences were more polarised, whereas in periods of societal peace and progression, objectivity-seeking journalism was the main rule, and audience polarisation was on the decline. In the second half of the 20th century, Europe witnessed the rise of neo-liberal ideas, thus suggestions were made that (mainly western) European media systems will eventually move towards the commercial model of journalism (Hallin & Mancini, 2004). Shifts are noticed towards increasing media fragmentation, audience segmentation and societal polarisation in all contemporary news environments.

In conclusion, the use of media has intensified and noticeably increased in all European countries. Yet, whether such practices are working in favour of informed citizenship and the quality of democracy, appears to be questionable. As research shows (Balčytienė & Juraitė, 2015), there is an increase in general uncertainty of people’s self-confidence in their abilities to participate in politics. People also appear to be less certain about their enthusiasm to take part in democratic processes. They express doubts as to whether the information distributed and made widely accessible in networks should be trusted. It generally seems that stimulated by active use of new media and social networks, contemporary societies are moving into a new phase of “interest politics,” where each group is fighting for its interest. As a result, the informational space turns into an arena of populist engagement and confrontations, which puts the idea of public good and common interest and hence the ideals of informed citizenship and professional journalism in question.

It appears that we indeed live in times of change in terms of societal transformations and collective regrouping in societies. In hybrid media environments, new societal groups and arrangements tend to emerge and are forming under conditions when the atmosphere of neo-liberal trends, external pressures, the weakness of media tradition (specifically in younger European democracies), growing individualisation and group polarisation are present at the same time. Though it is too early to cast pessimism on the idea of informed and engaged citizens, if not addressed, the factors identified above might in the longer term greatly affect the quality and functioning of democracy within and across European states.

All such developments suggest that in times of intensified, networked and hybrid communications there is a growing need to re-assess the dominant design in media policy. Some of the issues that

media policies are required to address could be identified through several mechanisms that might help to keep media and journalism professionalization under scrutiny. As the above discussion suggested, journalistic production happens to be extremely vulnerable and unshielded from approaching influences. Hence, to support quality standards and professional culture of journalism, evidence-based research and media literacy are of major significance in increasing the informed citizenship and democratic media practice. By participating in a continuous project of professionalization, journalists should be empowered to protect their professional identities and to remain relevant to people's lives.

### 3. Methodological approach

#### 3.1 Development of the methodological framework

As clarified above, this introductory report has the purpose to outline the development of our methodological framework and to explain the chosen methods more in detail. This framework guided the five case studies about media representation gaps.

Our methodological framework has been driven by the concepts and ideas of different approaches: content analysis, discourse analysis, discursive news value analysis, data visualisation and considerations about democracy and media policies as well as scientific practice and experience. While discourse analysis and content analysis were primarily used for the evaluation of the collected data, the other approaches served above all to ensure a theoretical and method-based development of the perspectives of the analysis.

Concerning the sample, consortium partners conducting case studies screened at least 300 articles on their topics and selected 30 controversial articles from this sample. In addition to this, another criterion was to select five articles in English amongst the 30. The screening of 300 articles allowed for a comprehensive insight into the reporting on the case studies' respective topics. The 30 selected articles can be regarded as representative of a specific form of reporting and allow for deeper analysis concerning gaps in how media represented a certain topic.

Following the results of a concerted approach, the University of Vienna created a template for the analysis dimensions. In addition to a definition of the research question, the designation of an analysis period and desk research, the template suggested about ten dimensions of analysis, reaching from the authorship of the selected articles, the language, the visualisation to the use of evidence-based research/science and missing facts. In addition to a summarising conclusion, it was also our concern to identify teaching and learning strategies that could serve university lecturers and professors.

#### 3.2 Selection of the topic

About the choice of topics, each partner ensured that the topic selected could be considered as highly relevant to our society according to the definition of controversial topics offered by a teaching resource developed through a joint *Council of Europe* and *European Commission* programme. The *Teaching controversial issues* resource suggests that: "Typically, controversial issues are described as disputes or problems which are topical, arouse strong emotions, generate conflicting explanations and

solutions based on alternative beliefs or values and/or competing interests, and which, as a result, have a tendency to divide society.” (Kerr & Huddleston, 2015, p. 13)

Each partner decided upon (a) certain event(s)/subject(s) within (a) certain timeframe(s) and after the revision of approximately 300 articles, 30 articles published within that period were selected. Each partner could choose the period covered according to the topic. The Vytautas Magnus University focused on “Refugee Representation in Lithuanian Online Media”. The University of Vienna conducted an “Analysis of media articles on the Sea Watch Case: Facts and controversial issues”. The Cyprus University of Technology devoted themselves to the question “Does 5G technology pose any health risks?”. The Aristotle University of Thessaloniki dedicated their case study to the question “How the Coronavirus Pandemic has been covered by Greek media”. The Université de Versailles Saint-Quentin-Yvelines put “Climate change scepticism” in the centre of their analysis.

### 3.3 Selection of the sample

In the first step, partners searched for articles in the media where the controversial topic addressed in their report had been (mis/dis-)represented. As mentioned above, 300 articles were screened; out of those 30 articles identified, that could be analysed about their misrepresentation of the chosen subject. Furthermore, partners analysed the media share, amount of representation of their topic in the media, and created a comparative table (Figure 3). Then partners also provided information in connection to the chosen articles that included the title of the newspaper/media channel, the title of the article, the date of publication, the main topic and the web link, where it had been published. In addition to that, partners created a PDF of each article through the print function or a screenshot of the whole article (e.g. with Firefox extension) to ensure safe storage of the analysed material.

#### Summative tables of findings

To make the results comparable on a quantitative level, each partner completed a table to summarise their findings. While in the case studies about 5G about a third of the selected articles misrepresented the subject by disinforming (intentional misleading information), the number was significantly less for the reports concerning coronavirus and climate change scepticism. The situation is similar with regard to the question of whether the articles used images and visuals that were not related to the content of the article. On the other hand, more than half of the articles on 5G, misrepresented the topic by using titles (63,3 %), or visuals and images (60 %) that did not reflect nor relate to the content of the articles. In addition to this, around 50 % of these articles provided a one-sided representation of the topic (which is as well the fact that they did not portray the controversy and different issues at stake), misrepresented the topic by providing intentional misleading information or lacked a critical interpretation. A bit less than half of them (40 %) omitted information. Similar findings are evident in the report about Refugee Representation in Lithuanian Online Media. Specific results are presented on a case-by-case basis below.

Tab. 1: How the Coronavirus Pandemic has been covered by Greek media (ATh)

Number of articles that have misrepresented the topic by disinforming (intentional misleading information)	3
Number of articles that have misrepresented the topic by omission of information	4
Number of articles that have provided a one-sided representation of the topic (which is as well the fact that they have not reflected the controversy and different issues at stake)	4
Number of articles that misrepresented the topic by not providing a critical interpretation or comment of the information shared	5
Number of articles whose images and visuals were not related to the content of the article	0
Number of articles that misrepresented the topic by using titles that did not reflect the content of the article	4

Tab. 2: Climate change scepticism (UVSQ)

Number of articles that have misrepresented the topic by disinforming (intentional misleading information)	0
Number of articles that have misrepresented the topic by omission of information	6
Number of articles that have provided a one-sided representation of the topic (which is as well the fact that they have not reflected the controversy and different issues at stake)	6
Number of articles that misrepresented the topic by not providing a critical interpretation or comment of the information shared	3
Number of articles whose images and visuals were not related to the content of the article	0
Number of articles that misrepresented the topic by using titles that did not reflect the content of the article	0

Tab. 3: Analysis of media articles on the Sea Watch Case: Facts and controversial issues (UV)

Number of articles that have misrepresented the topic by disinforming (intentional misleading information)	4
Number of articles that have misrepresented the topic by omission of information <sup>2</sup>	5
Number of articles that have provided a one-sided representation of the topic (which is as well the fact that they have not reflected the controversy and different issues at stake)	4
Number of articles that misrepresented the topic by not providing a critical interpretation or comment of the information shared <sup>3</sup>	27
Number of articles whose images and visuals were not related to the content of the article	3
Number of articles that misrepresented the topic by using titles that did not reflect the content of the article	2

Tab. 4: Does 5G technology pose any health risks? (CUT)

Number of articles that have misrepresented the topic by disinforming (intentional misleading information)	16
Number of articles that have misrepresented the topic by omission of information	12
Number of articles that have provided a one-sided representation of the topic (which is as well the fact that they have not reflected the controversy and different issues at stake)	15
Number of articles that misrepresented the topic by not providing a critical interpretation or comment of the information shared	15
Number of articles whose images and visuals were not related to the content of the article	18
Number of articles that misrepresented the topic by using titles that did not reflect the content of the article	19

<sup>2</sup> All articles potentially lack information, in particular reference to the international law or the broader socio-political context. Therefore, only those articles have been included that miss some particular aspects of the event, thus making the report incomplete or misleading.

<sup>3</sup> All articles potentially lack a critical analysis of the main facts as they often do not take into consideration the broader framework within which the events unfold. Even the few articles that provide some critical comments often do so in a provocative and misleading way, thus reinforcing the misrepresentation of the topic.

Tab. 5: Refugee Representation in Lithuanian Online Media (VMU)

Number of articles that have misrepresented the topic by disinforming (intentional misleading information)	11
Number of articles that have misrepresented the topic by omission of information	16
Number of articles that have provided a one-sided representation of the topic (which is as well the fact that they have not reflected the controversy and different issues at stake)	18
Number of articles that misrepresented the topic by not providing a critical interpretation or comment of the information shared	16
Number of articles whose images and visuals were not related to the content of the article	17
Number of articles that misrepresented the topic by using titles that did not reflect the content of the article	14

### 3.4 Selection of the methods

As already mentioned, in an attempt to create a shared methodology to analyse media articles, different research methods were considered useful for the development of the dimensions of the analysis. To summarise the background of data analysis, these approaches relevant to our analysis are described below.

#### Content Analysis

Content analysis is a classic and largely embraced research technique employed to analyse myriads of texts and collections of communications (Bennoit, 2010). Berelson (1952) defined content analysis as “a research technique for the systematic, objective, and quantitative description of the manifest content of communication” (Bennoit, 2010, p. 18). As reported by various researchers, content analysis has been the fastest-growing technique in the field of mass communication research (Neuendorf, 2002; Riffe & Freitag, 1997; Yale & Gilly, 1988).

#### Critical Discourse Analysis (CDA)

Critical Discourse Analysis (CDA) is generally understood as a linguistic research approach with a wide variety of theories and methods. This approach focuses on social problems, with a particular emphasis on the relationship between language and power, domination or rule. Interdisciplinarity and the consideration of intertext and interdiscourse relationships as well as the historical context are characteristic of critical discourse analysis. It also asks for what is not said or cannot be said.

#### Discursive News Values Analysis (DNVA)

Discursive news values analysis (DNVA) is a novel approach to the analysis of news values that incorporates insights from the perspectives of pragmatics and discourse analysis. It is described in the recently published book *The Discourse of News Values* (Bednarek & Caple, 2017). DNVA stands for Discursive News Values Analysis. This is a new approach to the analysis of news values that uses

discourse analysis to examine how such values are constructed through semiotic resources (language, image, etc). Bednarek and Caple (2017) see news values as those values that have been recognised in the literature as defining the newsworthiness of reported events and actors (where newsworthy = "worthy of being news"). This includes news values such as Timeliness, Negativity, Impact, Superlativeness, Eliteness, Consonance, and others.

### Data visualisation

Data visualisation is a modern branch of descriptive statistics that involves the creation and study of the visual representation of data. It is the graphical display of abstract information for data analysis and communication purposes. Static Data visualisation offers only pre-composed "views" of data. Interactive Data visualisation supports multiple static views to present a variety of perspectives on the same information. Important stories include "hidden" data, and interactive data visualisation is the appropriate means to discover, understand and present these stories. In interactive data visualisation, there is a user input (a control of some aspect of the visual representation of information) and the changes made by the user must be promptly incorporated into the visualisation. They are based on existing sets of data, which is clearly strongly related to the issue of big data. Data visualisation is the best method to transform chunks of data into meaningful information (Ward, Grinstein & Keim, 2015).

Unfortunately, data visualisations are also incorporated quite regularly as a means for disinformation. Furthermore, this is not happening only during the last 10 years with the explosion of "fake news". Usually, people do not spread visual lies by presenting false data. Instead, they misrepresent the data to tell the very specific story they are interested in telling (Zer-Aviv, 2014).

## 4. Explanation of the methods

The focus on the application of the methodological approaches in the respective case studies was chosen on a case-by-case basis; it depended on the method's applicability on the respective topic as well. Besides, different methods were taken into account in the development of the analysis dimensions, which formed the basis of all reports.

### 4.1 Content Analysis

What we refer to as the established content analysis method is defined as "the systematic assignment of communication content to categories according to rules, and the analysis of relationships involving those categories using statistical methods" (Riffe, Lacy, & Fico, 1998, p. 3). According to Rourke and Anderson, content analysis is a process that includes segmenting communication content into units, assigning each unit to a category, and providing tallies for each category. In its essence, content analysis was initially focused on the analysis of textual printed resources (i.e. newspapers, magazines, letters, books, testimonies, transcripts of interviews etc); however, there are also other types of content that can be used as input for the analysis (i.e. films, radio broadcasts, television programmes, etc.) (Saraisky, 2016). Nowadays, researchers continue to analyse texts retrieved from digital sources such as the digital version of mainstream newspapers, other websites (Facebook, YouTube etc.) (Ahmad & Buyong, 2017).

Even though it is often supported that content analysis could take a qualitative form, in its original form it is a quantitative approach; the latter is also the way content analysis is addressed in the context

of this report and is taken into account in the analysis dimensions. As such while content analysis is often juxtaposed with discourse analysis in that both examine textual sources, content analysis tries to uncover reality as it exists, while discourse analysis tries to uncover reality as it is produced (Hardy, Harley & Phillips, 2004). In other words, discourse analysis could be described as interpretative, intersubjective and qualitative, while in contrast content analysis as positivist, objective, and quantitative (Michaelson & Griffin, 2005). Generally, content analysis assumes that meaning can be coded (via the use of a predefined coding scheme) and counted (Lowe, 2004). Therefore, if the analytic coding categories are properly designed, anyone should be able to carry out the analysis, using the same objective approach (Krippendorff, 1989; Neuendorf, 2004).

Taking into account the nature of content analysis, advocates of content analysis emphasize firstly that the main strength of the approach lies in its validity and reliability, as it includes a series of fixed characteristics which, if followed correctly, can result in replicability by any researcher (Boettger & Palmer, 2010; Krippendorff, 2013). Secondly, advocates put forward that, given its positivist roots, the textual data, which are considered as a static entity, can be objectively captured, coded and counted without leaving space into the researcher's subjective perceptions (Berelson, 1952; Holsti, 1969; Roffe, Lacy & Fico, 1998). Finally, it is also considered that content analysis is an "unobtrusive, non reactive, measurement technique" (Riffe, Lacy, & Fico, 1998; Krippendorff, 2013), given that the researcher cannot affect the process, as content is simply being watched, coded and counted.

Krippendorff (2004) emphasized that the value of content analysis is all about its research process, supporting that content analysts should strive to communicate clearly the process to be followed and how they derived at certain judgments so that others can replicate results. Therefore, it is essential for researchers to follow systematic steps and procedures to achieve this purpose.

- **Step #1 – Formulating research questions or hypotheses:** Researchers conducting content analysis should firstly start with formulating their research questions or hypotheses (Sjøvaag & Stavelin, 2012). They should also reflect on the nature of the posed research questions/hypotheses, ensuring that quantitative content analysis, as a chosen methodology can be used to address them.
- **Step #2 – Identifying a sample:** Researchers conducting content analysis should also consider the sampling for their project. As in any research design, sampling is of paramount importance to answering the research questions of interest. According to Boettger and Palmer (2010), the researchers conducting content analysis should clearly define their sampling parameters, while also devise a careful, replicable selection process.
- **Step #3 – Developing the coding scheme(s):** Creating a coding scheme for content categories is a crucial step in content analysis (Boettger & Palmer, 2010). Neuendorf (2002) supports that in order to limit research bias, categories must be fully developed before the coding of data starts. However, she also suggests performing a literature review in combination with preliminary reading of a sample of texts to capture all important variables before the coding scheme is finalized. According to Saraisky (2016), it is important that the coding scheme defines and illustrates all the variables being evaluated.
- **Step #4 – Collecting and categorizing data:** Once researchers identify their sample and define the coding scheme, they must continue with collecting and categorizing their data. As already

mentioned, the categorization of the data begins with fixed, mutually exclusive categories (Boettger & Palmer, 2010) and content analysts evaluate texts for predefined terms or phrases.

- **Step #5 – Analysing data:** With the quantitative approach, researchers evaluate the explicit features of a text (Huckin, 2003); however, the statistical analyses can also extend beyond counting the presence frequencies of words and offer insight into how variables relate.

Overall, according to Neuendorf (2002), “Content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method [..]” and as such, she strongly advocates for “including attention to objectivity-intersubjectivity, a priori design, reliability, validity, generalisability, replicability, and hypothesis testing” (Neuendorf, 2002, p. 10). Content analysis as presented can provide a well-documented, concrete and established research method to approach the analysis of traditional and new media content.

Five dimensions of analysis were taken into account, each one responding a specific research question respectively. The research questions, as well as the explanation of the process, are described below. The authors of the case studies additionally used a coding sheet as common tool.

#### **DIMENSION 1 – GENERAL CHARACTERISTICS - RQ1: What are the general characteristics of the selected articles?**

To investigate this dimension and respective research question, the first section of the coding sheet served to collect descriptive information about each article. Some of the collected data are responses to open-ended questions, and other data are coded numerically, depending on the variable type.

After that the article was given an identification code, the following data were recorded:

- News source (e.g. *The Guardian*, *Mail online*, *New York Times*)
- Publication date (written in: Day/Month/Year)
- Authorship (If the article is signed by an author, provide the author’s name/status or indicate N.A., if this information is missing.)
- Section (e.g. national news, international news, business, economy, science & technology, other, etcetera)
- Length of the article (number of words)
- Scope of the article (national / international)

#### **DIMENSION 2 – LANGUAGE & CONTENT – RQ2: What is the language and content used in the articles?**

To investigate this dimension and respective research question, the second section of the coding sheet was to collect information about the language and content used within each article. Some of the collected data are responses to open-ended questions, and other data are coded numerically, depending on the variable type.

- The tonality of headlines (positive, negative, neutral)
- Type of language used (polemic, emotive, neutral)
- Speech actors and speaking acts (inclusion and length of speech acts / type of speaking actors e.g. politicians, academics, scientists, citizens)

- Use of resources (Link to other related resources: Yes / No, Multiple resources: Yes/ No, Type of resources e.g. academic studies and reports, international associations)
- Content (e.g. Definitions, Functionality/Nature of the phenomenon, Consequences and effects)

### **DIMENSION 3 – visualisation – RQ3: What is the visualisation used within the articles?**

In this dimension, the data recorded concerned:

- The use of visuals (Yes / No)
- Type of visuals (e.g. Photographs, Images, Diagrams, etc.)
- Content of visuals (e.g. Objects, Actions, Abstract representations, Symbolic representations)
- Tonality of visuals used (Positive, Negative, Neutral)
- Captions (Use: Yes / No, Tonality: Positive, Negative, Neutral)
- Consonance with the text (Yes / No)

### **DIMENSION 4 – CONTROVERSY – RQ4: Whether and how is the controversy presented within the selected articles?**

To investigate this dimension and respective research question, the fourth section of the coding sheet was intended to collect information about if/how the controversy was presented within each article. Some of the collected data are responses to open-ended questions, and other data are coded numerically, depending on the variable type.

- Controversiality (Is the topic presented as a controversial one: Yes / No?)
- Stakeholders (Presence of stakeholders: Yes/No?, type of stakeholders presented i.e. academics, scientists, policymakers, citizens)
- Multiple points of view (Yes/No?)
- Side-taking (Author's side-taking: Yes/No?; Type of authors' side-taking e.g. in favour, against)

### **DIMENSION 5 – USE OF EVIDENCE-BASED RESEARCH/SCIENCE - RQ5: Which are the basic, incomplete, missing and misleading facts within the selected articles?**

To investigate this dimension and respective research question, the fifth section of the coding sheet was based on the desk-based research and analysed the selected articles based on the classification system of proposed by Michaelson and Griffin (2005) according to the four following aspects:

- Basic facts: Fundamental facts, which are crucial to the communication of the controversy (definitions, description of the controversial aspects, valid arguments). These facts can include evidence-based statements as well as opinions or points-of-view which can be supported and documented.
- Misstatements: Misstatements are perceived as errors or incorrect information included in a given article. Misstatements typically result from incorrect data but can also include unsubstantiated opinions or points-of-view resulting in the misrepresentation of a topic.
- Incomplete information is a statement, opinion or point-of-view that selectively includes some information, but excludes other relevant facts.
- Omissions: Omissions are the absence of key information that should be included in a specific article. According to Michaelson & Griffin (2005): "Not all basic facts can be considered omissions

if they are not included in an article or publication. The key to understanding omissions is in the context of the article” (Michaelson & Griffin 2005, p. 7). Put simply, omissions are identified when an article is considered as incomplete, due to the omissions of specific basic facts.

## 4.2 Critical Discourse Analysis

Critical Discourse Analysis (see Wodak, 2002; Fairclough, 2013) is a methodological framework which allows taking into consideration not only the text (broadly conceived in its combination of written texts, visual contents and data) but also the broad social, political and economic context in which the news is produced, thus providing a more complete and critical analysis of the news itself. In taking into consideration the surrounding context, CDA does not merely contemplate it, but it attempts to evaluate and explain it, in particular by looking at the multiple relations and dynamics between the context and the text. In the words of Fairclough (2013, p. 178), CDA “is normative critique: it does not simply describe existing realities but also evaluates them, assesses the extent to which they match up to values that are taken (contentiously) to be fundamental for just or decent societies (e.g., certain requisites for human well-being). It is explanatory critique: it does not simply describe and evaluate existing realities but seeks to explain them, e.g., by showing them to be effects of structures or mechanisms or forces which the analyst postulates and whose reality s/he seeks to test out (e.g., inequalities in wealth, income and access to various social goods might be explained as an effect of mechanisms and forces associated with capitalism or particular varieties of capitalism)”.

By the same token, CDA presupposes a relational, dialectical understanding between the text, the media and the surrounding context, disclosing the intertwining power relations between political institutions, socio-economic forces and information agencies in the process of knowledge production. CDA considers media not as neutral and objective institutions but as deeply embedded in the social and political reality that they want to portrait. As Wodak put it (2002, p. 6), “Media institutions often purport to be neutral in that they provide space for public discourse, that they reflect states of affairs disinterestedly, and that they give the perceptions and arguments of the newsmakers”, but these assumptions fall easily apart in light of a critical analysis of the multiplicity of ways through which language is used in mediating and conveying ideology across social institutions.

It emerges that, far from being a neutral and objective aspect, the text is an interactive, lively part of the context, which reflects a myriad of relations with it and with the media. The text, just as the media instrument through which it is conveyed, becomes a medium of power, expressing and reflecting the ideological structure of society.

According to Wodak (2002, p. 11),

“The constant unity of language and other social matters ensures that language is entwined in social power in a number of ways: language indexes power, expresses power, is involved where there is contention over and a challenge to power. Power does not derive from language, but language can be used to challenge power, to subvert it, to alter distributions of power in the short and long term. Language provides a finely articulated means for differences in power in social hierarchical structures”.

### 4.3 Discursive News Values Analysis

Another approach to the analysis of news that is gaining relevance is Discursive News Values Analysis (DNVA). This novel approach is described in Bednarek and Caple (2017) and briefly introduced in their website<sup>4</sup>, which also presents their coding manuals as well as additional materials that may be read and referred to in conjunction with the various case studies discussed in *The Discourse of News Values*.

The objective of DNVA analysis is to see how verbal and visual texts (i.e. text and images) provide an answer to the question: “How is this news?” That is, how do semiotic (meaning-making) devices justify the newsworthiness of reported events or issues (Bednarek & Caple, 2017, p. 2).

This is how they reply to the question “What are news values”:

“News values are the values that are recognised as defining newsworthiness – whether something is ‘worthy’ of being news. More specifically, news values concern ‘the newsworthiness of events—their potential newsworthiness in a given community, their newsworthiness as evaluated and determined by newswriters in news practice, or their newsworthiness as constructed through discourse.” (Bednarek & Caple 2017, p. 42)

The study of news values involves the study of the manipulation of linguistic resources to construct events as newsworthy. Semiotic resources (linguistic or visual) are used to establish events as newsworthy, persuading the audience that an item is worthy of being published as news and worthy of their attention (Bednarek & Caple 2017, p. 3). Thus, reporters sell the news to us as news through verbal and visual resources, (i.e. the D of news values), Among those values that have been recognized as defining newsworthiness, for example, those that indicate:

- Proximity (nearness to the audience)
- Negativity
- Superlativeness (large scale/scope)
- Timeliness (e.g. recency, newness)
- Unexpectedness (e.g. unusuality)
- etcetera

Types of **journalistic news values** or standards typically professed to the world by news organizations such as the BBC or The New York Times are (Bednarek & Caple, 2017, p. 3):

- Trust, independence, impartiality, honesty, focus on audience, quality and value for money, creativity, respect, diversity, time spirit (BBC, in the section called “our values”)
- Truth, fairness, impartiality, transparency, integrity, accuracy, independence (in the section labelled “standards and ethics”).

These values are different from the “newsworthiness values” mentioned above. They are examples of moral-ethical or commercial values and are NOT the focus of this approach. The goal of this approach is to introduce readers to how to analyse systematically how these news values are constructed discursively through verbal and nonverbal resources. This method is called discursive news values analysis (DNVA).

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<sup>4</sup> see <http://www.newsvaluesanalysis.com/what-is-dnva/>

Areas of enquiry are media linguistics, corpus linguistics, discourse analysis, multimodality, and social semiotics, with a focus on the professional context of journalism. Possible research questions are:

- Are particular topics associated with specific news values?
- Does this association have ideological implications? DNVA may also be used as a tool for Critical Discourse Analysis (CDA).
- Are specific news values emphasized, rare or absent in reporting on particular topics or events? Is this constrained by the event itself?
- What role do different (verbal/visual) components play? Do they reinforce, complement, or contradict each other? can be used to identify (un)successful practices for multimodal news stories.
- What is the target audience according to the news outlet?

Journalism students can be made aware of contemporary journalistic norms and practices by deconstructing actual news stories before constructing their multimodal journalistic texts and analyse how newsworthiness is created through different semiotic resources. (Bednarek & Caple, 2017, p. 5)

News values have **cognitive**, **social** and **discursive** aspects (Bednarek, 2016, p. 28). Bednarek and Caple's approach is a discursive one. Newsworthiness is understood as a quality of news media talk and text.

**They mention nine values:**

1. **Timeliness:** the event is timely in relation to the publication date: new, recent, ongoing, about to happen, etc.
2. **Consonance:** The event (including the people, countries or institutions involved) is (stereo)typical in the view of the target audience.
3. **Negativity:** the event is negative for the news publication's target audience (e.g. an environmental disaster, crime, act of violence, opposition, conflict, controversy).
4. **Impact:** the event has significant effects or consequences (including but not limited to direct impact on the news publication's target audience)
5. **Proximity:** the event is geographically or culturally near the news publication's target audience.
6. **Unexpectedness:** the event is unexpected for the news publication's target audience.
7. **Superlativeness:** the event is of high intensity or large scope/scale (in the view of the target audience)
8. **Personalisation:** the event has a personal or "human" face involving non-elite actors, including eyewitnesses.
9. **Eliteness:** the event (including but not limited to the people, countries or institutions involved) is of high status or fame in the eyes of the news publication's target audience.

**However, two caveats should be considered:**

- The nine categories do not have to be dealt with in a specific order.
- They could be enlarged if needed for the analysis.

**As general guidelines Bednarek (2016) mentions:**

- News values are situationally sensitive (e.g. a news story mentioning New Zealand will construct Proximity with an Australian target audience but not in a newspaper published, for example, in Germany or Spain).
- An event having happened on Sunday will construct more Timeliness in a news story published the following Monday than the following Friday.
- Certain target audiences may perceive particular happenings as negative, while others would not (e.g. immigration, carrying a gun, marriage, equality, etc.). Other events would probably be negative for everybody (e.g. death, famine, crime or Covid-19, for that matter) when considering news values it is important to consider the target audience.

### Linguistic devices for DNVA (Bednarek, 2016a, 2016b)

1. **Timeliness:** indications of newness or change: fresh, new, latest, for the first time; explicit time references (today, yesterday, within days, now...); implicit time references (continues, ongoing, have begun to...), verb tense and aspect (have been trying, is preparing, is about to...); references to seasonal or current happenings/trends.  
**Ex.** “A terrorist attack ... is **now** regarded as ‘likely’.”
2. **Consonance:** evaluations of expectedness (routine for, famed for...), similarity with past (yet another, markedly similar to, typical style, once again...); constructions of stereotypes.  
**Ex.** “Drug addict parents gave 23-month-old son methadone ‘like Capol’” (stereotypical attribute)  
**Ex.** “In keeping with the German’s **well-known** love of beer” (mention to general knowledge or tradition)
3. **Negativity/Positivity:** negative evaluative language (terrible, dangerous, slaughter...); reference to negative emotion and attitude (distracted, worried; condemn, criticize...); negative lexis (conflict, damage, death, crisis, abuse, controversial, row...), other references to negative happenings (e.g. the breaching of socially approved behaviour/norms).  
**Ex.** “[...] **concerns** about even remote chances of Ebola exposure” (reference to negative emotion)  
**Ex.** “Nigeria has been declared officially **free of Ebola**” (positive lexis)
4. **Impact:** evaluations of significance (momentous, historic, crucial...); reference to real/hypothetical important/relevant consequences (note that will stun the world, Australia could be left with no policy, leaving scenes of destruction).  
**Ex.** “A potentially **momentous** day” (assessment of significance).
5. **Proximity:** explicit references to place or nationality near the target audience (a Spanish woman); references to the nation/community (the **nation’s** capital; **home-grown**).  
**Ex.** “A **Texas** father caught a man sexually assaulting his 4-year-old daughter” (explicit references to place or nationality near the target audience)  
**Ex.** “Red alert over the plot to attack **our** nation’s leaders” (inclusive first-person plural pronouns).
6. **Unexpectedness:** evaluations of unexpectedness (different, astonishing, strange...), comparisons that indicate unusuality (the first time since 1958, Sydney’s wettest August in 16 years).  
**Ex.** “one of the **strangest** scandals” (evaluation of unexpectedness)

**Ex. “British man survives 15-storey plummet”** (the whole sentence is an example of a reference to unusual happening).

7. **Superlativeness:** quantifiers (many, all, thousands...); intensifiers (sensational, dramatically, super, severe, extreme...), including intensified lexis (epidemic, smashed, stun, wreck...); references to growth/escalation (growing, raised...), repetition (building after building...); some instances of metaphor/personification/simile (a tsunami of crime; epidemic swallowing Sydney, looked like the apocalypse...); comparison (biggest counter-terrorism raid, most shocking child abuse case...).

**Ex.** “The volume of email cloaked in encryption technology is **rising**” (lexis of growth)

8. **Personalisation:** references to "ordinary" people, their emotions, experiences (Charissa Benjamins and her Serbian husband; “It was pretty bloody scary”; But one of his victims [...] sobbed; Deborah ...said afterwards: "My sentence has only just begun"...).

**Ex.** “Mike’s devastated owner” (reference to emotions).

9. **Eliteness:** Various status markers, including labels, recognized names, evaluations of importance, descriptions of achievement (experts at Harvard University, a high-profile arrest, Barack Obama, the Oscars, a key federal government minister, top diplomats, were selling millions of records a year...).

**Ex.** “U.S. District Court Judge Scott Skavdahl” (role label)

**Ex.** “the **prestigious** Man Booker prize” (status indicating adjective).

However, two caveats have to be mentioned:

- This list should not be taken as an automatic checklist and analyses must take into account context and use.
- The list applies to prototypical news stories and additional resources for broadcast news bulletins may need to be added.

For a complete list of linguistic devices and examples refer to the inventory at <https://www.newsvaluesanalysis.com/what-is-dnva/> (Bednarek, 2016b).

Bednarek and Caple (2017) distinguish news values from moral-ethical values (e.g. truth, impartiality, honesty, fairness) and commercial values (e.g. speed, access via multiple platforms). They also differentiate news values from news writing objectives (general goals associated with news writing, such as clarity of expression, brevity, colour, accuracy, etc.) and news selection factors (any factor impacting on whether or not an event gets covered or a story becomes published, e.g. commercial pressures, availability of reporters, deadlines, audience analytics, etc.).

This approach has been developed to allow for a systematic and comprehensive examination of how verbal and visual resources that occur in news discourse construct newsworthiness.

## 4.4 Data visualisation

### A historical perspective of data visualisation

Although people have been using tables to arrange data since the 2<sup>nd</sup> century BC, the idea of representing quantitative information graphically first appeared in the 17<sup>th</sup> century. Rene Descartes, who was a French philosopher and mathematician, proposed a two-dimensional coordinate system for displaying values, consisting of a horizontal axis for one variable and a vertical axis for another, primarily as a graphical means of performing mathematical operations. In the 18<sup>th</sup> century, William Playfair began to exploit the potential of graphics for the communication of quantities, by developing many of the graphs that are commonly used today. He was the first to employ a line moving up and down as it progressed from left to right to show how values changed through time. He invented the bar graph, as well as the pie chart. In the '60s, Jacques Bertin proposed that visual perception operates according to rules that can be followed to express information visually in ways that represented it intuitively, clearly, accurately, and efficiently. In addition, John Tukey, a statistics professor, set the basis of the exploratory data analysis, by demonstrating the power of data visualisation as a means for exploring and making sense of quantitative data (Few, 2013).

In 1983, Edward Tufte published his ground-breaking book *The Visual Display of Quantitative Information*, in which he distinguished between the effective ways of displaying data visually and the ways that most people are doing it without much success. At the same time, William Cleveland extended and refined data visualisation techniques for statisticians. At the end of the century, the term information visualisation was proposed. In 1999, Stuart Card, Jock Mackinlay, and Ben Shneiderman published their book entitled *Readings in Information visualisation: Using Vision to Think*, thus introducing the term information visualisation. Moving to the 21<sup>st</sup> century Colin Ware published two books entitled *Information visualisation: Perception for Design* (2004) and *Visual Thinking for Design* (2008), in which he compiles, organizes, and explains what we have learnt from several scientific disciplines about visual thinking and cognition and applies that knowledge to data visualisation (Few, 2013).

Since the turn of the 21<sup>st</sup> century, data visualisation has been popularised, and it has reached the masses through commercial software products that are distributed through the web. Many of these data visualisation products promote more superficially appealing aesthetics and neglect the useful and effective data exploration, sense making, and communication. Nevertheless, a few serious contenders offer products that help users fulfil data visualisation potential in practical and powerful ways. Indicative examples are Infogram (<http://infogram.com>), Tableau (<http://tableau.com>), Piktochart (<https://piktochart.com>), and Datawrapper (<http://datawrapper.de>).

### From static to interactive visualisations

Visualisation can be categorised into static and interactive. In the case of static visualisation, there is only one view of data and in many occasions, multiple cases are needed to fully understand the available information. In addition, the number of dimensions of data is limited. Thus, representing multidimensional datasets fairly in static images is almost impossible. Static visualisation is ideal when alternate views are neither needed nor desired and is especially suited for static media (for example printed editions) (Knaffic, 2015). It is worth mentioning that infographics are also part of the static visualisation. Infographics (or information graphics) are graphic visual representations of data or

knowledge, which can present complex information quickly and clearly. Infographics have been used for many years and recently the availability of many easy-to-use, free tools have made the creation of infographics possible for every internet user (Murray, 2013).

Of course, static visualisations can also be published online to be disseminated more easily and rapidly. Publishing online is the quickest way to reach a global audience. An online visualisation is accessible to any internet user who employs a recent web browser, regardless of the operating system (Windows, Mac, Linux, etc) and device type (laptop, desktop, smartphone, tablet). Nevertheless, the true capabilities of the web are being exploited in the case of interactive data visualisation.

Dynamic, interactive visualisations can empower people to explore data on their own. The basic functions of most interactive visualisation tools have been set back in 1996, when Ben Shneiderman proposed a “Visual Information-Seeking Mantra” (overview first, zoom and filter, then details-on-demand). The above functions allow data to be accessible to every user, from the one who is just browsing or exploring the dataset to the one who approaches the visualisation with a specific question in mind. This design pattern is the basic guide for every interactive visualisation today.

An interactive visualisation should initially offer an overview of the data, but it must also include tools for discovering details. Thus, it will be able to facilitate different audiences, from those who are new to the subject to those who are already deeply familiar with the data. Interactive visualisation may also include animated transitions and well-crafted interfaces to engage the audience to the subject it covers.

### **User control in interactive visualisation**

In the case of interactive data, visualisation users interact with the visualisation by employing a number of input types. Users can zoom in a part of an existing visualisation, pinpoint an area that interests them, select an option from an offered list, and choose a path, and input numbers or text that customize the visualisation. All the previously mentioned input types can be accomplished by using a keyboard, mouse, touch screen and other more specialized input devices. With the help of these input actions, users can control both the information represented on the graph or the way in which the information is presented. In the second case, the visualisation is usually part of a feedback loop. In most cases, the actual information remains the same, but the representation of the information does change. One other important parameter in the interactive data visualisations is the time it takes for the visualisation to be updated after the user has introduced an input. A delay of more than 20 ms is noticeable by most people. The problem is, that when large amounts of data are involved, this immediate rendering is impossible.

The information and more specifically statistical information remains abstract, since it describes things that are not physically there. It can concern education, sales, diseases, and various other things. However, everything can be displayed visually, if a suitable format can be identified. The transformation of the abstract into physical representation can only succeed if we understand visual perception and cognition. In other words, in order to visualize data effectively, one must follow design principles that are derived from an understanding of human perception.

Without any doubt, data visualisation is an important element of news articles and thus it is quite regularly employed in reporting controversial topics. An accurate visualisation that is aesthetically

pleasing, but also functional. insightful and enlightening can help the reader understand complex issues. On the other hand, visualisation can also be used to disseminate inaccurate information. The detailed study of the visualisations included in news articles can reveal misinformation and disinformation elements that downgrade the quality of the news.

However, since the individual colleagues had different prior knowledge and preferred varying working methods and because a mix of methods was not appropriate for all topics, the partners were free to choose whether they wanted to consider only one method or the mix of methods in their case study.

#### 4.5 Advantages of the methodological framework

The sections above explained individual methods in detail. Consequently, an insight will be given at this point, as to how the individual approaches were taken into account in the dimensions of analysis of the case studies. The combination of content analysis and discourse analysis allows for a quantitative as well as qualitative methodological approach to the material analysed. Even though it is often supported that content analysis could possibly take a qualitative form, in its original form it is a quantitative approach; the latter is also the way we address content analysis in the context of this intellectual output. As such, while content analysis is often juxtaposed with discourse analysis and that both examine textual sources, content analysis tries to uncover reality as it exists, while discourse analysis tries to uncover reality as it is produced (Hardy, Harley & Phillips, 2004). In other words, discourse analysis is interpretative, intersubjective and qualitative, while in contrast content analysis is positivist, objective, and quantitative (Michaelson & Griffin, 2005).

Generally, content analysis is built on the basis that meaning can be coded (via the use of a predefined coding scheme) and counted (Lowe, 2004). Therefore, if the analytic coding categories are properly designed, anyone should be able to carry out the analysis, using the same objective approach (Krippendorf, 1989; Neuendorf, 2004).

In addition to that, critical discourse analysis deals with social problems and not with language or language use per se but focuses on the linguistic character of social and cultural processes and power structures. Consequently, it examines discursively constituted power relationships in discourses as well as power over the discourse. This makes it possible to take into account aspects beyond concrete texts such as social, political and economic facets and to include the context in which the news is produced into the analysis. This subsequently results in a more complete and critical analysis of the media articles.

The aim of DVNA is to provide new insights into journalistic texts as social semiotic practice, which can inform how to teach and learn about such texts in first and additional language contexts (i.e. media literacy) as well as how to teach students to create such texts (i.e. journalism education). They also want to provide a new perspective to conduct research on news discourse. DNVA can offer insights into what semiotic resources are repeatedly employed to establish particular news values like identification of clichés, common practices and conventions of news reporting, at a particular point or across news cycles.

Data visualisation is a significant discipline that is expected to become even more important as our societies are gradually moving towards an era of big data. Especially the case of Interactive. Data visualisations allow data analysts to convey complex data to meaningful information that can be

searched, explored and understood by end-users. In the case of misinformation emphasis should be put on the presence or absence of visualisations within the examined news article and the type of visualisation (interactive or not). In addition, the visualisation should depict data correctly in order to avoid misinterpretation from a reader's point of view. Special attention should be paid to the appropriateness of including visualisations in an article and whether visualisations concern/focus on important elements of the news story. Finally, the meaning of the visualisation should be clarified within the article.

In summary, it can be said that the method of content analysis approaches the material on a quantitative level, while approaches that stem from discourse analysis and discursive news value analysis focus on qualitative analysis. Considerations for data visualisation can furthermore help to understand the visual dimensions of the analysed material. Quantitative and qualitative methods do not contradict each other here but can complement each other for comprehensive and at the same time detailed results. Simply put, quantitative data provide the numbers that can support the basic general points of research. Qualitative data provide the details and depth needed to fully understand the data and the conclusions to be drawn. In this respect, it can be said that quantitative results help to see the big picture, while qualitative data provide the necessary details. The mix of methods can thus help to get the best out of both approaches.

## 5. Dimensions of Analysis

All of the methods mentioned also influenced the development of the template of the dimensions of analysis and coding sheet, which has been used in all sub-reports as the basis for the respective studies. This means that the individual dimensions were informed by the methodological framework and the template was designed based on this preliminary work. The following perspectives should not only be considered in the sub-reports but could also be helpful for future analyses on similar topics and questions. This methodological framework should therefore also give students of different disciplines ideas on how to implement research related to the representation of controversial topics in media.

Based on the considerations of the content analysis, questions regarding the quantitative evaluation of the material were developed:

- How many articles have been screened altogether, and how many articles have been selected for the analysis?
- From how many different papers have they been chosen and how many of them have been published in national/international papers?
- How long have the articles been? Which types of articles (commentary, report, ...) have been analysed in the case study?
- How many articles have been identified as misrepresenting the chosen topic?

This analytical step allowed to get a good overview of the scope of the selected sample and at the same time to accomplish the first differentiations. Thereby, gained results also make the individual studies more comparable with each other.

The theoretical consideration regarding the connection between media policies and journalism in democracy, on the one hand, meant that the special challenges journalists are facing today had been

considered in the analysis. On the other hand, they also sharpened the view concerning which factors influence journalistic discourses on a topic. It was, therefore, important to take into account the authors of the selected articles themselves and their (professional) backgrounds as a further analysis perspective as well as to investigate how information provided in the articles is being prepared (for whom). Accordingly, the case studies also raised the questions:

- Who are the authors of the articles?
- Are they mainly journalists, researchers, teachers, politicians...?
- Are the authors taking a side or are they neutral?
- Is their position transparent?
- Who is being addressed in the articles?
- What point of view is stated in the article, if any?

Based on the theoretical and methodological findings of the critical discourse analysis as well as its power critical perspective, the language used in the articles was also placed at the centre of the analysis. As further analysis perspectives, the case studies tried to focus on:

- How the language used in the articles could be described?
- Is the language rather emotional, polemic, neutral...?
- Did the selected articles include metaphors, comparisons, special explanations or linguistic peculiarities and if yes, which ones?
- What is being said, what is not being said?
- Do the articles contain a critical perspective and are current power relations being mentioned and critically questioned?
- Do the articles rather reproduce or question common perspectives on the respective topic?

This step also made it possible to take into account the broad social, political and economic context in which news on the respective topic is being produced and who benefits from which position. This is done by providing a critical analysis of the news itself and the language used.

DVNA aims to provide new insights into journalistic texts based on semiotic considerations. This makes it possible to shed light on which semiotic means are used to determine certain message values. Therefore, the preparatory work on the DVNA also broadened the perspective on the question of how the respective topics were presented in the reporting and which linguistic means were used. This perspective also made it possible to approach the controversiality of the respective topics:

- How are the controversial ideas presented?
- Is it mentioned in the articles that they deal with a controversial issue?
- What means are used to explain the different perspectives?
- Do they highlight the topic from different points of views or is only one side presented?
- How do the journalists position themselves regarding controversiality?

The approach of data visualisation inspired the questions surrounding the visual representations of the analysed articles and led to the following dimensions of analysis:

- Are the articles accompanied by caricatures, images, photos...?
- What is the relationship between the visualisations used and the content?
- What is/are the message(s) conveyed through the images?
- How can the relationship between text and visualisation be described?

- Do the articles rather work with static or interactive data?
- How are data and facts processed visually?

The template, in its part related to visualisation, allowed to carry out a multi-perspective analysis and, in addition to textual and linguistic aspects, to include messages transposed via images into the analysis.

According to the central questions of the ERUM project, further analysis dimensions were developed that focused specifically on the use of scientific sources. This made it possible to devote the analysis to the role that scientists, data and facts play in the media coverage of certain topics. For this reason, the case studies also took the following questions into account:

- Do the articles use research, researchers, academics to prove their arguments?
- In which ways do they use scientific sources?
- Are they using different sources or just one?
- Which kinds of experts are being quoted?
- Do the articles offer links to other related (scientific) articles/material like statistics, surveys, research centres...?

Besides, the connection between the results gained in desk research on the respective topic should be related to the facts, findings and opinions that were presented in the media articles. Accordingly, about the desk research the following analysis perspectives shed light on the use of scientific facts:

- What is left out compared to evidence/research?
- What important information is omitted or remains unmentioned?
- Which scientific findings would lead to results different from those that are dealt with in the articles?

Last but not least, the individual sub-reports should also take into account how the relevant knowledge could be used productively for teaching and learning strategies.

## 6. Conclusion | Teaching & Learning Strategies

The challenges that arise for journalists because of the switch from print to online media are obvious, as is the fact that they have to cope with an ever-increasing amount of information in an ever-shorter time. However, this should not be an excuse for the media representation gaps in controversial topics. On the contrary, it proves the increasing need to enhance awareness of the issues raised. The ERUM project addresses students of different disciplines and aims at raising awareness about the media representation gaps in controversial topics through the focus on evidence and research-based articles in mainstream media. According to the objectives of the ERUM project, the partnership constructed teaching activities with these reports as resources. Their starting points were:

- The type of courses and degree programmes in which teaching would take place.

- Two frameworks as a point of reference for their learning objectives: the Competences for Democratic Culture from the *Council of Europe* (2017)<sup>5</sup> and the DigiComp framework (2018) from the *European Union*<sup>6</sup>.
- Didactical considerations.

Teaching how the media report on controversial issues is at the core of ERUM. The reports on media representation of controversial topics are both research studies and teaching resources. Therefore, they aim to become a resource for lecturers and university professors working on the topic of “quality of information”. In each of the sub-report, the conclusions will clarify issues to consider in relation to content. Within the framework of the ERUM project, the partnership has used and will use this report for educational purposes. For teaching and learning strategies, the individual case studies come to similar results. The recommendations resulting from them can be summarised as follows:

1) (Prospective) journalists and students from other disciplines should be made aware of the use of the media and should be given support to strengthen their media skills particularly about the identification of mis- / disinformation. On the one hand, it should be made clear that both, the selected language and the image material, as how topics are being presented, for example by omitting certain points of view or interpreting facts unilaterally, are the results of decisions that can be changed. Prospective journalists have the option to choose a specific writing and language style, as do media consumers can decide where they want to get their information from. On the other hand, it also seems important in this context to acquire knowledge about the common strategies for the dissemination of mis- / disinformation (such as exaggeration, use of questionable statistics or other supposedly scientific material etc.) to be able to recognise them.

2) Students' abilities to critically examine opinions, explanations or comments published in the media and to include scientific sources (studies, expert statements, statistics etc.) in their media use should be strengthened. This means to critically question information prepared in the media (especially online) and to review and evaluate opinion-forming statements concerning evidence. In addition to this, evidence-based and scientific discussions are of fundamental importance to enable the identification and elimination of dis- / misinformation and the development of critical reasoning. Quality of information, validation and review of sources should remain the primary goal of any (prospective) scientist and journalist.

3) In addition to that, it would be necessary to increase the cooperation between journalists, scientists, academics and researchers to counteract the lack of implementation of scientific or evidence-based research in journalism. This would improve the opportunities for journalists to take advantage of the scientists' knowledge as experts who can be quoted in articles and asked to check facts. Vice versa, it would give scientists the advantage of disseminating their scientific knowledge through the media. Newsrooms could also benefit from the implementation of fact-checking procedures. For this, it is necessary at universities and research institutions to establish many practical references and to maintain contacts with journalists. A good option would be, for example, to offer internships in the editorial offices of newspapers or to invite journalists to lectures to discuss the mentioned challenges.

<sup>5</sup> see also <https://www.coe.int/en/web/education/competences-for-democratic-culture>

<sup>6</sup> see <https://ec.europa.eu/jrc/en/digcomp>

4) Students should focus more on the subject area of science journalism and the questions and strategies of science communication that arise from the genre like What makes good science journalism? Which criteria have to be considered? How can scientific sources be well included in journalism and made accessible to the public? How can science journalism guarantee reliable, evidence-based reporting?

This means that teaching at University should foster involvement with science journalism by raising awareness in class but also through the aforementioned exchange with journalists. As a result, science journalism would also experience an appreciation and could become a guarantor for reliable information transfer.

The current situation regarding the outbreak of coronavirus illustrates the ambivalent importance of media outlets and journalists during pandemics and crises for the distribution of important information on the one hand, but unfortunately also of untruths and half-truths on the other. However, the associated danger of disseminating false information also offers the opportunity for professional, evidence-based journalism to discuss its disadvantages and importance in a broader public. Such a discussion cannot get along without the reference to the need to strengthen critical media literacy, in which the aforementioned teaching and learning strategies need to be taken into account.

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