

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Information Technologies**



## **Bachelor Thesis**

**The Influence of State Propaganda Upon Different Groups  
of People**

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# BACHELOR THESIS ASSIGNMENT

Anastasia Seliverstova

Informatics

Thesis title

**The Influence of State Propaganda Upon Different Groups of People**

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## **Objectives of thesis**

The main objective of this thesis is to conduct research and analysis of state propaganda and its influence on the internet over people, as well as identifying trends and key patterns concerning exposure and belief among individuals of specified social groups, age categories and sexes, among other characteristics. In addition, another objective is to ultimately identify the main sources of information people may commonly use.

## **Methodology**

Data samples will be collected from people of varying social groups by utilizing online surveys concerning the news information sources on the internet which they frequent. In studying the sources, it will be possible to identify relevant key factors, patterns and facts which may be indicative of propaganda with the use of specified examples. Further statistical analysis will be made possible with the use of IBM SPSS Statistics.

## The proposed extent of the thesis

40-50 pages

## Keywords

Computational propaganda, fake news, social media, detection

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## Recommended information sources

“Ideological Subversion” by Yuri Bezmenov

“The Spiral of Silence : Public Opinion – Our Social Skin“ Elisabeth Noelle-Neumann(1974)

“War Propaganda. Past, Present and Future” by Tami Ransom (2004)

“What is Propaganda?” By Ralph D. Casey Professor, School of Journalism, University of Minnesota (1944)

“Worldview Warfare and The Science of Coercion” by Christopher Simpson(1994)

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### **Declaration**

I declare that I have worked on my bachelor thesis titled "The Influence of State Propaganda Upon Different Groups of People" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 15/03/2023

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# The Influence of State Propaganda Upon Different Groups of People

## Abstract

The development of the internet and continuing technological improvements have made propaganda an extraordinarily powerful tool for influencing public opinion. It has become harder to identify and combat the impacts of propaganda on society as a growing number of new forms of it appear.

This thesis aims to examine the impact of propaganda on different demographic groups in combining both traditional survey techniques and modern IT technologies, with use of a survey targeting Russian citizens living in Russia and the European Union. Its data collected is to be analysed using IBM SPSS Statistics to identify significant trends related to how propaganda affects people. To study the emotional impact of propaganda, data from a selected social media platform is collected using the VK API and sentiment analysis performed using pre-trained AI.

The theoretical part was devoted to the exploration of topics relevant topics including the background and development of propaganda, how it works on social media and the internet, and the use of technology in interpreting and analysing online content.

The practical Part was devoted to the collection of required data from a social media platform for statistical, sentimental and text analyses.

**Keywords:** IBM SPSS Statistics, API, Frequency Analysis, Sentimental Analysis, Opinion mining, Chi-Square Analysis, Telegram, VKontakte, Yandex, Survey, Propaganda

# Vliv Státní Propagandy na Různé Skupiny Lidí

## Abstrakt

Rozvoj internetu a neustálá technologická vylepšení učinily z propagandy mimořádně silný nástroj pro ovlivňování veřejného mínění. Je stále těžší identifikovat a bojovat proti dopadům propagandy na společnost, protože se objevuje stále větší počet jejích nových forem.

Tato práce si klade za cíl prozkoumat dopad propagandy na různé demografické skupiny při kombinaci tradičních technik průzkumu a moderních IT technologií s využitím průzkumu zaměřeného na ruské občany žijící v Rusku a Evropské unii. Shromážděná data budou analyzována pomocí IBM SPSS Statistics k identifikaci významných trendů souvisejících s tím, jak propaganda ovlivňuje lidi. Ke studiu emocionálního dopadu propagandy se shromažďují data z vybrané platformy sociálních médií pomocí VK API a analýza sentimentu se provádí pomocí předem vyškolené umělé inteligence.

Teoretická část byla věnována zkoumání témat relevantních témat včetně pozadí a vývoje propagandy, jak funguje na sociálních sítích a internetu a využití technologií při interpretaci a analýze online obsahu.

Praktická část byla věnována sběru požadovaných dat z platformy sociálních médií pro statistické, sentimentální a textové analýzy.

**Klíčová slova:** IBM SPSS Statistics, API, Frekvenční analýza, Sentimentální analýza, Opinion mining, Chi-Square Analysis, Telegram, VKontakte, Yandex, Survey, Propaganda

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# 1 Introduction

For a very long time, propaganda had a big impact on how society was shaped. Nonetheless, its impact has not faded, but it become increasingly relevant in recent years. Given its proven vast influence upon entire populations and the course of the history of nations, it is important to understand such a powerful tool in the hopes of preventing the very historic events it may have caused. In the modern era, the internet and information technology have revolutionized the dissemination of information, and propaganda is no exception. Propaganda could reach a wider audience and have a bigger impact as a result of the growth of social media platforms and the spread of fake news. Studying propaganda and its effects in the internet age is essential to understanding how it works with society and for developing effective strategies to counter it.

The information propaganda conveys may be either positive or negative, depending on the purpose for which it is used. Propaganda is becoming more important than ever. In recent years, people have attempted to popularize a healthy lifestyle, the humane treatment of animals, and encourage the preservation of the environment using this tool. These represent examples of positive propaganda. Whereas negative propaganda, often when utilized within politics, may force the public to think (and therefore act) in a way of great convenience to the government. A striking example today is the current ongoing war and crisis between Ukraine and the Russian Federation, during which in Russia propaganda is being distributed. The abundance of propaganda on all sides confuses the individual and deprives them of their right to an objective viewpoint. It, therefore, becomes easier not to trust anyone in comparison to trusting any interpretation of such events.

To address this issue, this thesis aims to explore the impact of propaganda on society with potential risks and benefits of propaganda in the internet age. Furthermore, through a combination of closed-end surveys, open-end interviews, and sentiment analysis of social media posts, this study seeks to identify patterns and trends in public sentiment towards propaganda and media literacy, with the goal of developing effective strategies to counter propaganda in the age of the internet.

## **2 Objectives and Methodology**

### **2.1 Objectives**

Modern means of propaganda at present have evolved to require a more difficult process to identify, due to how they by design have become unidentifiable. Propaganda which exists not within movies and literature, but instead in the media and on the internet is among the most dangerous and effective instruments of mass influence over people and widespread opinion.

The main objective of this thesis is to conduct research and analysis of state propaganda and its influence on the internet over people, as well as identifying trends and key patterns concerning exposure and belief among individuals of specified social groups. A key goal is to uncover an answer to the question: “How do different news sources and search engines impact different demographics?”. In addition, another objective is to ultimately identify the main sources of information people may commonly use.

### **2.2 Methodology**

The methodology is based on investigation the prevalence and impact of propaganda on the Russian population using modern IT technologies. The study utilizes the VK API to collect data from VK and conduct sentiment analysis to understand the emotional impact of propaganda. A survey through Google Forms targets Russians living in Russia and EU countries to collect data on the prevalence of propaganda and popular sources of information. IBM SPSS Statistics will be used to analyse the survey data and identify key patterns related to the impact of propaganda on individuals. The combination of modern IT technologies and traditional survey methods provides a comprehensive analysis of propaganda's effects on the Russian population.

## **3 Literature Review**

### **3.1 Propaganda: Etymology and History**

#### **3.1.1 Etymology of The Term “Propaganda”**

To understand how propaganda affects societies of the 21st century, it is necessary to study not only the history and development of propaganda itself, but also the history of the term and its origin. Translated from Latin, the word “Propaganda” roughly carries the meaning of “that which must be spread”; “distribution” or “popularization”. Initially, the term did not carry negative connotations and such a politically derived meaning. Society has changed, and in turn, so has the word and the meaning it carries. [3.0]

The term "propaganda" originally had a connection to biology, but in 1627 it became associated with the spread of Catholicism in non-religious regions. The term began appearing in dictionaries by 1943 and was primarily used during World War I to convince people of the rightness of their actions. However, much of this propaganda was found to be false, leading to the negative reputation of the term. Fear and suspicion towards propaganda may be due to societal distress. [3.1.1]

During the Second World War, propaganda tactics improved with a focus on facts and important information, leading to a decrease in negative attitudes towards the term. The favourable opinion towards propaganda during wartime led to a change in its meaning and social attitudes towards it. The study of propaganda is influenced by its use in military operations during wartime. [3.0]

#### **3.1.2 History and Development**

The development of the history of propaganda is also the history of the development of means of communication. Both are intertwined. Throughout the history of mankind, people have been forcibly persuaded to accept the information considered necessary by the parties interested, but with the development of used technologies, much has changed. In the middle of the 1440s, Johann Gutenberg revolutionized communication, creating the first

manual printing press. This invention quickly gained popularity and spread across the world. [3.1]

Also, Johann's invention found its use during the war between Catholics and reformers. The words printed on the machines had become a true weapon of ideology. The Catholics released then masse large batches of articles, images and pamphlets which conveyed a negative image of the Protestants. Their approach to propaganda was simple; we are the good against the evil (Protestants). For example, they portrayed Martin Luther as the Antichrist who leads the world into chaos and an apocalypse. In retaliation, the Protestants also resorted to means of propaganda with the help of drawings depicting the Pope of Rome as a Babylonian harlot, distributing them to members of the uneducated working class. [3.2]

The next breakthrough in communication occurred in the late 19th century. This was largely due to the appearance of the telegraph, which allowed for information to be transmitted quickly and, most importantly, the possibility of transmitting information over a distance. Newspapers and magazines received mass printing and millions of people learned to read. Before the beginning of the First World War, propaganda departments appeared, convincing people that the war is needed personally by everyone. Propaganda used family values and the personal best interests of everyone. This approach evidently bore fruit as people believed yet were unwarily being subjected to deception. Yet although this could not be understood immediately, they discovered a completely new weapon which captures their thought. [3.3]

Edward Bernays was quoted stating “We are governed, our minds are moulded, our tastes formed, our ideas suggested, largely by men we have never heard of”. [3.4]

The twentieth century became the age of propaganda, largely thanks to it, totalitarian regimes were established in Europe and Asia. Notably, propaganda was utilized widely in Russia during its communist revolution involving the struggle for power between the monarchists and Bolsheviks, which had employed a train consisting of sixteen carriages decorated with ideologically inspired graffiti, featuring a mobile cinema theatre, gramophones, and a printing press. Both sides actively used campaign posters calling to fight against the enemy,

with that of the Bolsheviks calling to fight to the last drop of blood and making their intentions clear of having no hesitation in the removal of deserters.

In the Third Reich, the Ministry of Propaganda seized millions of so-called national radio receivers. Later, the minister Joseph Goebbels admitted that the Nazis would not have managed to convince the people without them. [3.9.1]

The United States and the Soviet Union used propaganda on mass consciousness more actively than anyone else. Both sides used all areas of life: cinema, television, sport and music, by which point any technology, or any means of mass culture became an instrument of manipulation. [3.5]

### **3.2 The Impact of The Internet on Propaganda and Information Sharing**

In the beginning of the 21<sup>st</sup> century, outright propaganda suffered a decline in effectiveness even under the condition of using new formats, and propaganda seemed to have been losing momentum. But here, another revolution took place in the field of communication – the Internet, as well as an increasing widespread access to it with greater access to personal computers. It would seem that the World Wide Web would open a new door for independent media and journalism, the freedom and of information and its distribution, and although this was true to a certain extent, the information shared would hold a tendency to be rather subjective. Information was being shared on such a scale at which verifying its authenticity had become difficult, if not impossible, leading to the wide-scale appearance of fake news. [3.21]

Professional media as a means of distributing information has lost its formerly held power. People entrusted independent anonymous bloggers, or fake news more than journalists providing analysed and verified facts. [3.6]

With the development of social media platforms, it was also easier for people and organisations to disseminate false information to a large audience. Additionally,

technological advancements have made it simpler to produce convincing deepfake movies and images, making it even more difficult to distinguish between actual and fake material. As a result, it is now more crucial than ever for people to learn media literacy techniques and critically assess the material they come across online. [3.6]

### **3.3 The Psychology of Propaganda and Its Influence on People**

Psychologists of the 20<sup>th</sup> century studied the widespread phenomenon of how people believe in statements which could be immediately debunked as false with little research required. There also exists the psychological phenomenon of how a picture, if an elaborately detailed and painted extensively, will fail to convince. [3.11] Whereas a more primitive lie can become more convincing than the truth itself, as the truth comes in different shades, with different nuances explanations and confusions. How did such ridiculous, borderline misanthropic slogans and statements manage to cease to cause laughter or horror and instead seduce the minds of millions? [3.7]

Loud, bold slogans and statements, typically conveying a call for specific action or false ideas are traits of undeniable propaganda that is among the easiest to recognise as its authors do not even attempt to conceive their end goal and intentions. This phenomenon is known as “white propaganda” due to the fact that it is obvious and nowadays most inefficient. Contrastingly, so-called “grey” or “hidden” propaganda comes to its aid. It can be witnessed from news articles, movies, news, posts made on social media and even computer games. Any media format can be utilised as a tool for propaganda itself, yet the methods are generally always the same. Usually, facts or misinformation disguised as facts are used to convince for their position, but to which do propagandists resort once the facts speak against it? [3.8]

Falsified information affects the emotions of the recipient and manipulates objective facts. There exists a lot of different techniques, including labelling, patriotism, supposedly “expert” opinion, ignorance of context, the creation of a habit of violence, inevitable victory, half-truths, artificial connections, constructed uncertainty, peer pressure, media control, instinct and the criticism of individuals as opposed to ideas, among various others. [3.9]

In order for propaganda to remain effective, it must be targeted directly at the emotions its recipient and most especially to those related to their natural instinct of survival and self-preservation, of which fear is the most basic form and propaganda can utilise it with incredible effectiveness. New agendas often tend to exaggerate the danger of a given selected threat. Fear prevents the critical thought of individuals and allows to ease the presentation of falsified information to them as they fear a non-existent threat. In the face of imminent danger, it is fear that prevails as opposed to common sense. Propaganda generally tries to demonstrate that a selected position receives widespread support, and that victory is inevitable. A general feeling of security and safety can be observed within a society when it has a strong majority. [3.10]

### **3.3.1 Criticism of personalities as opposed to ideas**

Propaganda seldom responds to arguments and instead resorts often to the criticism of its opponent as a person using ad hominem tactics. At the same time, the opponent's shortcomings are not related directly to the disputed topic. This works by the principle that an individual's shortcomings provide a convenient opportunity to insult and belittle. It is far easier to ridicule an individual for their arguments made as opposed to attempting to countering them. Promises without foundation: propaganda takes one fact to present a viewpoint as truth, sources of false information offer comprehensible promises which society grasps with gratitude. [3.4]

### **3.3.2 Framing**

The same facts are presented in different ways for the purpose of producing the opposite effects. When a ready-made conclusion is offered, a person may accept it out of the convenience offered in doing so and in saving them the effort required for independent analysis.

Examples of such manipulated facts include:

1. The glass is half empty – the glass is half full.
2. Automation increases unemployment – automation removes laborious routine work.
3. Economy class housing – suburban ghettos on the outskirts



4. A war has been declared – a special operation was announced [3.22]

### **3.3.3 Logic Traps**

Propaganda attempts to make a statement appear to be logical, while at the same time violating the very laws of logic. False dilemma: when people are presented with the lesser of the two evils better than the alternative, when in reality often there is a third option which may involve no victim. A drastic example may include the decision to censor and restrict the viewership of independent media to ensure that the youth does not support the declared enemy [3.20].

### **3.3.4 Time Traps**

When society is forced to believe that change for the better is unlikely as a result of historic events. Or more specifically, the supposed justification of an ill today and tomorrow by its prevalence yesterday. For instance, the expression “There will always be corruption”, suggestive of the perceived normality of the subject in question. This approach works because it follows the laws of formal logic. [3.22]

### **3.3.5 People’s Tendency to Confirm False Statements**

If society has already once been successfully deceived, then it is much easier to do so again in the future. It is difficult for people to admit to making mistakes and to admit that their position was or is objectively wrong. Because of this, the next time deception is easier to achieve because of people’s refusal to admit to past defeat and how they can continuously independently search for (possibly incorrect) evidence supportive of their incorrect claims. [3.20]

### **3.3.6 Confusion propaganda**

Confusion propaganda, also known as “whataboutism”, is a technique used in propaganda to present contradictory information and interpretations of events to create confusion and doubt in the minds of the audience. It aims to weaken the audience's trust in the information and make them more susceptible to manipulation. The propagandistic source may use half-truths and other manipulative tactics to create ambiguity and make it difficult for the audience to discern the truth. Confusion propaganda is often used to deflect criticism

or create distractions and can sow division and conflict by pitting different groups against each other.

### **3.4 Methods of Propaganda on The Internet**

**Search engine optimization (SEO):** SEO involves optimizing website content to rank higher in search engine results pages. It can be used to spread propaganda by skewed search results that support a specific ideology or point of view.

**Fake news websites:** Websites that spread incorrect or misleading information are made to look like reputable news sources. They can be utilised to influence others and disseminate misinformation.

**Influencer marketing:** Influencer marketing is the practise of paying online influencers to spread the word about a brand or service to their followers. By using influencers to support a certain political party or philosophy, propaganda messages can be promoted.

**Astrourfing:** Astrourfing is the practise of employing fake social media accounts, hired commentators, or fraudulent online reviews to give the appearance that a specific cause or product has widespread support. It can be applied to further a specific agenda or influence public opinion. [3.12]

**Social media manipulation:** Social media platforms are often used to manipulate public opinion by creating fake accounts and spreading propaganda messages through likes, shares, and comments. Social media is a great tool for propaganda efforts because of its speed and audience reach.

**Memes and viral content:** Memes and viral content are frequently used to disseminate propaganda online. Memes are particularly powerful because they can swiftly and easily spread throughout social media platforms. They frequently have a comical or light-hearted tone, which can make propaganda more appealing to audiences. [3.12]

**Clickbait headlines:** Clickbait headlines are written to catch readers' interest and get them to click on a link. They frequently include sensational language, provocative images, and false information to encourage people to a specific website.

### **3.5 Application Programming Interfaces**

APIs (Application Programming Interfaces) are a key component of contemporary software development because they allow for the efficient and standardised transmission of data and functionality across various software components. APIs simplify the creation and maintenance of intricate and integrated systems by establishing a set of guidelines and protocols for software programmes to communicate with one another. [3.13]

There are many different kinds of Application Programming Interfaces, including those for operating systems, libraries, and the websites. The most prevalent kind of APIs are web APIs, which communicate online via the HTTP(S) protocol. They give users access to information and web services like social network feeds, weather information, and e-commerce items. On the other hand, operating system APIs provide access to the resources of the underlying operating system, including files, networks, and devices. Programmers can develop applications more quickly and efficiently by using library APIs, which offer a set of methods and classes for use within a programming language or framework. [3.14]

#### **3.5.1 VKontakte and API**

VKontakte is a popular social media platform that was introduced in Russia in 2006 and has more than 500 million registered users worldwide. It includes groups, events, communities, newsfeed, music, chat, photo and video sharing, and music. It has been criticised for using its platform to spread disinformation and propaganda. VK was charged with disseminating pro-Russian content during the 2022 Russian invasion of Ukraine and banning opposing views. In response, VK asserted that it was working with fact-checking organisations and was aggressively monitoring and eliminating anything that violated the rules. Despite this, VK continues to draw flak for how it handles propaganda and fake information. [3.15]

Developers can use VK API to create applications for various platforms, including web, desktop, and mobile devices. The API supports several programming languages, including PHP, Python, JavaScript, and others. VK API provides both user-specific and public methods. All developers have access to non-personal data such as public user profiles, images, and groups using public methods, which provide them access to non-personal data. Users must authenticate their applications with VK and grant access to personal information such as friend lists and private messages when using user-specific methods.

Developers need to register their applications and get access tokens before using the VK API. To authenticate requests and grant access to the required data, an access token is used. VK API also offers several resources, such as SDKs (Software Development Kits), documentation, and code samples, to help developers get started and streamline the development process. [3.16]

## **3.6 Sentimental Analysis**

### **3.6.1 Definition**

Sentiment analysis, also referred to as emotion AI or opinion mining, involves using natural language processing, text analysis, biometrics, and computational linguistics to systematically detect, extract, measure, and analyse subjective information and emotional states. [3.17]

### **3.6.2 Sentimental Analysis and Propaganda**

Since propaganda frequently uses emotionally charged language to manipulate the audience's emotions and ideas, sentiment analysis can be a useful tool in the investigation of propaganda. Sentiment analysis involves examining the attitude, tone, and feelings expressed in a text to determine the author's intentions and the potential effects the propaganda may have on its intended audience.

One can determine the feelings that the propagandist is trying to create in the audience by examining the sentiment of the language used in propaganda. Sentiment analysis can identify the negative sentiment and fear-inspiring vocabulary used in the text, for

instance, if the propaganda is utilising fear-mongering techniques. Moreover, sentiment analysis can assist in identifying the exact demographics or groups that the propaganda is aimed at by identifying the language used to evoke feelings or ideals. In general, sentiment analysis can help provide a deeper understanding of the emotional impact of propaganda, which can be important in developing effective strategies to that effectively combat it. [3.18].

### **3.6.3 Tools**

The Hugging Face tool is a commonly used platform for post comment sentiment analysis. Natural language processing models are used to classify comments into different sentimental states, such as good, negative, or neutral. Because it provides a variety of pre-trained models that can be customised for use with certain datasets. The Hugging Face tool also offers a user-friendly interface for gaining access to and utilising these models, making it usable by researchers. [3.19]

## **4 Practical Part**

### **Introduction**

The purpose of this practical part is to investigate the prevalence of propaganda in the Russian population using modern IT technologies, specifically API and sentiment analysis tools. These tools will enable a more comprehensive analysis of the effects of propaganda on the Russian population, including the identification of specific propaganda techniques and their impact on different groups of people.

The study will utilize the VK API, which will allow for the efficient collection of data from VK to examine the use of specific language and other media in the spread of propaganda. Additionally, sentiment analysis with pre-trained AI will provide a nuanced understanding of the emotional impact of propaganda on individuals.

The study will also conduct a survey through Google Forms to collect data on the prevalence of propaganda and the most popular sources of information among different social groups, age categories, and genders. The survey will compare two groups of people - Russians who live in Russia and Russians who live in EU countries since they can use different sources of information even if they have common demographic traits. To collect the data from people, the study will utilize social media platforms such as Telegram and VKontakte.

The collected survey data will be analysed using IBM SPSS statistics to identify key patterns related to the prevalence of propaganda and its effects on individuals. The use of SPSS statistics will enable a more detailed analysis of the survey data and allow for the comparison of data between different groups. Overall, the combination of modern IT technologies and traditional survey methods will provide a more in-depth analysis of the effects of propaganda on the Russian population.

## **4.1 Objectives of The Survey**

### **4.1.1 Objectives**

The objective of this practical part is to investigate the prevalence of propaganda in the Russian population using modern IT technologies. The first step of the research involves conducting a survey through Google Forms and reaching out to people who fit the target demographic via social media platforms such as Telegram and VKontakte. By analysing the collected data with IBM SPSS statistics, it will be possible to identify key patterns related to the prevalence of propaganda and to determine the most popular sources of information among different social groups, age categories, and genders.

“As traditionally defined, social research has been concerned with gathering data that can help us answer questions about various aspects of society and thus can enable us to understand society. These questions may pertain to very specific problems...” [4.1]

One of the traditional methods of collecting data is the survey of the population. Methods used in sociological research are means to achieve the goal. A survey as a method “would be used to gather information that would benefit society either through the direct application of findings to the amelioration of social ills or through the use of the findings to test theoretical issues in social science” [4.1]

### **4.1.2 Background**

On February 24, 2022, at 5 am Kyiv time, Russian troops arrived on the territory of Ukraine. [4.2] This invasion created a worldwide informational resonance and caused a wide international discussion. The negative and condemning sides of the reaction were expressed in the resolutions of the Russian Federation by the parties responsible for the countries of the world, such as the UK, USA, Canada, France, Germany, Italy, Japan and Spain and the organizations of the exodus (UN) and the North Atlantic Treaty Organization (NATO). [4.3]

On March 2, 2022, Resolution ES-11/1 took place. This document condemns Russia's invasion of Ukraine and calls for the complete withdrawal of decisions on recognition of the self-proclaimed Donetsk and Luhansk People's Republics. The resolution

was supported by 96 countries and was adopted with a vote of 141 in favour, 5 against and 35 abstentions. [4.4] Considering the seriousness of this conflict, it's obvious that the mass media of the two countries actively waged an information war, the spreading of disinformation. The goals of the Russian media are to find and show a casus belli, to justify this invasion [4.5], while Ukrainian propaganda can spread and exaggerate Ukrainian resilience and courage against Russian aggression [4.6]. Thus, the most relevant social survey now is a comparison of how propaganda and fake news affect the citizens of Russia.

## **4.2 Hypotheses**

By testing hypotheses, this study aims to contribute to a better understanding of the news consumption patterns and level of trust in news sources among Russian citizens living in different regions.

**H0:** There are no significant differences in the way Russian citizens living in EU countries and Russian citizens living in Russia use and trust different sources of information, and the prevalence of propaganda and fake news in the media has no significant impact on the ability to distinguish between truth and fake news between the two groups.

**H1:** There are significant differences in the way Russian citizens living in EU countries and Russian citizens living in Russia use and trust different sources of information, and the prevalence of propaganda and fake news in the media has a significant impact on the ability to distinguish between truth and fake news between the two groups.

## **4.3 Creation of The Survey**

### **4.3.1 Limitations**

Surveys have limitations and not fully represent the entire population under study. However, acknowledging and addressing limitations through solutions can improve the accuracy and generalizability of the survey findings.

#### **1. Limited representativeness**

Limited representativeness is the idea that not all the population under study may be accurately represented by the survey results. The sample of people that reply to the survey



may not be representative of the total population, which might happen owing to constraints in the sampling process.

Solution:

- Increasing sample size:

The sample size was increased to improve the representativeness of the sample, since a larger sample size provides more data and can help to reduce the impact of random variation.

- Use stratified sampling:

To reduce bias and ensure that the sample is representative, the demographical part of the survey was conducted in the way to dividing the population into subgroups and selecting a sample from each subgroup. The survey should divide population according to age, gender, level of education, current place of residence.

Also, it is assumed that since the methods of sending the survey included using social media such as Telegram and Vontae, people who answered the survey represent those who has access to the internet and involved social media and live in big cities (around 1 million people)

## 2. Limited depth:

Closed-end questions are utilized in surveys to gather data quickly and easily, but they often result in limited depth and detail. Other research techniques are needed to get around this problem and allow a more detailed analysis of the subject at hand.

Solution:

- One such solution is to conduct open-end interviews with survey participants using social media platforms such as VK and Telegram. By asking questions that allow participants to express their thoughts and opinions freely, researchers can gather more in-depth and nuanced data.
- Sentiment analysis software can be used to analyse the responses and identify patterns and themes in the data. Additionally, natural language processing techniques can be employed to extract key phrases and topics from the

responses, allowing researchers to gain a more detailed understanding of the participants' perspectives.

#### **4.3.2 Methods**

A survey was designed and distributed using Google Forms. Google Forms which are a free online survey tool offered by Google. It allows users to create and distribute surveys, collect responses, and analyse the data. The survey consisted of both multiple-choice questions and open-end questions to gather comprehensive data. The flexibility to allow respondents to remain anonymous was one of the primary aspects of Google Forms that was used in this survey, allowing for a higher level of honesty and transparency in the responses. The data could be quantitatively examined thanks to the use of multiple-choice questions. Overall, the survey's design, which made use of Google Forms, was a successful and efficient way to gather important data for the study on the impact of state propaganda.

As shown on Figure 1. and Figure 2. Social media platforms such as Telegram, VK were used to reach out to people who fit the target demographic to ensure the accuracy of the survey results. The questionnaire was specifically sent to a group of friends who met the study's eligibility requirements. The goal was to get replies from real people who could offer insightful information on how governmental propaganda affects various categories of people. The social media platform made it possible to distribute the survey swiftly and broadly to a specific audience, which raised the survey response rate and improved the quality of the data gathered. To prevent any potential interference in the survey results, the questionnaire was not sent to any publicly accessible groups where automated bots or non-targeted people could have accessed and completed the survey. Ultimately, this approach proved to be an effective means of gathering valuable data for the research project.

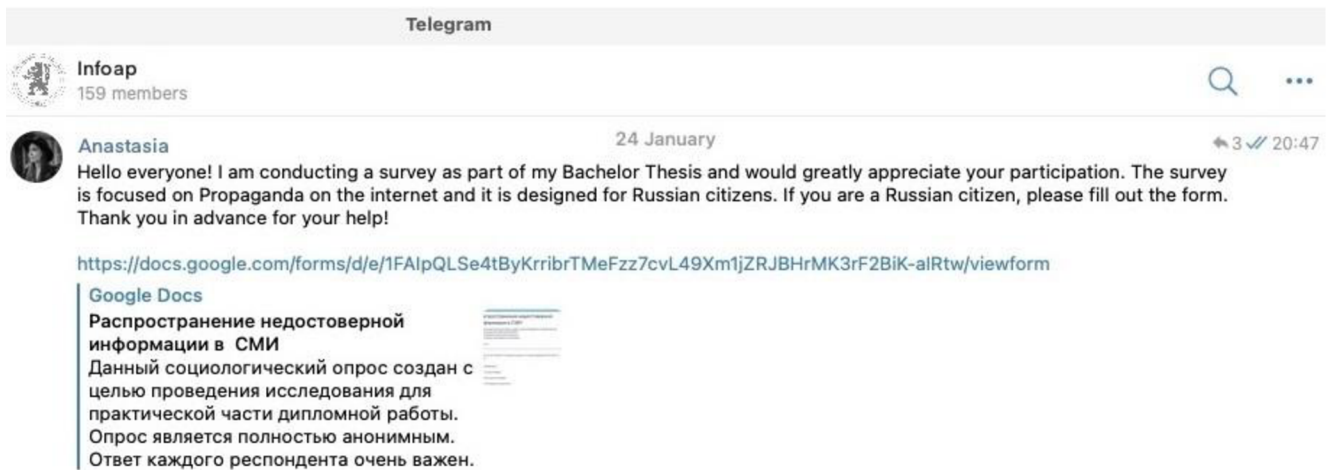


Figure 1. Survey Outreach on Telegram

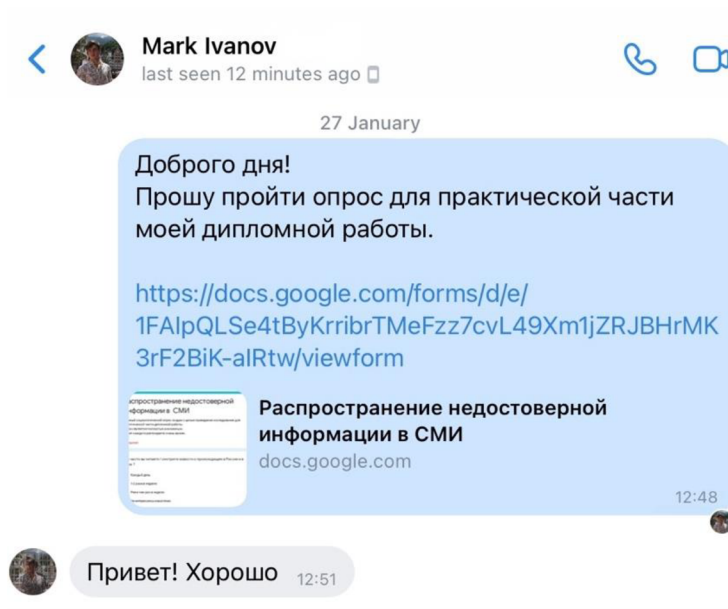


Figure 2. Survey Outreach on VKontakte

## 4.4 Survey Questions

### 4.4.1 Questions About Influence of Propaganda

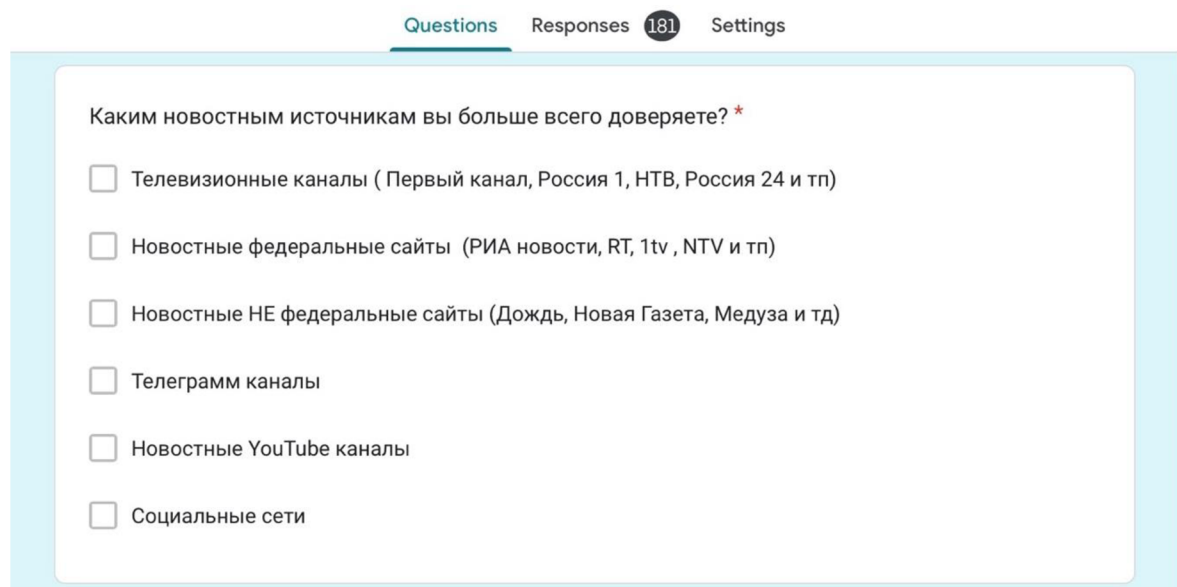
Conducted survey considers the opinions of two groups of people: Russian citizens who live in Russia and Russian citizens who live abroad. It is assumed that these two groups of people may be influenced by different news sources and as a result have significant impact on the level of trust in news sources and the ability to distinguish between truth and fake news. A sociological survey contains 8 main questions and 5 demographical questions

shown in the Appendix 1.25 “Survey Questions”. An example of one survey question which can help to understand what news sources people use and trust shown in Figure 3.

*Question 3: What news sources do you trust the most?*

*Available answer options:*

1. TV channels (“First channel”, “Russia 1”, “Russia 24”, “NTV”, “RIA”, “Russia Today”)
2. Federal news website ([www.1tv.com](http://www.1tv.com), <https://vgtrk.ru/russiatv>, <https://www.ntv.ru/>, <https://ria.ru/>, <https://russian.rt.com/> )
3. Not federal news website (<https://tvrain.tv/>, <https://novayagazeta.ru/>, <https://meduza.io/en> )
4. Telegram channels
5. YouTube channels
6. Social media



Questions Responses 181 Settings

Каким новостным источникам вы больше всего доверяете? \*

- Телевизионные каналы ( Первый канал, Россия 1, НТВ, Россия 24 и тп)
- Новостные федеральные сайты (РИА новости, RT, 1tv , NTV и тп)
- Новостные НЕ федеральные сайты (Дождь, Новая Газета, Медуза и тд)
- Телеграмм каналы
- Новостные YouTube каналы
- Социальные сети

*Figure 3. Example of Survey Question on Google Forms*

Explanation and purpose of each question are shown in the Appendix 1.26 “Purpose and Rationale of Survey Questions”.

Example short explanation for the question:

*About (1) TV channels and (2) Federal news website:*

Russian government-controlled TV channels like First Channel, Russia 1, Russia 24, NTV, RIA, and Russia Today (RT) and their news websites are known to present a biased view of news and events that aligns with the government's agenda. They may suppress information critical of the government, selectively report on events, and spread political propaganda to influence public opinion. The government's history of censorship, targeting independent media, and limiting access to critical information is well-documented.

*About (3) Not federal news websites:*

TV Rain, Novaya Gazeta, and Meduza are independent Russian news sources known for their critical coverage of Russian politics. TV Rain has faced government pressure in the past, while Novaya Gazeta journalists have been killed or harassed. Meduza operates independently from the Russian government in Latvia and is praised for providing balanced and objective journalism. It's considered a reliable alternative to state-controlled Russian media by international press watchdogs and experts.

*About (4) Telegram channels:*

Telegram is a messaging app with security features like end-to-end encryption and self-destructing messages. It can be used as a social media platform through public channels. Telegram provides anonymity and diverse perspectives, making it a popular platform for accessing critical or sensitive information without fear of censorship or surveillance. However, not all Telegram channels are trustworthy sources of information.

*About (5) YouTube channels and (6) social media*

YouTube channels and social media platforms can be a source of both credible and biased information, and it can be hard to distinguish between the two. Some channels and accounts may present misleading or false information to promote a certain political agenda, while others may provide accurate and unbiased news.

#### **4.4.2 Demographical Part**

The demographic questions in the survey serve the purpose of identifying patterns related to the prevalence of propaganda and its effects on different social groups, age

categories, genders within the Russian population. Since the survey aims to compare two groups - Russians living in Russia and Russians living in EU countries - to determine if there are differences in their exposure to and perception of propaganda, considering their shared demographics. By including demographic questions, the study can provide a more detailed analysis of the influence of propaganda on specific segments of the population, allowing for a better understanding of the overall impact on Russian society.

## **4.5 Results of The Survey**

### **4.5.1 Collected Data**

Few months after the publication of this survey, a sufficient number of responses were collected. The number of responses were collected in such a way that the number of responses from Russian citizens who live in Russia right now and who represent group 1 were 25 samples bigger than to the number of responses from Russian citizens who live in the European Union countries and represent group 2.

As a result, the total number of responses was collected - 181 responses. Among which 103 responses from group one and 78 responses from group two. When the data was collected through an online survey using Google Forms, and the responses were exported as a CSV file. The CSV file was then imported into SPSS Statistics using the Text Import Wizard, which allowed the data to be formatted correctly for analysis. To effectively compare data between the two groups, descriptive analysis with frequency tables was utilized.

### **4.5.2 Frequency Analysis**

After collecting data, SPSS Statistics was used for implementing frequency analysis. Tables of results are provided below.

#### **Question 1:**

As demonstrated in Figure 4, it appears that Russian people who live in the EU are more likely to read/watch news about what is happening in the world compared to people who live in Russia.

How often do you read / watch news about what is happening in Russia and in the world?

	Russia	EU
Every day	32.0%	25.6%
1-2 times a week	35.9%	48.7%
Less than once a week	18.4%	19.2%
The news doesn't interest me	13.6%	6.4%

*Figure 4. Frequency of reading/watching news*

Specifically, 48.7% of people who live in the EU reported reading/watching news 1-2 times a week, compared to 35.9% of people who live in Russia. Conversely, people who live in Russia are more likely to report reading/watching news every day than people who live in the EU, with 32.0% of respondents from Russia reporting doing so, compared to 25.6% of respondents from the EU. However, the data also shows that a higher percentage of people in Russia 13.6% indicated that news doesn't interest them, compared to only 6.4% of respondents from the EU. Overall, the data suggests that people from both groups have a relatively high level of engagement with news media, but with some slight differences.

**Question 2:**

As shown in Figure 5, Google is the dominant search engine in both Russia and the EU. However, Yandex is more commonly used in Russia than in the EU. Specifically, 53.4% of people who live in Russia reported using Google as their primary internet search engine, compared to 71.8% of people who live in the EU. In contrast, 35.9% of respondents from Russia indicated that they use Yandex, compared to only 7.7% of respondents from the EU. A higher percentage of people from the EU (20.5%) reported using other search engines than those listed in the survey question, compared to only 10.7% of respondents from Russia.

What Internet search engines do you usually use to search for information?

	Russia	EU
Yandex	35.9%	7.7%
Google	53.4%	71.8%
Other	10.7%	20.5%

*Figure 5. Internet Search Engine Preferences*

Overall, the data suggests that there are some differences in the most used search engines between these two regions, with Google being the dominant search engine in both regions, but with Yandex being more commonly used in Russia.

**Question 3:**

The trust in traditional news sources differs significantly between people living in the EU and Russia, as shown in Figure 6, none of the respondents from the EU indicated that they trust TV channels or federal news websites the most, while 36.9% of respondents from Russia indicated that they trust TV channels the most, and 16.5% trust federal news websites the most. In contrast, a higher percentage of people from the EU reported trusting non-federal news websites, telegram channels, YouTube channels, and social media, compared to people from Russia. For instance, 43.6% of respondents from the EU trust non-federal news websites, compared to only 15.5% of respondents from Russia.



What news sources do you trust the most?

	Russia	EU
TV channels	36.9%	0%
Federal	16.5%	0%
Not Federal	15.5%	43.6%
Telegram	43.7%	67.9%
YouTube	22.3%	46.2%
Social Media	31.1%	37.2%

Figure 6. Most Trusted News Sources

Overall, the data suggests that people in Russia have more trust in traditional news sources like TV channels and federal news websites, while people in the EU rely more on non-traditional sources like non-federal news websites, telegram channels, YouTube channels, and social media for their news.

**Question 4:**

As demonstrated in Figure 7, people who live in Russia are more sceptical of sources of information or organizations that have a "foreign agent" status in the country.

Do you trust the source of information / organisation that has a status of "foreign agent" in the Russian Federation?

	Russia	EU
I don't trust	37.2%	5.1%
I might trust (it depends on the organisations)	25.6%	52.6%
I definitely trust	10.3%	32.1%
Difficult to answer/ I have not heard of this status	26.9%	10.3%

Figure 7. Trust in Status of "Foreign Agents"

Only 10.3% of respondents said they definitely trust such sources, while 37.2% said they don't trust them. On the other hand, people who live in the EU are more likely to trust sources with this status, with 32.1% saying they definitely trust them. However, most of EU respondents (52.6%) said their level of trust would depend on the organization. Finally, a significant portion of both groups (26.9% for Russia and 10.3% for EU) were unsure or had not heard of this status.

**Question 5:**

As shown in Figure 8. Perceptions of the amount of propaganda or fake news in the media differ significantly between people living in the EU and those living in Russia. 85.9% of respondents from the EU believe that there is a lot of propaganda or fake news in the media in Russia, while only 31.1% of respondents from Russia answered "Yes". Instead, 44.7% of Russian respondents believed that there is no more propaganda or fake news in the media in Russia than in other countries, compared to 5.1% of EU respondents. Moreover, none of the respondents from the EU answered "No" to the question, while 14.6% of respondents from Russia did.

Do you think that there is a lot of  
propaganda or fake news in the media in  
the Russian Federation?

	Russia	EU
Yes	31.1%	85.9%
No more than in the media of other countries	44.7%	5.1%
No	14.6%	0%
Difficult to answer	9.7%	9.0%

*Figure 8. Perception of Propaganda/Fake News in Russian Media*

Overall, the data suggests that people in the EU are more likely to perceive a high amount of propaganda or fake news in the media in Russia compared to people in Russia.

**Question 6:**

As demonstrated in Figure 9. A higher percentage of people living in the EU 89.7% reported experiencing doubts or distrust towards news information from Russian federal channels/websites, compared to people living in Russia 70.8%. In addition, a higher percentage of respondents from the EU 87.1% reported experiencing these feelings often or always, as opposed to respondents from Russia 44.6%. This indicates that news information from Russian federal channels/websites is viewed with more scepticism by people living in the EU than those living in Russia.

Meanwhile, among Russian respondents living in the EU, 2.6% said they rarely or never experience this feeling, while 40,8% of people living in the EU reported experiencing it.

Does it happen that news information on Russian federal channels/websites causes you distrust, doubts? And if so, does it happen often or rarely?

	Russia	EU
It doesn't happen	14.6%	0%
Rarely	26.2%	2.6%
Often	32.0%	39.7%
Always	12.6%	47.4%
Difficult to answer	14.6%	10.3%

*Figure 9. Distrust in Russian Federal News Sources*

**Question 7:**

As shown in Figure 10. Majority of surveyed people who live in the EU believe they can distinguish truth from fakes in the flow of information compared to people who live in Russia. Specifically, 64.1% of respondents from the EU answered "always" or "often", compared to 40.8% of respondents from Russia. On the other hand, a higher percentage of respondents from Russia answered "rarely" or "it's not all that simple", with a combined total of 58,2%, compared to 33.3% of respondents from the EU.

In your opinion, is it possible to distinguish truth from fakes in the flow of information?

	Russia	EU
Always	4.9%	12.8%
Often	35.9%	51.3%
Rarely	19.4%	17.9%
Never	1.0%	2.6%
It's not all that simple	38.8%	15.4%

Figure 10. Ability to Distinguish Truth from Fakes

Overall, the data suggests that people who live in the EU are more confident in their ability to distinguish truth from fakes in the flow of information compared to people who live in Russia.

**Question 8:**

As demonstrated in Figure 11, a significant number of people in Russia believe that the best way to fight against fake news is to prohibit false sources at the legislative level, with 48.7% of respondents indicating this option. In contrast, a majority of people in the EU (87.2%) believe that questioning any information without trusting one specific resource is the most effective way to fight against fake news. Additionally, a similar percentage of respondents from both regions believe that creating funds and websites to combat fake news is a viable solution (6.4% in both cases for Russia and the EU).

How do you think you can effectively fight against fake news?

	Russia	EU
Create funds and websites to combat fakes	6.4%	6.4%
Prohibit at the legislative level any sources on which they can publish false	48.7%	6.4%
Question any information without trusting one specific resource	44.9%	87.2%

Figure 11. Strategies to Combat Fake News

### 4.5.3 Hypotheses Testing

To find a connection between several categorical variables, various statistical tests can be used depending on the type of data and research question. As show in Figure 12. IBM SPSS Statistics was used for analysing the survey data. For comparing categorical variables between two groups, chi-square test was conducted.

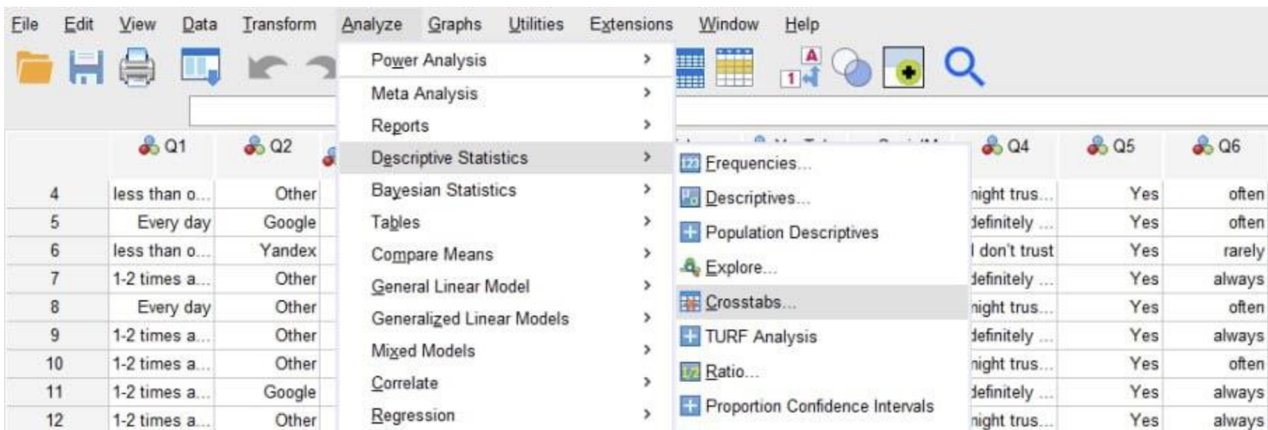


Figure 12. Crosstabs Analysis on SPSS Statistics

To test the null hypotheses which provided in the section 1.11 Hypotheses, four chi-square tests were conducted using the crosstabs analysis in IBM SPSS Statistics. The first chi-square test aimed to find a significant association between the place of residence (Russia or EU countries) and the level of trust in federal websites. The second chi-square test investigated the association between the place of residence (Russia or EU countries) and the level of trust in non-federal websites. The third chi-square test examined the association between the place of residence (Russia or EU countries) and the choice of primary search engine. The fourth chi-square test examined the association between the place of residence (Russia or EU countries) and the ability to distinguish between truth and fake news. All four tests were used to analyse categorical variables.

As shown in Figure 13. The results revealed that there is a significant relationship between “Where do you currently live” and people’s trust in federal news sources (TV channels and federal websites), with the test statistics equal to 48.076, and a p-value below 0,001. The degrees of freedom (df) for the chi-square test were 1.

<b>Crosstab</b>					
		Fed_2cat			
			0	1	Total
Where do you currently live?	Russia	Count	56	47	103
		Expected Count	76.3	26.7	103.0
	EU countries	Count	78	0	78
		Expected Count	57.7	20.3	78.0
Total	Count	134	47	181	
	Expected Count	134.0	47.0	181.0	

<b>Chi-Square Tests</b>					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	48.076 <sup>a</sup>	1	<.001		
Continuity Correction <sup>b</sup>	45.732	1	<.001		
Likelihood Ratio	65.320	1	<.001		
Fisher's Exact Test				<.001	<.001
Linear-by-Linear Association	47.810	1	<.001		
N of Valid Cases	181				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.25.

b. Computed only for a 2x2 table

Figure 13. Chi-Square Tests and Crosstab of The Level of Trust in Federal Websites

The results show the significant relationship between the level of trust in federal websites and the demography of people (Russia or the EU). Specifically, Russian citizens living in EU countries are less likely to trust federal websites compared to Russian citizens living in Russia.

As shown in Figures 18, 19 in the section 1.28 Tables of Hypotheses Tests, the third chi-square test analysed the association between the place of residence (Russia or EU) and the primary search engine used (Yandex, Google, or other). The results showed that there was a significant association between the two variables, with a p-value below 0.001, the degrees of freedom for this test equal to 2 and test statistics equal 20.216, indicating that the association is unlikely to have occurred by chance. Overall, the primary search engine is Google for both groups, but Yandex is used more in Russia than in other countries.

The second chi-square test examined the association between place of residence (Russia or EU) and the level of trust in not federal websites. According to Figure 20 in section 1.28 Tables of Hypotheses Tests, the results showed that there was a significant association between these two variables, with a p-value below 0,001, indicating that the observed frequencies were highly unlikely to have occurred by chance. The test statistics equal to 29.880 and the degrees of freedom for the test were 1. Overall, these findings suggest that there is a strong relationship between place of residence and the level of trust in not federal websites among the study participants. Specifically, Russian citizens living in EU countries are likely to trust non-federal websites compared to Russian citizens living in Russia.

And finally, as demonstrated in Figures 21,22 the fourth chi-square test analysed the relationship between the place of residence (Russia or EU) and the ability to distinguish truth from fakes in the flow of information. The results revealed a significant association between the two variables, with a p-value below 0.005, test statistics equal 15.087 the degrees of freedom for this test equal to 4, indicating that the association is unlikely to have occurred by chance. Russian citizens living in EU countries are more likely to report being able to distinguish truth from fakes compared to Russian citizens living in Russia. In Russia, a higher proportion of respondents reported rarely or never being able to distinguish truth from fakes compared to those living in EU countries.

The results of all four chi-square tests indicate a significant relationship between the variables studied. Otherwise, if the null hypothesis always claimed no such relationship, then it would have been rejected. Hypothesis 1 discussed within 4.2 “Hypotheses” prevail and is acknowledged for acceptance.

#### **4.6 Open-End Questions Interview**

Conducting open-end interviews is a method for dealing with the limited depth of survey, as mentioned in section 1.12.1 Limitations. More detailed and comprehensive data can be collected by allowing participants to express their ideas and opinions without restriction through questions. The Interview was sent to several survey participants on

Telegram and VKontakte with the same method of distributing questionnaire as shown on Figure 1. and Figure 2.

The Interview consists of four questions related to the veracity of online news sources and articles, the influence of social media and technology on propagating propaganda in the media, encounters with online bots or trolls that disseminate propaganda, and the importance of media literacy and digital literacy in preventing the proliferation of propaganda and fake news. All questions are provided in section *1.28 List of The Interview Questions*.

After collecting the data, Pre-trained AI models can be helpful in identifying any patterns or trends that appear across the responses, as well as in providing insights into the attitudes and opinions expressed by the respondents in their answers to the questions.

As shown in section 1.18.3 Analysis of Interview responses, sentiment analysis was used to analyse the sentiment behind the answers to these questions, such as whether the respondents had positive, negative, or neutral attitudes towards the veracity of news sources, the influence of social media and technology on propaganda, the problem of bots and trolls, and the significance of media literacy.

Text analysis tools were used to generate word clouds, frequency lists, and visualization tools that could help to identify patterns and themes in the respondents' answers to the questions. For example, highlighting any similarities or differences in the responses and identifying common words or phrases used in the answers could be useful.

## **4.7 API Model**

### **4.7.1 Introduction**

To understand propaganda as a complex and multifaceted phenomenon from various perspectives, a survey was conducted to explore the prevalence of propaganda and its impact on individuals. In addition to the survey, API technology was utilized to provide a comprehensive analysis. The use of API allowed for the efficient collection and retrieval of data from various sources, including VK, the most widely used social network in Russia. By gathering information from VK, the study was able to accurately depict the attitudes towards



and effects of propaganda on the Russian population. The combination of survey data and API analysis enabled the study to provide insights into the prevalence and impact of propaganda and fake information on social media platforms.

#### **4.7.2 Obtaining an Access Token**

To access all comments on a post using the VK API, an access token must be obtained as a first step. The VK API requires an access token to ensure that only authorized users can retrieve sensitive information and to protect VK user data and privacy. Access tokens provide authorized access to VK user data. An exact access token cannot be provided since it is sensitive information and should be kept secret. Access to the token can then be facilitated through the relevant programming language method or object, such as the "process.env" object in Node.js.

#### **4.7.3 Obtaining the Post ID and Owner ID**

The post ID is a unique identifier assigned to each post by the VK API. It can be obtained by visiting the post on the VK website and retrieving the ID from the URL. The Post ID is the number at the end of the URL, after the letter "w." For example, for posts that were used for sentimental analysis, with the URL link: "https://vk.com/plohie\_novosti\_mc?w=wall-150709625\_12848095" the Post ID are numbers after underscore "12848095"; the Owner ID are numbers after "wall" and the ID should start with hyphen-minus the beginning "-150709625".

#### **4.7.4 Calling the "Wall.getComments" API Method**

The next step is to retrieve all comments on the post using the "Wall.getComments" API method as shown in *Source Code 2*, which requires the access token, post ID, and additional parameters such as the number of comments to retrieve per request and the offset. The count parameter is set to 90 in the URL, indicating that the API should retrieve 90 comments per request. The "request" package in JavaScript is utilized to make an HTTP GET request to the VK API endpoint. The options object passed to the request function includes the URL of the API endpoint, access token, and post ID as parameters. The VK API returns a JSON object containing the comments, including their authors, timestamps, and

text. The desired information, such as comment text, is extracted using the "map" and "filter" methods. After extracting all the comments, they are ready to be logged to the console.

#### 4.7.5 Writing the Code

The implementation of the previous steps involved writing JavaScript code. The necessary dependencies, including the 'request' library, were imported. Additionally, as shown in *Source Code 1*, the access token, post ID, and owner ID were specified.

##### *Source code 1. Variables required for function*

```
const request = require('request');  
const access_token = 'access_token';  
const post_id = 'postID';  
const owner_id = '-ownerID';
```

The API request URL was constructed using the access token, post ID, owner ID, count parameter (set to 90) and other default parameters, as shown below in *Source Code 2*.

##### *Source code 2. Template literals accepting the above variables to construct the endpoint*

```
const options = {  
  
  url:  
  `https://api.vk.com/method/wall.getComments?access_token=${access_token}&v=5.131  
&post_id=${post_id}&owner_id=${owner_id}&count=90`,  
  method: 'GET'  
};
```

As shown in *Source Code 3*, a GET request was made to the API endpoint using the 'request' function and the apiUrl.

##### *Source code 3. Function for sending the API request, checking the response and parsing it into JSON, which is then filtered to remove empty entries*

```
request(options, (error, response, body) => {
```

```

if (!error && response.statusCode === 200) {
  const data = JSON.parse(body);
  if (data.response && data.response.items) {
    const comments = data.response.items.filter(x=> x.text !== "").map(x=> x.text);
    console.log(comments);
  }
} else {
  console.error(error);
}
});

```

The JSON response from the API was first parsed using the JavaScript 'JSON.parse()' function in this code. The comment text was then extracted using the 'filter()' and 'map()' methods. Any empty comments were filtered out in the 'filter()' method by checking that the comment's 'text' field was not empty. In the 'map()' method, the 'text' field was extracted from each comment object.

Finally, the comments were logged to the console using the 'console.log()' function. It should be noted that this code retrieved only the first 90 comments on the post.

#### **4.7.6 Getting the comments**

The shell was used to locate and traverse to the directories in which the scripts were located. After which, the “node index.js” command was called. The “request” function returned a list of entries of comments made to the assigned post in the amount set at a value of 90 in the “url” parameter.

## **4.8 Sentimental analysis**

### **4.8.1 Introduction**

The addition of sentiment analysis allowed the study to conduct a more in-depth examination of the emotional impact of the collected data, particularly in relation to propaganda. Specifically, the study utilized comments under posts for sentiment analysis, as this data was deemed more relevant and useful for analysis. By combining the results of the

survey with the analysis conducted through API and sentiment analysis, the study aimed to provide insights into the effects of propaganda on individuals and to assist in developing strategies to combat the spread of misinformation on social media.

#### 4.8.2 The Hugging Face tool

The analysis of post comments was conducted using the Hugging Face tool. The "ru\_sentiment" pre-trained model, designed for sentiment analysis of Russian text, was utilized for the analysis.

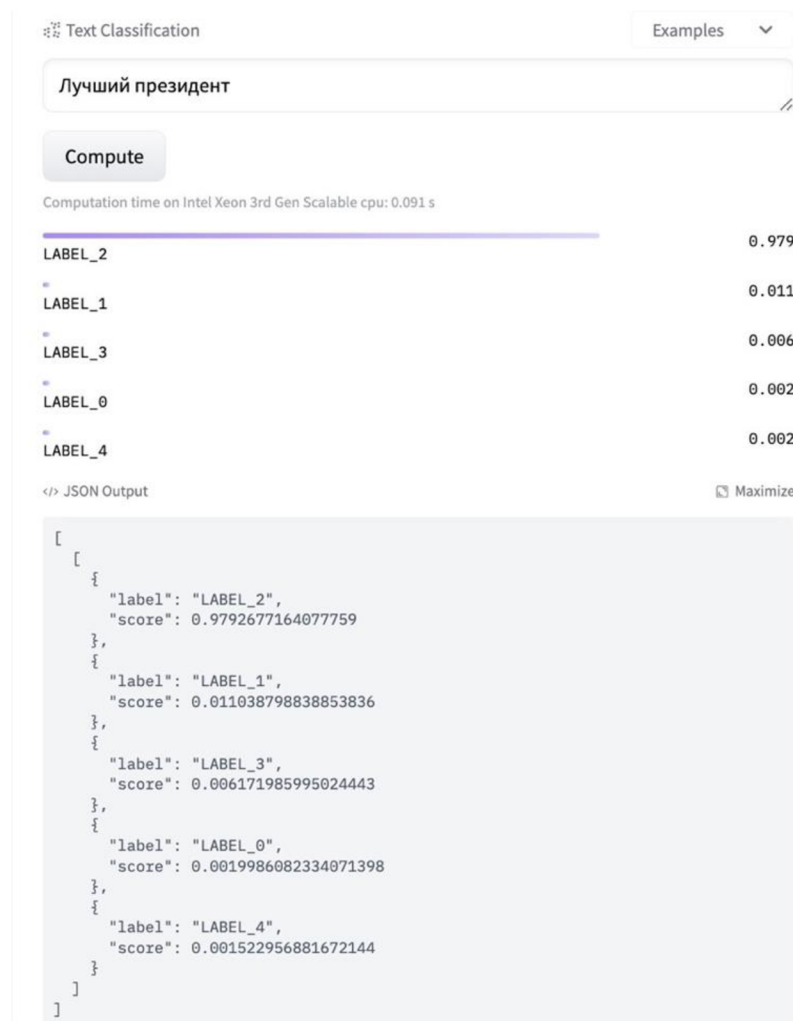


Figure 14. Sentiment Analysis of Post Comments Classified as Positive

For example, as shown in the Figure 14. the comment of "Лучший президент", or "The best president" was inputted into the text field provided by the tool's interface. The tool then employed natural language processing techniques to classify the sentiment of the

comment, which was identified as positive. This demonstrated the Hugging Face tool's capability to accurately categorize the sentiment of post comments using pre-trained models.

In terms of the labels provided by the Rubert-ru-sentiment-rusentiment model, label 0 represents negative sentiment, label 1 represents neutral sentiment, and label 2 represents positive sentiment. Thus, a label of 0 means that the comment expresses a negative sentiment, while a label of 1 indicates a neutral sentiment, and a label of 2 signifies a positive sentiment.

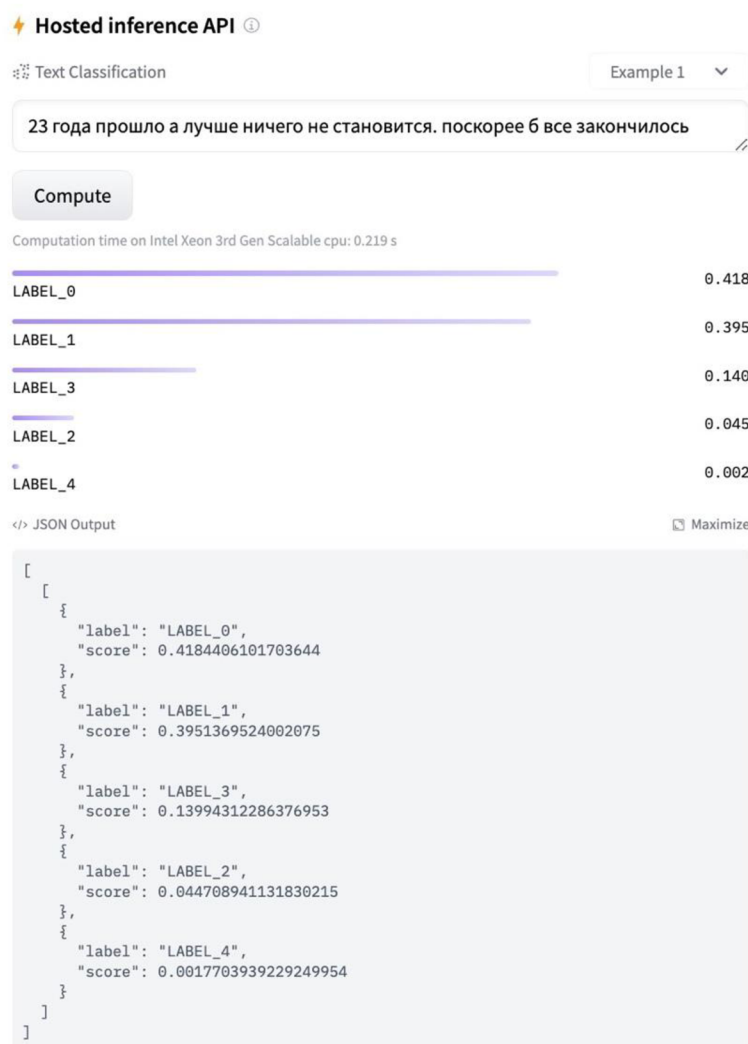


Figure 15. Sentiment Analysis of Post Comments Classified as Negative

As shown in Figure 15, using the API, the sentiment of the comment was analysed and classified as negative. This was demonstrated by the JSON output provided by the tool,

which assigned a value of 0.418 to label 0 (negative sentiment), 0.395 to label 1 (neutral sentiment), and 0.045 to label 2 (positive sentiment).

#### 4.8.3 Analysis of Comments

The comments from a VK post about the presidential address to the people and news announcements were retrieved via API. They were then uploaded sequentially to Hugging Face, and the resulting output was obtained, as shown in Picture 3. Each comment's sentimental analysis result was collected in Excel tables as shown in Figure 16.

	lable_0	lable_1	lable_2		lable_0	lable_1	lable_2		lable_0	lable_1	lable_2	
1	0,007	0,963	0,015		31	0,731	0,238	0,007	61	0,332	0,63	0,004
2	0,566	0,383	0,002		32	0,005	0,456	0,494	62	0,899	0,06	0,004
3	0,256	0,344	0,102		33	0,635	0,316	0,004	63	0,936	0,034	0,003
4	0,836	0,127	0,006		34	0,015	0,16	0,056	64	0,858	0,12	0,004
5	0,366	0,471	0,007		35	0,082	0,878	0,004	65	0,941	0,043	0,002
6	0,724	0,145	0,009		36	0,832	0,108	0,007	66	0,37	0,288	0,053
7	0,132	0,65	0,02		37	0,091	0,884	0,002	67	0,836	0,127	0,006
8	0,968	0,016	0,002		38	0,858	0,12	0,004	68	0,69	0,255	0,002
9	0,009	0,299	0,283		39	0,541	0,42	0,003	69	0,566	0,383	0,002
10	0,863	0,119	0,002		40	0,035	0,029	0,028	70	0,941	0,043	0,002
11	0,038	0,897	0,002		41	0,044	0,049	0,01	71	0,508	0,453	0,008
12	0,655	0,305	0,005		42	0,057	0,891	0,004	72	0,852	0,102	0,004
13	0,735	0,235	0,003		43	0,374	0,495	0,004	73	0,009	0,299	0,283
14	0,011	0,949	0,002		44	0,242	0,615	0,012	74	0,132	0,65	0,02
15	0,039	0,934	0,003		45	0,896	0,085	0,003	75	0,566	0,383	0,002
16	0,51	0,385	0,015		46	0,031	0,952	0,004	76	0,057	0,891	0,004
17	0,965	0,022	0,002		47	0,69	0,255	0,002	77	0,915	0,034	0,004
18	0,886	0,077	0,004		48	0,647	0,308	0,003	78	0,724	0,145	0,009
19	0,006	0,966	0,014		49	0,935	0,036	0,002	79	0,082	0,878	0,004
20	0,466	0,507	0,005		50	0,008	0,025	0,822	80	0,876	0,012	0,02
21	0,976	0,011	0,004		51	0,145	0,737	0,004	81	0,388	0,706	0,008
22	0,069	0,011	0,394		52	0,972	0,012	0,003	82	0,044	0,049	0,01
23	0,004	0,976	0,006		53	0,393	0,422	0,006	83	0,941	0,043	0,002
24	0,058	0,068	0,2		54	0,915	0,034	0,004	84	0,006	0,125	0,712
25	0,448	0,266	0,013		55	0,433	0,535	0,014	85	0,543	0,057	0,008
26	0,265	0,697	0,005		56	0,518	0,361	0,007	86	0,005	0,456	0,494
27	0,941	0,043	0,002		57	0,972	0,012	0,002	87	0,108	0,095	0,892
28	0,37	0,288	0,053		58	0,964	0,01	0,004	88	0,805	0,891	0,004
29	0,018	0,972	0,002		59	0,815	0,147	0,002	89	0,886	0,077	0,004
30	0,012	0,95	0,002		60	0,876	0,012	0,02	90	0,091	0,802	0,028

Figure 16. Table of Sentimental Analysis of Comments

#### 4.8.4 Analysed results.

As shown in Figure 17. The average negative sentiment was 0.4762, while the average neutral sentiment was 0.353433333 and the average positive sentiment was 0.059188889. The data was also analysed in terms of percentages out of all 90 comments, where negative sentiment accounted for 0.5357, neutral sentiment accounted for 0.3976, and positive sentiment accounted for 0.0665.

	lable_0	lable_1	lable_2
Average	0,4762	0,3534333	0,0591889
Sum	42,858	31,809	5,327
%	0,5357	0,3976	0,0665

*Figure 17. Results of Sentimental Analysis of Comments*

The sentiment analysis results can offer some information into how people perceive the president's speech and news announcements. It is important to note that these news and messages are primarily presented from the government's point of view and may not always represent the truth. The sentiment analysis may indicate that there is a general dissatisfaction or disapproval with the message contained in the address or announcement if most of responses are negative.

In terms of propaganda, if the sentiment analysis shows a strong positive sentiment among the comments, it could suggest that the message conveyed in the address or announcement was effective in influencing people's beliefs and opinions.

#### **4.8.5 Sentimental Analysis of Interview responses**

The data was collected from 18 interview participants, including 10 Russian residents and 8 Russian citizens living in EU countries, for comparison their results. The responses were categorized into four groups based on the questions for analysis. According to the "ru\_sentiment" pre-trained model, designed for sentiment analysis of Russian text, first question about verification of online news sources.

According to the results in Figure 23, for the first question (*How do you verify the credibility of news articles or sources online?*) Both groups of Russian people exhibit a high level of neutrality . However, Russian people living in Russia display a significantly higher level of negativity (0.202) compared to those living in the EU (0.007).

For the second question (*Do you think the use of social media and technology has influenced the spread of propaganda in the media?*)

Both groups exhibit a significant level of negativity (0.132 for Russian people living in Russia and 0.117 for those living in the EU) towards this issue.

For the third question (*Have you ever encountered online bots or trolls spreading propaganda or disinformation? If so, how did you identify them?*)

Both groups exhibit a high level of neutrality, but Russian people living in Russia display a significantly higher level of negativity (0.197) compared to those living in the EU (0.007).

For the fourth question: (*In your opinion, how important is media literacy and digital literacy in preventing the spread of propaganda and fake news?*)

Both groups recognize the importance of media literacy, however, the responses from people living in the EU exhibit a higher level of positivity (0.335) and low level of neutrality, in the contrast with people living in Russia mostly exhibit high level of neutrality.

#### **4.8.6 Text Analysis of Interview responses**

As shown in Figures 24, 25 for the question “How do you verify the credibility of news articles or sources online?” the responses of two groups of Russian people suggest different approaches to verifying the credibility of news articles and sources online.

As shown in Figures 24. The most frequent words in answers from people who live in EU counties are: Checking, Verified, Information, Sources, Reliability, News, Conclusion, Source (And also: Looking, following, Trying, Saying, Analysing)

As shown in Figures 25. The most frequent words in answers from people who live in Russia are: Doubts, Rarely, Different, News, checking (And also: believe, reading, not\_reading, disagree, media, strongly)

As shown in Figures 26,27 for the question “In your opinion, how important is media literacy and digital literacy in preventing the spread of propaganda and fake news?” the responses of two groups of Russian people suggest different.

As shown in Figure 26. The most frequent words in answers from people who live in EU counties are: Important, Informed, Opinion, Literacy.



As shown in Figure 27. The most frequent words in answers from people who live in Russia are: Important, Spread People, Believe, Fakes, Literacy, Censorship, Difficult (And also: Liberty, Situation, Information, Anxious, fines)

## **5 Results and Discussion**

### **5.1 Overview of Results**

#### **Survey Frequencies**

The findings give a general summary of how individuals in the EU and people in Russia consume news, choose search engines, and feel about news sources and propaganda. The findings imply that while both groups engage in news media at a high level, there are a few minor differences in terms of frequency and interest. Both regions use Google as their main search engine, yet the primary search engine of Russia is Yandex. The degree to which people in Russia and the EU trust federal news websites and TV channels differ significantly, with people in EU tending to trust social media, non-federal news websites, telegram channels, and YouTube channels more.

A higher percentage of people in the EU have doubts or distrust towards news information from Russian federal channels/websites compared to those in Russia. According to the findings, people in EU are more confident than Russians are in their ability to identify the truth from fake news in the flow of mass information. Individuals in Russia frequently believe that the best way to combat fake news is to forbid false sources through legislation, while people in the EU believe that questioning any information without trusting one specific resource is the most effective way.

Overall, the study identifies some variations between the EU and Russia in terms of news consumption and views towards news sources.

#### **Hypothesis testing**

The null hypothesis was rejected in favour of the alternative hypotheses based on the findings of the four chi-square tests. The results pointed to a significant relationship between the variables examined, specifically the place of residence (Russia or EU countries) and the

level of trust in federal and non-federal websites, the choice of the primary search engine, and the ability to distinguish true news from fake news. Especially, compared to residents living in Russia, people living in EU countries are more inclined to trust non-federal websites and use Google as their major search engine. They are also more likely to report being able to distinguish truth from fakes compared to Russian citizens living in Russia. Overall, the results show that demographic parameters like location of residence are related to website trust and the ability to distinguish real news from fake.

### **Open-End Questions Interview**

Analysis of Interview showed the differences in the attitudes towards media literacy and news verification between two groups of respondents. The first group, living in Russia, showed little effort to check the reliability of online news sources, while the second group, living in the EU, exhibited a more proactive approach by verifying news articles and sources through various means.

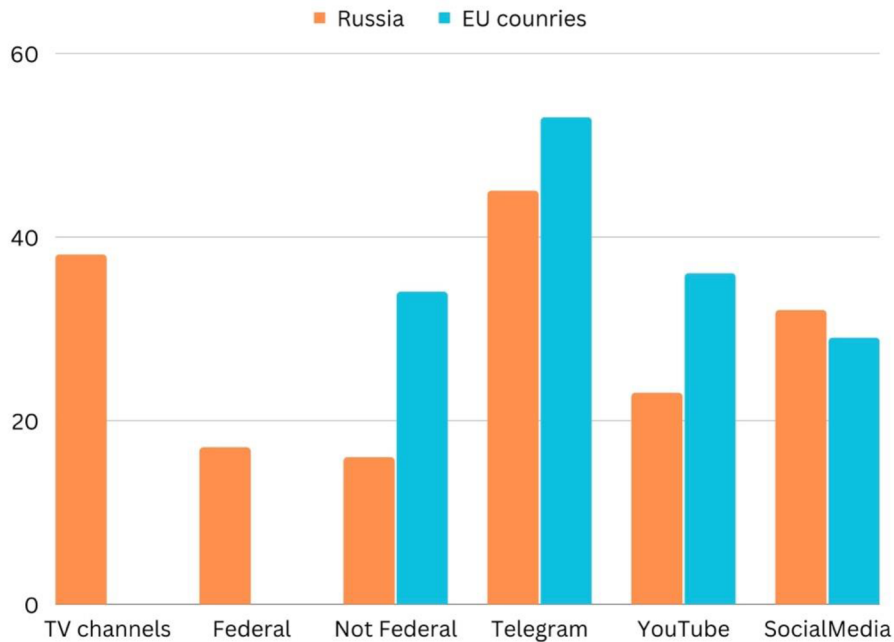
The analysis also found that people living in the EU showed a higher degree of support for media literacy than Russian respondents. These findings suggest that there are differences in opinions about the importance of media literacy, the impact of social media on propaganda, dealing with bots and trolls, and determining the credibility of news sources between the two groups.

### **API model and Sentimental Analysis**

53.57% of respondents had negative sentiment, 39.76% had neutral opinion, and 6.65% had positive sentiment. If most of the comments are negative, it may be considered that the public views the speech or announcement's message as typically being critical. Several things, including disagreement with the policies or criticism of the president's actions, could be the cause of this negative feeling. On the other hand, if there is a strong positive sentiment among the comments, it could suggest that the message conveyed in the speech or announcement was successful in influencing people's beliefs and opinions. In this case, the strong positive sentiment may indicate that the speech or announcement was an effective propaganda tool. In summary, sentiment analysis helped to understand how the public is responding to the message conveyed.

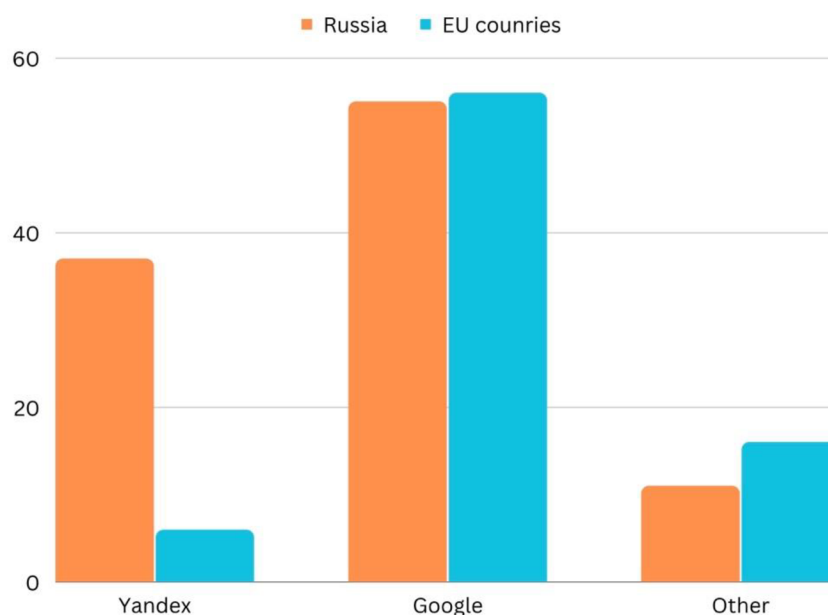
## 5.2 Key Patterns and Trends

Trust in news sources: The degree to which people in Russia and the EU trust federal news websites and TV channels differ significantly as illustrated in Graph 1.



*Graph 1. Most Trusted News Sources*

Search engine preference: Both regions use Google as their main search engine, but Russia prefers Yandex as illustrated in Graph 2.



*Graph 2. Search Engine Preferences*

News consumption: Both groups engage in news media at a high level, but with some minor differences in frequency and interest.

Ability to distinguish truth from fake news: People in EU are more confident than Russians are in their ability to identify the truth from the fakes in the flow of information.

Attitudes towards media literacy and news verification: People living in the EU exhibited a more proactive approach by verifying news articles and sources through various means and showed a higher degree of support for media literacy than Russian respondents.

Negative Sentiment Analysis of the news that mainly presented from the government's perspective and may not have represented the whole truth on VK social media: The analysis found that more than half of the respondents (53.57%) had a negative sentiment towards the message conveyed, while 39.76% had a neutral opinion, and only 6.65% had a positive sentiment.

While significant differences were found between social groups in terms of exposure and belief regarding propaganda on the internet, no significant differences were identified between genders and age categories in the analysis conducted, which could be due to factors such as level of education, income, and political affiliation.

## 6 Conclusion

In conclusion, the theoretical part of this thesis provided a good foundation for the practical part in covering significant topics including the etymology and background of propaganda, its development, the impact of the internet on propaganda and the distribution of information, the role played by social media platforms such as VKontakte in propaganda and the application programming interfaces (APIs) used to access them. It highlighted the significant role that technology plays in the modern dissemination of propaganda and emphasizes the importance of understanding these tools and techniques to critically evaluate information presented online.

The primary objective of this thesis was addressed by conducting interviews and a close-end survey, which were subject to further analysis with IBM SPSS Statistics. Hypotheses testing using chi-square tests indicated a significant difference between social groups in terms of trust in news sources and search engine preference.

Concerning the original question raised, the conducted analyses show that the trust in different news sources and use of different search engines influence people's ability to distinguish truth from fake news. The resulting data additionally indicated differences between attitudes towards media literacy and news verification among people of different demographic groups. Some patterns were uncovered in the negative attitudes of people towards an information source whose content's narrative is evidently biased in favour of the state and its interests.

While significant differences were found between social groups in terms of exposure and belief regarding propaganda on the internet, no significant differences were identified between genders and age categories in the analysis conducted. For further research, it would be recommended to explore any potential links with trust in news sources, search engine preference and media literacy of people belonging to other specified demographic groups, including level of education, income, and political affiliation.

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## Appendix

### 8.5 List of Survey Questions

*Table 1. List of Survey Questions*

Question 1:

- How often do you read / watch news about what is happening in Russia and in the world?

Available answer options:

1. Every day
2. 1-2 times a week
3. less than once a week
4. the news doesn't interest me.

Question 2:

- What Internet search engines do you usually use to search for information?

Available answer options:

1. Yandex

2. Google
3. other

Question 3:

- What news sources do you trust the most?

Available answer options:

1. TV channels (“First channel”, “Russia 1”, “Russia 24”, “NTV”, “RIA”, “Russia Today”)
2. Federal news website ([www.1tv.com](http://www.1tv.com), <https://vgtrk.ru/russiatv>, <https://www.ntv.ru/>, <https://ria.ru/>, <https://russian.rt.com/> )
3. Not federal news website ( <https://tvrain.tv/> , <https://novayagazeta.ru/> , <https://meduza.io/en> )
4. Telegram channels
5. YouTube channels
6. Social media

Question 4:

- Do you trust the source of information / organization that has a status of “foreign agent" in the Russian Federation?

Available answer options:

1. I don't trust.
2. I might trust (it depends on the organisations)
3. I trust.
4. Difficult to answer.
5. Have not heard of this status.

Question 5:

- Do you think that there is a lot of propaganda or fake news in the media in the Russian Federation?

Available answer options:

1. Yes
2. No more than in the media of other countries
3. No

4. Difficult to answer.

Question 6:

- Does it happen that news information on Russian federal channels/websites causes you distrust, doubts? And if so, does it happen often or rarely?

Available answer options:

1. it doesn't happen.
2. rarely
3. often
4. always
5. difficult to answer.

Question 7:

- In your opinion, is it possible to distinguish truth from fakes in the flow of information?

Available answer options:

1. Never
2. rarely
3. often
4. always
5. it's not all that simple

Question 8:

- How do you think you can effectively fight against fake news?

Available answer options:

1. Create funds and websites to combat fakes.
2. Prohibit at the legislative level any sources on which they can publish false.
3. Question any information without trusting one specific resource.

Demographical Part of Questions:

- How old are you?  
(open-end question)

- What is your gender?
  1. Male
  2. Female
  
- What is your highest level of education?
  1. Unfinished secondary general education (still studying)
  2. Secondary general education
  3. Unfinished higher education (still studying)
  4. higher education
  
- Where do you current live?
  1. Russia
  2. EU countries
  3. Other
  
- What is your nationality?
  1. Russia
  2. Other

## **8.6 Purpose and Rationale of Survey Questions**

### Question 1:

Seeing news frequently can have a variety of effects on people. Those who regularly watch the news, for instance, may be more informed about current affairs, but they may also be more exposed to inaccurate or biased information. Also, because news coverage is frequently negative and sensational, regular news viewers may be more prone to have increased feelings of fear or worry. Furthermore, tension, despair, and anxiety may rise as a result.

News exposure on a regular basis might increase a person's susceptibility to propaganda's impacts. Those who frequently watch the news may be more exposed to propaganda since it usually uses repetition and emotional appeals to influence its audience. Also, people who watch the news frequently may be more inclined to grow to believe the

news sources they watch frequently, leaving them more open to propaganda that is disguised as real news.

Question 2:

The main difference between Google.com and Yandex.ru in terms of propaganda is the level of government influence on the content that is surfaced by the search engines.

Google is a global search engine and operates independently, it has been criticized for promoting misinformation, fake news and extremist content. However, the company has taken steps to improve the quality of the information that it surfaces, such as partnering with fact-checkers, and launching initiatives to promote news literacy and reduce the spread of misinformation. Yandex.ru on the other hand, operates mainly in Russia and has been accused of censorship and promoting government-approved content. The Russian government has been known to pressure the company to remove certain content and promote certain sites. Yandex is also said to be more susceptible to political pressure and censorship.

It's important to note that even though Yandex is known to have more government influence on its content, it doesn't mean that all the information surfaced by Yandex is propaganda or fake news. However, it's important to be aware of the potential biases of the search engine and to be critical of the information found in search results.

Question 3:

*About (1) TV channels and (2) Federal news website:*

Russian TV channels, such as First channel, Russia 1, Russia 24, NTV, RIA, and Russia Today (RT), and their news websites ([www.1tv.com](http://www.1tv.com), <https://vgtrk.ru/russiatv>, <https://www.ntv.ru/>, <https://ria.ru/>, <https://russian.rt.com/> ) are generally considered to be controlled by the Russian government. As a result, these channels and websites may present news in a way that aligns with the government's agenda and may suppress information that is critical of the government.

These channels and websites are known to present a biased view of the news and events, and often promote the government's viewpoint. They may also selectively report on events, leaving out important details or context, in order to present a particular narrative.

Additionally, these news sources may also be used as a tool for political propaganda, to influence public opinion and shape public perceptions. This can include spreading disinformation and misinformation, as well as promoting the government's policies and actions. It's also worth noting that Russian government's control over the media is well documented, as they have a history of censorship, targeting independent media, and limiting access to information that is critical of the government.

*About (3) Not federal news website ( <https://tvrain.tv/> , <https://novayagazeta.ru/> , <https://meduza.io/en> )*

- TV Rain is a Russian independent television channel and website. It is known for its critical coverage of Russian politics and has been the target of government pressure in the past.
- Novaya Gazeta is a Russian newspaper known for its independent and investigative journalism. It has a reputation for critical coverage of Russian politics, and several of its journalists have been killed or harassed in the past.
- Meduza is a Russian-language news website founded by a group of journalists. It operates independently from the Russian government in Latvia and is known for providing balanced, objective and high-quality journalism. It's considered as an alternative to state-controlled Russian media and is praised for its coverage of politics, human rights, and cultural issues. It's considered as a reliable news source by international press watchdogs and experts.

*About (4) Telegram channels:*

It can be considered as a messaging app; however, its functionality is not limited to messaging only. Telegram can be used as a social media platform as well, through its public channels. It is known for its security features, such as end-to-end encryption for messages and the ability to self-destruct messages. Telegram provides a degree of anonymity, allowing users to access news and information that may be critical of the government or sensitive in nature, without fear of censorship or surveillance.



Telegram channels can also provide a more diverse range of opinions and perspectives, which is particularly appealing in countries where the traditional news media may be heavily censored or controlled by the government.

It is also important to keep in mind that anybody can start and operate Telegram channels, and that not all Telegram channels are trustworthy sources of information.

#### *About (5) YouTube channels and (6) social media*

YouTube channels and social media platforms can be a source of both credible and biased information, and it can be hard to distinguish between the two. Some channels and accounts may present misleading or false information in order to promote a certain political agenda, while others may provide accurate and unbiased news.

#### Question 4:

Having the status of "foreign agent" can be dangerous for organizations in Russia, as it can lead to increased government pressure and harassment. Organizations that are designated as foreign agents may face restrictions on their ability to operate and may be subject to fines or other penalties if they fail to comply with the additional reporting and transparency requirements. Additionally, being labelled as a "foreign agent" can also lead to stigmatization and mistrust among the general public.

It's worth noting that in recent years, the Russian government has used the "foreign agent" label as a tool to pressure and restrict the activities of independent civil society organizations and opposition groups, as well as foreign-funded media outlets and human rights groups.

- “Golos Association”, an independent election monitoring organization, was designated as a "foreign agent" in 2012.
- The Levada Centre, an independent polling organization, was designated as a "foreign agent" in 2016.
- Memorial, a human rights organization that focuses on the rights of political prisoners and victims of repression, was designated as a "foreign agent" in 2016.
- The Moscow Helsinki Group, a human rights organization that has been active in Russia for over 40 years, was designated as a "foreign agent" in 2017.
- TV Rain, Novaya Gazeta, Meduza also got the status within last two years.

Question 5:

There have been concerns about the prevalence of propaganda and disinformation in the media in the Russian Federation. The Russian government has been accused of using state-controlled media outlets to spread disinformation and propaganda, both domestically and internationally. Additionally, independent media outlets have reported facing pressure and censorship from the government. However, it's important to note that the situation is complex, and there are also independent and diverse media outlets in Russia that provide accurate and reliable information.

Questions 6 and 7:

It is important to have critical thinking when reading the news, as this can help people to evaluate the credibility and accuracy of the information being presented. It is not uncommon for news sources to have biases, and it is important to be aware of these biases and to consider multiple perspectives in order to gain a well-rounded understanding of an issue. Additionally, it is important to be aware of the potential for disinformation and propaganda, and to fact-check information that seems suspicious or unreliable. Developing critical thinking skills can help people to evaluate the credibility and accuracy of news sources, and to identify disinformation and propaganda.

Question 8:

*About "Create funds and websites to combat fakes".*

Create funds and websites to combat fakes: if a government funds and controls a website that is intended to combat fake news, it could be used to silence or marginalize dissenting voices and legitimate criticism. Additionally, there could be a lack of transparency and accountability in the process of fact checking and identifying what is fake or not, that could lead to censorship or bias.

It is important for any government-funded initiatives to be independent, transparent, and subject to oversight in order to ensure that they are truly focused on combating disinformation and fake news, rather than being used for political gain.

*About "Prohibit at the legislative level any sources on which they can publish false".*

Prohibit at the legislative level any sources on which they can publish false: Prohibiting the dissemination of false information at the legislative level could help to reduce the spread of disinformation and fake news, but it also has potential drawbacks such as censorship, the government overreach and lack of transparency. It's important to consider the balance between protecting the public from false information and protecting freedom of speech and press.

*About “Question any information without trusting one specific resource”.*

Question any information without trusting one specific resource: A key strategy is to encourage critical thinking and media literacy, so that individuals are better equipped to evaluate the credibility and accuracy of news sources. This can include education and awareness campaigns that teach people how to fact-check information and identify disinformation, as well as encouraging the use of multiple news sources and questioning any information that seems suspicious or unreliable.

## 8.7 Tables of Hypotheses Tests

**Where do you currently live? \* What Internet search engines do you usually use to search for information? Crosstabulation**

		What Internet search engines do you usually use to search for information?			Total	
		Yandex	Google	Other		
Where do you currently live?	Russia	Count	37	55	11	103
		Expected Count	24.5	63.2	15.4	103.0
	EU countries	Count	6	56	16	78
		Expected Count	18.5	47.8	11.6	78.0
Total	Count	43	111	27	181	
	Expected Count	43.0	111.0	27.0	181.0	

*Figure 18. Crosstabs of The Internet Search Engines Preferences*

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.216 <sup>a</sup>	2	<.001
Likelihood Ratio	22.333	2	<.001
Linear-by-Linear Association	16.877	1	<.001
N of Valid Cases	181		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.64.

Figure 19. Chi-Square Test of The Internet Search Engines Preferences

### Crosstab

			NotF_2cat		Total
			0	1	
Where do you currently live?	Russia	Count	50	53	103
		Expected Count	33.0	70.0	103.0
	EU countries	Count	8	70	78
		Expected Count	25.0	53.0	78.0
Total	Count	58	123	181	
	Expected Count	58.0	123.0	181.0	

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	29.880 <sup>a</sup>	1	<.001		
Continuity Correction <sup>b</sup>	28.148	1	<.001		
Likelihood Ratio	32.760	1	<.001		
Fisher's Exact Test				<.001	<.001
Linear-by-Linear Association	29.715	1	<.001		
N of Valid Cases	181				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.99.

b. Computed only for a 2x2 table

Figure 20. Chi-Square Tests of The Level of Trust in Not Federal Websites

**Where do you currently live? \* In your opinion, is it possible to distinguish truth from fakes in the flow of information?**  
**Crosstabulation**

		In your opinion, is it possible to distinguish truth from fakes in the flow of information?					Total	
		always	often	rarely	never	it's not all that simple		
Where do you currently live?	Russia	Count	5	37	20	1	40	103
		Expected Count	8.5	43.8	19.3	1.7	29.6	103.0
	EU countries	Count	10	40	14	2	12	78
		Expected Count	6.5	33.2	14.7	1.3	22.4	78.0
Total	Count	15	77	34	3	52	181	
	Expected Count	15.0	77.0	34.0	3.0	52.0	181.0	

Figure 18. Crosstabs of The Ability to Distinguish Truth from Fakes

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.087 <sup>a</sup>	4	.005
Likelihood Ratio	15.662	4	.004
Linear-by-Linear Association	13.471	1	<.001
N of Valid Cases	181		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.29.

Figure 19. Chi-Square Test of The Ability to Distinguish Truth from Fakes

## 8.8 List of The Interview Questions:

Table 2. Interview Questions

1. How do you verify the credibility of news articles or sources online?
2. Do you think the use of social media and technology has influenced the spread of propaganda in the media?
3. Have you ever encountered online bots or trolls spreading propaganda or disinformation? If so, how did you identify them?
4. In your opinion, how important is media literacy and digital literacy in preventing the spread of propaganda and fake news?

1	lable_0	lable_1	lable_2
Russia	0,202	0,795	0,002
EU	0,007	0,82	0,163
2	lable_0	lable_1	lable_2
Russia	0,132	0,862	0,002
EU	0,117	0,873	0,003
3	lable_0	lable_1	lable_2
Russia	0,197	0,799	0,002
EU	0,007	0,981	0,002
4	lable_0	lable_1	lable_2
Russia	0,022	0,885	0,092
EU	0,007	0,648	0,335

Figure 20. Sentimental Analysis of Interview responses



Figure 21. Frequency Cloud for the First Question from Group 2 (EU)



Figure 22. Frequency Cloud for the First Question from Group 1 (Russia)

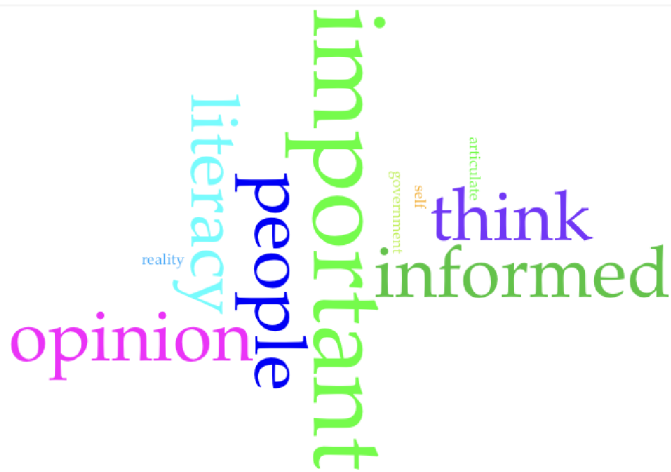


Figure 23. Frequency Cloud for the Second Question from Group 2 (EU)



Figure 24. Frequency Cloud for the Second Question from Group 1 (Russia)