

News Consumption of Russian Vkontakte Users: Polarization and News Avoidance

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This study explores the patterns of news consumption of Russian users of Vkontakte, the most popular social media platform in Russia, based on a sample of 55,344 users. The analysis is conducted via a combination of network analysis techniques. It demonstrates that the majority of Vkontakte users do not subscribe to news sources, demonstrating that there is a politically apathetic majority and news-interested minority. And news subscribers are polarized along political lines. There is a distinct group of users who subscribe to pro-opposition-leaning politicized sources more than other users do. This study builds on research on polarization, selective exposure, and the role of social media in authoritarian regimes. It provides new empirical evidence on the way that selective exposure and polarization manifest themselves on a non-Western platform in an authoritarian state.

Keywords: Russia, Vkontakte, news consumption, polarization, network analysis, social media, news avoidance

In recent years, researchers have extensively examined polarization on social media (social networking sites [SNS]) manifested in echo chambering and selective exposure. However, the findings are contradictory; some studies confirm the existence of echo chambers on SNS (e.g., Schmidt et al., 2017), whereas others disprove it (e.g., Goel, Mason, & Watts, 2010). One possible explanation is that the intensity of polarization is contextual, differing among platforms and countries. To date, most empirical research on the phenomena has been conducted on Twitter or Facebook in the context of the U.S. or other liberal democracies. In this article, I aim to partially fill the research gap by providing empirical evidence on selective exposure and polarization in news consumption among Russian users of Vkontakte (vk.com), a Russian online social media and social networking service based in Saint Petersburg that is the most popular SNS in Russia.

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Date submitted: 2018–12–12

¹ I would like to thank the two anonymous reviewers whose constructive comments helped greatly improve this article. I am also grateful to my supervisor, Dr. Silke Adam, for her helpful and timely feedback; to Dr. Oana Lup, Dr. Levente Littvay, and Dr. Mihály Fazekas, without whose guidance and lectures during my time at Central European University this article would never be possible; and to Stefan Katz for his support and suggestions on the initial version of this article.

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Besides expanding the research on polarization on social media beyond Western platforms and contexts, examining the news consumption in the Russian segment of Vkontakte sheds light on the perspectives and limitations of social media sites as news dissemination and political mobilization channels in a consolidated authoritarian regime. SNS can be helpful tools for protest mobilization in authoritarian regimes (Ruijgrok, 2017), but they can also be used by authoritarian governments to push forward their agenda and silence dissent (Gunitsky, 2015; Pearce & Kendzior, 2012; Tufekci, 2017).

In this study, I first present the state of research on polarization manifested in echo chambering and selective exposure, as well as on news dissemination through social media in authoritarian regimes. I also describe the role played by social media in the protest mobilization in Russia over the past decade. Next, I outline my research question and hypotheses. Finally, I conduct empirical analysis, applying network analysis techniques to the data on 55,344 Russian users of Vkontakte.

Selective Exposure and Polarization

The growth in the amount and the variety of available media in recent decades has made it easier for people to find news sources that are consistent with their attitudes (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012). In these high-choice media environments, people tend to demonstrate partisan biases in consumption, choosing only media sites that align with their views (Bennett & Iyengar, 2008). The phenomenon in which people seek information that supports their existing beliefs and avoid information that contradicts them is called selective exposure (Stroud, 2008).

The psychological underpinnings of selective exposure are related to cognitive dissonance. When presented with information that is inconsistent with their beliefs, people feel uncomfortable (Festinger, 1957). To avoid unpleasant feelings, they try to expose themselves only to information that aligns with their values and attitudes (Klapper, 1960). Another psychological explanation for selective exposure is that people employ it as a strategy to reduce their cognitive efforts put into information processing (Smith, Fabrigar, & Norris, 2008). People's information-processing capacities are limited (Lang, 2000), and information that is consistent with their existing beliefs is easier to process (Edwards & Smith, 1996). Thus, selective exposure helps people save their mental resources and avoid cognitive overload. Empirical evidence confirms that selective exposure is present on social media platforms (An, Quercia, Cha, Gummadi, & Crowcroft, 2014; Grömping, 2014). Besides engaging in selective exposure, people demonstrate the tendency for homophily—that is, surrounding themselves with individuals who have characteristics similar to theirs, such as gender, socioeconomic status, moral values, and political orientations (McPherson, Smith-Lovin, & Cook, 2001).

Selective exposure and homophily in the online sphere might lead to the formation of the so-called echo chambers—communities of like-minded individuals where people are exposed to opinions and ideas consistent with their views—which in turn can increase polarization (e.g., Garimella, Morales, Gionis, & Mathioudakis, 2018; Grömping, 2014; Sunstein, 2001). A growing body of research, however, contests polarizing effects of echo chambering and selective exposure on social media, showing that SNS can diversify users' media diets and make them less polarized through incidental exposure to opposing opinions and increased access to media with different types of political stance (Barberá, 2015; Dubois & Blank, 2018; Flaxman, Goel, & Rao, 2016; Fletcher & Nielsen, 2018; Nelson & Webster, 2017). The scholarly debate on

the intensity of selective exposure and echo chambering and their potentially polarizing effects is thus ongoing. However, to date, research on these phenomena has focused on Twitter and Facebook in the context of Western liberal democracies, primarily the U.S. Nonetheless, the evidence from these contexts has limited generalizability. It does not apply to other platforms and to states with different political systems—for instance, authoritarian regimes. At the same time, understanding how information is consumed on social media in authoritarian states is of critical importance. The SNS in such countries play a crucial role in civic mobilization and circumvention of censorship by providing channels of news dissemination to the opposition and independent media. Because political systems in authoritarian countries are very different from those of liberal democracies, polarization on social media there, if manifested, is also likely to occur along different lines. Although research based on the data from U.S. finds evidence of left-wing versus right-wing polarization, in authoritarian regimes it is more likely to occur along the progovernment versus pro-opposition lines. Therefore, research on political polarization on SNS in different contexts and different platforms is pivotal for a better understanding of the phenomena in general.

Social Media Platforms as News Disseminators in Authoritarian Regimes

SNS and the Internet are positively correlated with the protest potential, especially in authoritarian regimes (Howard et al., 2011). Nonetheless, these channels are just tools—what really matters is the content spread through them. Ruijgrok (2017, p. 17) identifies four causal mechanisms that explain how the Internet, through increased access to information, leads to more protests in authoritarian regimes: (1) lowering the risk to the opposition in coordinating demonstrations, (2) changing citizens' attitudes by exposing them to alternative information, (3) removing information uncertainty among potential protestors, and (4) presenting users with videos and pictures, which can be especially powerful. Besides, social media helps activists circumvent the mainstream media "blackout" and attract public attention (Breuer, Landman, & Farquhar, 2015).

Though social media increases people's access to information and can have a mobilizing effect on citizens in authoritarian regimes, contemporary autocrats have learned how to use the new technologies in pursuit of their own interests. For instance, China and Russia practice what is referred to as networked authoritarianism; they leverage "ICTs [information and communication technologies] and media regulation to carefully control the expression of dissent in a way that gives the impression of limited freedom of expression without allowing dissent to gain traction" (Maréchal, 2017, p. 36). Autocratic regimes resort to censorship by disinformation—not by trying to block certain content, but rather by distracting citizens from it by flooding online public spheres with fake news and trivialities (Tufekci, 2017). They also compete with online dissent and try to undermine the credibility of the online media that presents accurate information (MacKinnon, 2011; Maréchal, 2017; Pearce & Kendzior, 2012).

Research on censorship in authoritarian regimes shows that the aim of propaganda is not only indoctrination but also a signal to the public that the state is strong enough, thus discouraging citizens from revolting (Huang, 2015) and convincing them that the autocrat is sufficiently competent to govern (Guriev & Treisman, 2015).

Previous research on the role of social media in authoritarian regimes, as outlined above, suggests the following: (1) Social media is a powerful tool for disseminating information and circumventing censorship; (2) SNS have political mobilization potential because access to the political information provided by social media can lead to the mobilization of users who were exposed to such information; and (3) autocratic governments aim to censor social media to curb mobilization potential, not to stop the spread of information per se.

Examining the consumption of political content—including hard news—in authoritarian states is necessary to better comprehend how the mechanisms described above work in practice and interplay with phenomena such as selective exposure and polarization on SNS observed in other contexts, in case these phenomena are manifested among social media users in authoritarian states as well.

Background Information: Russia and Vkontakte

The hypotheses presented in this study are partially built on the characteristics of the Russian social media sphere in general, and the examined Vkontakte platform in particular. Thus, before moving on to the hypotheses, I briefly outline these characteristics and my reasons for choosing Russia and Vkontakte as the constituents of this case study.

In 2011, only 49% of Russians had Internet access (World Bank, n.d.); 20% and 7% named online media and social media, respectively, among their primary news sources, whereas 92% said that TV was their primary source of news ("Istochniki informatsii," 2017). Since 2011, the level of Internet penetration in Russia has increased significantly, as well as Russians' eagerness to rely on social media for the news. In 2016, 73% of Russians had Internet access (World Bank, n.d.). In 2018, 21% and 27% of Russians, respectively, said that they obtained their news from social media and online media (Levada Center, 2018).

On the one hand, the increase in the number of Internet and social media users should have increased the protest mobilization potential of SNS because information from pro-opposition actors circulated on social media in 2019 has a potentially broader reach than it had in 2011. On the other hand, since 2011, the Russian government has increased its efforts to obstruct the use of social media for protest mobilization (see Klyueva, 2016; Reuter & Szakonyi, 2015; Sanovich, Stukal, & Tucker, 2018; Soldatov & Borogan, 2015; Tselikov, 2014). Despite the growth from 7% in 2011 to 21% in 2018, the percentage of people relying on social media for news is still meager compared with those in other countries (see, e.g., Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2018).

Despite the relatively low levels of social media usage in 2011 and the increased control over the Internet in subsequent years, Russia has witnessed two waves of SNS-enabled protests—one in 2011–12 and the other in 2017. The exact role of different social media platforms in the 2011–12 protest mobilization is disputable. Some researchers argue that Western social media platforms, namely Facebook and Twitter, were the most crucial to the Russian protests of 2011–12, and Russian social media platforms, such as Vkontakte or Odnoklassniki (odnoklassniki.ru), were of negligible importance (Gainous, Wagner, & Ziegler, 2018; Reuter & Szakonyi, 2015; White & McAllister, 2014). Others demonstrate that Vkontakte usage also increased its mobilization potential (Enikolopov, Makarin, & Petrova, 2016). Nonetheless, there is unilateral

agreement about the importance of SNS for protest mobilization. Researchers have argued that increased control over the Internet in Russia has hindered its protest mobilization potential (Reuter & Szakonyi, 2015). However, the massive social-media-enabled protests of 2017 contradict this view. In 2017, the largest protest action since 2012 occurred on March 26, when the opposition leader Alexey Navalny, who is de facto banned from appearing on national TV or the major state media (Ragozin, 2017), called for the protests through SNS (Sebastian, 2017).

The Russian social media sphere can be perceived as a battlefield between the state and pro-opposition activists, making it a particularly relevant case for the study of news consumption and polarization on SNS in contexts other than liberal democracies. In this article, I focus on news consumption on the Russian social media platform Vkontakte. In December 2017, 65% of social network users in Russia were registered on Vkontakte, while only 20% and 7%, respectively, had Facebook and Twitter accounts (Berishvili, 2018). Despite the contested role of Vkontakte in the protest mobilization of 2011–12, there is an indication that since then the influence of pro-opposition actors on the platform has remarkably increased. In 2011–12, the protesters relied mostly on Facebook and Twitter because these two platforms contained more political information than those presented in the Russian Vkontakte and Odnoklassniki platforms (Gainous et al., 2018; Reuter & Szakonyi, 2015; White & McAllister, 2014). There are indications that by 2017, the situation had changed. For instance, in 2011, Alexey Navalny's Vkontakte page had around 60 followers (Reuter & Szakonyi, 2015). In subsequent years, the number of Navalny's Vkontakte followers surged, reaching 396,000 users in July 2018; in comparison, his Facebook page at that time had 408,000 followers. His recent posts have received similar numbers of "likes" on both platforms. Because Navalny is the most prominent Russian opposition activist as of 2019, and he was the organizer of the protests of 2017, his popularity is a good proxy for the influence exerted by the opposition on a given social media platform in Russia.

Vkontakte is a suitable case for this study for two primary reasons. First, it is the social media platform with the highest share of users in Russia. Thus, the examination of Vkontakte allows capturing the patterns of social media news consumption that is more representative of the general Russian population than the analysis of other platforms would. Second, it has a significant presence of pro-opposition actors. This proves that Vkontakte can be a relevant channel for the spread of antigovernment information and for protest mobilization. Therefore, the platform is worth investigating with regard to the possible effects of SNS in authoritarian states. Besides, in contrast to the cases of Facebook and Twitter, selective exposure and polarization on Vkontakte have not yet been explored in detail. Finally, because of less restrictive API limits, Vkontakte allows for the gathering of more data about more representative samples of users than Facebook and Twitter currently do (see Data and Methods section), making it a valuable source for communication research.

Research Questions and Hypotheses

In authoritarian states, social media can be a vital censorship circumvention channel. The decentralized nature of SNS makes it difficult for the state to monitor all the content spread through them. Thus, they allow for the spread of government criticisms and the news that are censored by the government-controlled mainstream media. For this reason, people in media environments with limited freedom tend to

seek information online (Behrouzian, Nisbet, Dal, & Çarkoğlu, 2016). There is evidence that in countries with nonfree media systems (Reporters Without Borders, 2018), higher percentages of citizens rely on social media for the news. In the majority of countries included in the Reuters Digital News Report (Newman et al., 2018), around 50% of the people claimed they access the news on SNS. In authoritarian states or those with nonfree media, such as Turkey, Singapore, or Hungary, the percentage is much higher than average, reaching about 70%. Russia was not included in the Reuters Digital News Report, so it is impossible to directly compare the statistics in Russia with those of other authoritarian states. Furthermore, the Reuters Digital News Report relies on survey data and SNS there include multiple platforms. This study focuses on directly observed digital trace data from a single platform. The discrepancies make it difficult to use Digital News Report data as a benchmark to assess how the share of news-interested Russian Vkontakte users compares with global averages. Hence, here I formulate a research question about the percentage of news-interested users on Vkontakte, and refrain from hypothesizing how high it might be in comparison with other countries:

RQ1: How many Russian users of Vkontakte subscribe to news pages?

Though the Russian state has tightened its control over the Internet since 2011, the opposition still manages to use SNS to spread information critical of the government and mobilize people for the protests, as shown by the 2017 campaign. At the same time, the social-media-enabled campaigns in both 2011–12 and 2017 failed to achieve their declared primary goals (new and fair Duma elections in 2011–12 and an investigation into the corruption affairs of Russian prime minister Dmitry Medvedev in 2017). Nonetheless, the 2017 protests helped increase Navalny's recognition and popularity, and his team's Anti-Corruption Foundation currently has offices all over the country. Analysis of Navalny's 2018 presidential campaign shows that, given the obstacles faced by Navalny and his team, their mobilization power was impressive, but the movement still remained marginal in terms of the share of population reached and mobilized by their messages, largely due to overall political apathy (Dollbaum, Semenov, & Sirotkina, 2018). I suggest that the divide between the politically mobilized pro-opposition minority, including those reached and mobilized by Navalny's campaigns, and the apathetic majority that exists in Russian society is reflected on Vkontakte as well. In this regard, I present the following hypothesis:

H1: On Vkontakte, a minority of users expose themselves to politicized content from nongovernmental actors more than users from other groups do.

In Russia, both progovernment and pro-opposition actors struggle to gain more influence on social media (see, e.g., Spaiser, Chadeaux, Donnay, Russmann, & Helbing, 2017). The state attempts to push forward its agenda through dedicated groups and pages of state-controlled media on SNS. The opposition and the independent press strive to circumvent censorship by disseminating their messages on social media platforms. The conflict between the two groups and their respective agendas is evident. The selective exposure phenomenon in such a situation could lead to the increased polarization in news consumption, where each group's supporters would avoid the media sources that they perceive as belonging to a "different camp." Building on this, I propose the second hypothesis:

H2: News consumers on Vkontakte are polarized along progovernment versus pro-opposition lines.

Data and Methods

This study is based on data about the public pages followed by Vkontakte users. Data were collected in May–June 2018 through the Vkontakte open API using the R programming language and the vkR package (Sorokin & Antonov, 2016). I collected a data sample of 55,344 randomly chosen Russian Vkontakte users and the public pages they follow. To avoid sampling bias, the data were collected based on a computer-generated random sample of numeric user IDs, which were then filtered to correspond only to users who identified Russia as their country of residence on their public profiles. This technique allowed me to draw a representative sample of Russian Vkontakte users in general. Vkontakte assigns user IDs sequentially, based on the date when a user registered on the platform (the first registered account has ID number 1, the 500th account is assigned 500, and so on²). For this study, I generated a random sample of 250,000 numeric IDs from 0 to 460 million, queried the data on them, and extracted the Russian users. At the time of the data collection, there were around 480 million registered users. However, I excluded the IDs of the most recently registered 20 million users from the computer-generated sample. The data were collected several months after the Russian presidential elections, and there was a high probability that the most recently registered accounts might be bots created to alter the social media landscape during the election campaign.

The sample thus had 55,344 Russian users with randomly chosen registration dates. A similar sampling technique cannot be applied to Facebook and Twitter. First, in contrast to Vkontakte, they do not sequentially assign user IDs (Shontell, 2014; "Twitter IDs," n.d.). Second, Vkontakte's API at the time of data collection had no limits in terms of the number of calls to it within a specific time frame. Thus, it was possible to query the data on many users, select only those who stated Russia as their country of residence, and collect the data about the pages they followed, all within two weeks. With the restrictions of Twitter's API ("Rate Limits," n.d.), the same process could take up to several months. Facebook's API since 2018 has become increasingly restrictive, and it is challenging for researchers to even gain access to collect data (Bastos & Walker, 2018). Hence, the novel sampling approach used in this article applies only to Vkontakte or other platforms with sequential IDs and preferably less restrictive APIs.

To answer RQ1, I checked how many users out of the initial sample followed media pages and popular political blogs. To do so, I compiled a list of Vkontakte pages of the most cited Russian media outlets according to the Medialogia report of April 2018 (Medialogia, 2018; when the list was compiled, this was the latest publicly available report). Medialogia is an independent company that publishes monthly reports on the popularity rankings of Russian media outlets based on the number of citations. The reports cover all types of media outlets, ranging from TV channels and radio stations to online media and blogs. For instance, the list includes a blog by Alexey Navalny, as well as de facto Russian media outlets that are not officially registered in Russia, such as the Latvia-based independent Meduza. I also added to the list the pages of media sources that were not included in the Medialogia report, but that had more than 1 million followers on Vkontakte. The final list consists of 97 media outlets (see the Appendix). Next, I checked how many users from the Vkontakte data set followed at least one of the media sources on the list to calculate the percentage of news-subscribing Vkontakte users.

² The full catalogue of Vkontakte users listed by their numeric IDs is available at <https://vk.com/catalog.php>.

The Medialogia (2018) list is quite comprehensive, but does not include the sources that exist only in the form of social media pages—for instance, Vkontakte-based political blogs, such as Lentach (vk.com/oldlentach). Thus, simple filtering based on the Medialogia list is prone to selection bias. To expand the scope of the analysis and gain more insights, I applied network analysis to the sample of 55,344 Vkontakte users and the data on the pages to which they subscribed. For this analysis, only the public pages with at least 10 subscribers in the sample (0.02% of the initial sample of users³) were selected to reduce sparsity. This manipulation was necessary because the analysis of the raw data was not feasible. First, it would require too much computational power, and without using a supercomputer, the analysis would be impossible. Second, for the research questions addressed in this study, only relatively popular pages are relevant. In this study, I focus on the pages with a broad reach that have a potential influence on the audience; thus, minor pages with a few followers are beyond its scope.

After this manipulation, the number of unique pages in the sample decreased from 864,972 to 32,800, and the number of users dropped from 55,344 to 48,637. Therefore, the sparsity of the network was sufficiently reduced through a significant decrease in the number of pages, making the data computationally feasible to analyze. At the same time, the sample size decreased by 12%, which was significant. The remaining subset of users was still large enough for the analysis.

Before proceeding to the immediate analysis, I checked whether the page distribution by the number of followers in the sample followed the Zipf's law (also referred to as power law). This was done to test for the presence of bots on the data. The popularity distribution should follow the Zipfian distribution because following a power-law distribution is a typical property for social network data (Barabási & Albert, 1999; Muchnik et al., 2013); otherwise, the sample is likely influenced by bots (Rastogi, 2016) or the data are corrupted in some other way. Figure 1 shows the density plot of the popularity distribution of the pages in the sample, which follows the Zipfian distribution. Thus, it is reasonable to assume that the data are not influenced by bots. It has to be noted, though, that Rastogi's (2016) study is not peer reviewed, so the bot-detection method used here is not properly validated, which is a limitation of this study. However, because no accessible tools for bot detection on Vkontakte (similar to Botometer [see <https://botometer.iuni.iu.edu/#!/>] for Twitter) exist, I opted for Rastogi's method here, even if its validity is not confirmed.

³ The benchmark was selected experimentally; this share appeared to be the most optimal when taking into account the balance between computational power necessary for the analysis and the share of data omitted after this manipulation with the original data set.

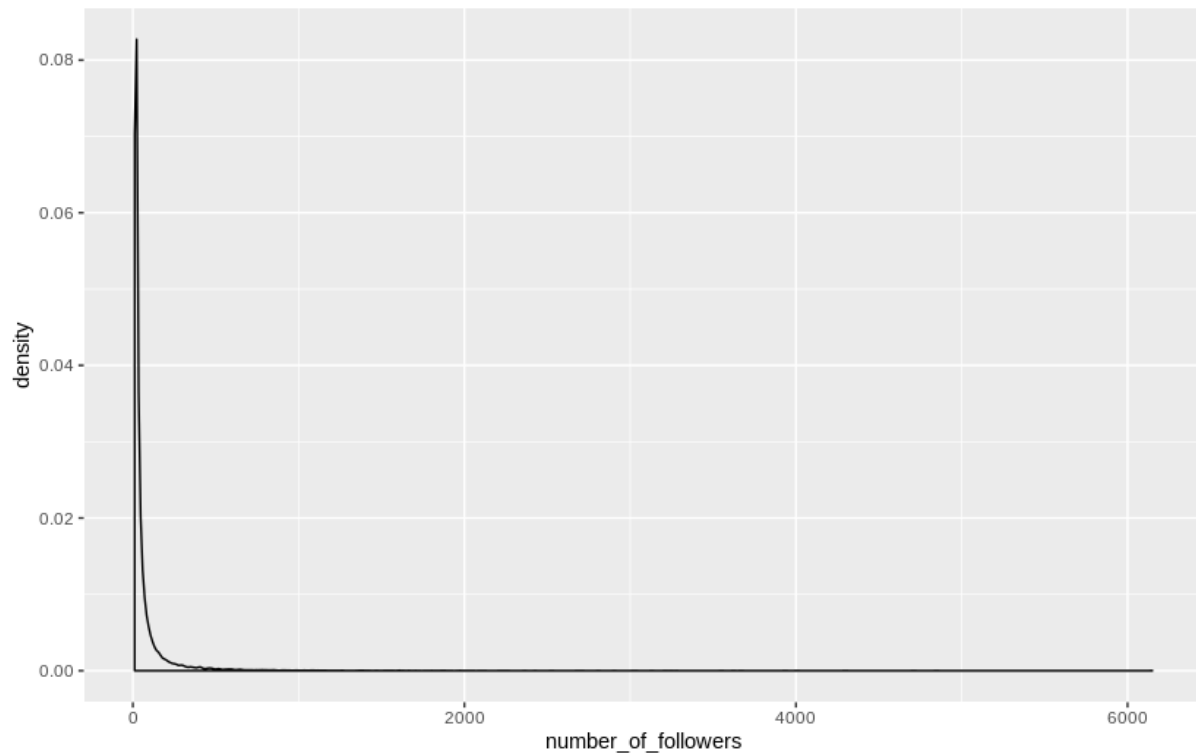


Figure 1. Density plot—the distribution of pages by the number of followers in the sample.

Of the cleaned subset of 48,637 users and 32,800 pages with at least 10 followers in the sample, I built a directed network of the social media users and the pages they followed. Each node represents either a user or a social media page. There is an edge between a user node and a page node if the user follows the page. I applied an automatic modularity-based community detection algorithm implemented in Gephi (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008) to divide the network into communities based on the network structure. The pages inside each community are connected to the pages from the same community more than from the others. In the present context, it means that they share audiences with each other more than with the pages from different communities. Thus, the users from one community follow significantly more pages from it than from the other communities. To test H1, I was explicitly interested whether the users who subscribe to politicized content coming from media and actors not associated with Russian government would form a separate, distinct group within the broader network structure. By politicized content I mean hard news and politically charged messages from independent media such as Meduza, NGOs such as Roskomsvoboda and political actors such as Navalny's team. After the network was divided into communities, I examined the top 70–100 (in terms of the number of followers from the sample) social media pages in each community to identify the dominant topics addressed by the pages in each group.

To test H2, I focused on news-interested users. I took the subset of users who followed at least one media source from the Medialogia (2018) list. I then applied the audience duplication approach (see Ksiazek, 2011; Webster & Ksiazek, 2012) to the data. This audience-centric network analysis approach has

proven effective for the studies on audience fragmentation and has been successfully applied to different types of media outlets, including digital media (e.g., Fletcher & Nielsen, 2017; Mukerjee, Majó-Vázquez, & González-Bailón, 2018; Taneja & Webster, 2016). According to the approach, media environments can be described as either fragmented or duplicated, depending on the level of the audience overlap between each pair of media outlets in the environment. Overlap is the share of the audience using both outlets. If many outlets have overlapping audiences, the environment is duplicated. Otherwise, it is fragmented, which might indicate the presence of polarization among the audiences. Following the approach, I constructed an audience duplication network. Each node represents a media outlet, and there is a connection between two nodes if they have overlapping audiences. Because some overlapping could occur by chance (Ksiazek, 2011), the level of overlapping has to be beyond the "by chance" threshold. This threshold is determined by multiplying the shares of users in the general sample who follow each outlet. In the final network, there is a link between two nodes representing them if the observed audience duplication is higher than this threshold (Fletcher & Nielsen, 2017; Ksiazek, 2011; Webster & Ksiazek, 2012). I applied an automatic community detection algorithm to the final network (Blondel et al., 2008) to determine whether the network could be divided into polarized clusters based on the patterns of audience duplication on social media. The original approach used unweighted edges in the audience duplication network. However, for the proper application of the community detection algorithm, the strength of the connections between the nodes would also be necessary. Thus, I used weighted edges.

Results

News? No Thanks.

Of the 55,344 users in the sample, only 8,144 (14.7%) followed a page of at least one of the major Russian media sources on the Medialogia (2018) list. This answer to RQ1 and possible implications of the observed seemingly low share of news-interested users on Vkontakte are further examined in the Discussion section.

If Not News, Then What? Jokes, Sex, and Traditional Gender Roles

Figure 2 presents the visualization of the network of the Vkontakte users and the pages they follow.

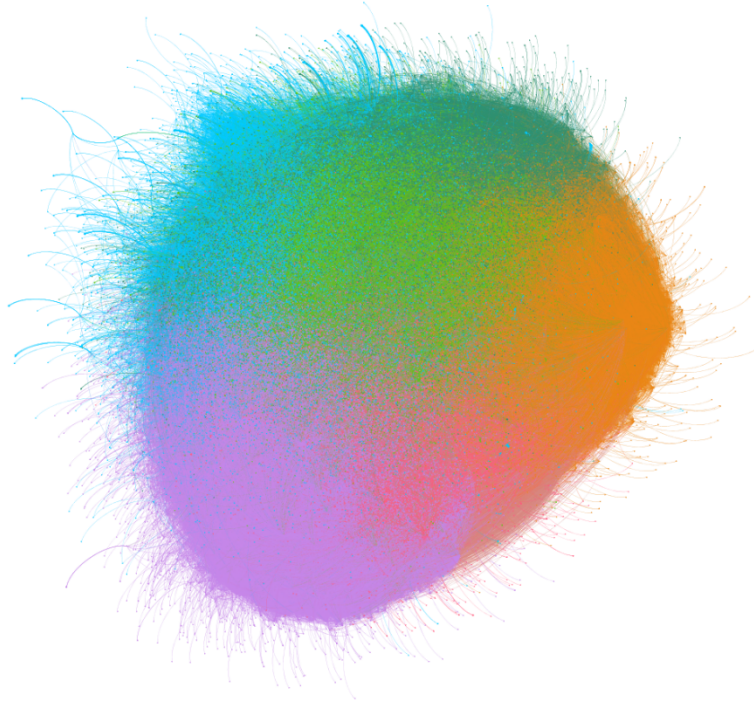


Figure 2. The network of 48,637 Russian Vkontakte users and pages they follow. Detailed description of the colors shown is in Table 1.

It consists of six communities, as described in Table 1.

Table 1. Communities in the Followership Network of Vkontakte Users.

Color	% nodes	Main topics addressed by the pages in the community
Purple	26.0	Humor, cars, technology, men's fashion, "gangsta style"
Bright green	23.2	Humor, female fashion, cooking, kids, motherhood
Blue	17.8	Buy-sell ads, music, movies, work search, sexual partner search, humor
Orange	13.5	Humor, school, education
Dark green	11.2	Hard news, politics (pro-opposition stance), ⁴ education, humor
Pink	8.3	Horoscopes, romantic affairs, popular psychology

⁴ Progovernment pages are scattered around the network and do not form a distinct community; the examples are in the text below.

The community structure of the Vkontakte network shows a distinct group of users subscribing to politicized opposition-leaning content, confirming H1. It is represented by the dark green community and is dominated by independent media (e.g., Meduza, Dozhd), bloggers (e.g., kamikadzedead), opposition actors (e.g., Alexey Navalny), and NGOs (e.g., Roskomsvoboda). This group contains only 11.2% of the nodes in the network, signaling that these users constitute a minority in the network, following H1. This community's users are more likely to subscribe to the pages in it than to those in other communities. The dark green community is the only one with a definite political leaning. All the other communities in the network comprise rather diverse media and pages, most of which are apolitical.

In contrast to the independent media, the government-controlled ones are not concentrated in one community, but are scattered across the network. For instance, the pages of the state-controlled Rossiya TV channel and RIA Novosti news agency belong to the purple community, together with entertainment media, such as the TNT TV channel. However, the state-controlled Pervyi Kanal (Channel One) is in the bright green community, along with the magazines that target mostly female audiences, such as Cosmopolitan. Hence, Vkontakte users seeking politicized content coming from actors not affiliated with the Russian government form a distinct group whose selective media diets on Vkontakte differ from those of other social media news seekers.

Polarization Is Real

Figure 3 illustrates the duplication network of the pages of media sources from the Medialogia (2018) list (see the Appendix). Its centralization score is 12.62%, which is low and indicates a highly fragmented network (Ksiazek, 2011). It is divided into three communities. The orange community encompasses the pro-opposition actors, NGOs, and independent blogs and media. The purple community mostly includes progovernment and state-sponsored media outlets with political content. Finally, the green community contains entertainment media. The communities demonstrate that the fragmentation of the audiences of Russian media outlets on the Vkontakte platform occurs mainly along political lines, following H2 of this study.

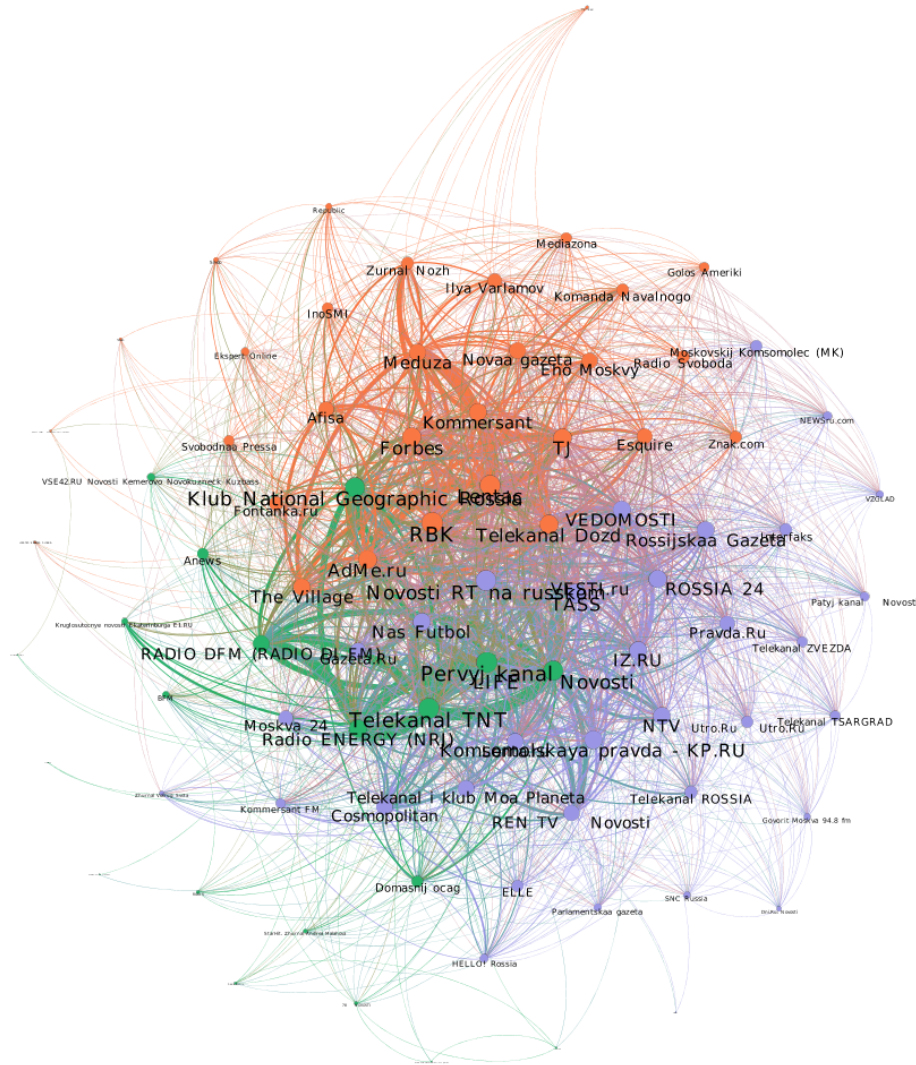


Figure 3. The network of Russian media outlets and their audience duplication on Vkontakte.
Orange – mostly independent and pro-opposition media
Purple – mostly state-owned and progovernment media
Green – mostly entertainment media.

Summary and Discussion

This study has three major findings: (1) The percentage of news-subscribing Russian users on Vkontakte is 14.7%; (2) the users interested in political content coming not from the Russian government and/or government-related sources form a distinct group within the broader network of Russian users; and (3) Russian news-consuming users are polarized along political lines (progovernment vs. pro-opposition/independent).

Only 14.7% of the sample of 55,344 users follow a Vkontakte page of one of the major Russian media sources or blogs. However, the finding does not necessarily mean that news consumption on social media in Russia is low. It does not represent the news consumption of all Russian SNS users. It is unclear whether similarly high rates of news avoidance are found among Russian users of Western platforms, such as Facebook and Twitter. In 2011–12, they contained a higher share of politically relevant information and were more extensively used for protest mobilization than Vkontakte (Reuter & Szakonyi, 2015). It might be that Russian news-seeking users still prefer these platforms to the local ones. Testing this assumption would require a similar study into the news consumption patterns of Russian Facebook and Twitter users. If that were the case, it would be worthwhile to check whether similar differences between Western and local platforms could be observed in other authoritarian states because the findings could indicate these platforms' significant differences in their potential for information dissemination and protest mobilization in authoritarian regimes.

The findings from this study cannot be directly compared with the data from other countries listed in the Reuters Digital News Report (see Newman et al., 2018), which suggests that in other authoritarian states users tend to increasingly seek information online, especially on SNS. This study draws on digital trace data from a single platform, whereas the report is based on the survey data about news consumption on social media in general. However, questionnaire-based reports from Russia also indicate the relatively low share (21%) of citizens who get the news from social media (Levada Center, 2018) in comparison with the global averages from the Reuters Digital News Report. Thus, it is safe to conclude that regardless of the potential differences between social media platforms, in comparison with other countries, Russia has a low percentage of news-interested social media users. The observed effect cannot be attributed only to authoritarianism, the lack of press freedom, or censorship. For instance, Turkey, which is currently similar to Russia in these respects, has a much higher share of news-seeking users. Still, in some democratic countries with free press, the percentages of news-interested users are closer to those of Russia than to those of Turkey or other states with censored media environments. For example, in the Netherlands, Germany, and South Korea, only 31%, 31%, and 25% of users, respectively, access the news on social media. This highlights that the patterns of social media usage are contextual, and more comparative studies are necessary to get more generalizable findings. The seeming disinterest of Russian users in political media might be associated with overall political apathy in Russia (Dollbaum et al., 2018).

The analysis shows that the minority of news-subscribing users are polarized along political lines. In the audience duplication network, independent, publicly owned, and foreign-funded media and pro-opposition actors form a cluster distinct from the entertainment media and those funded by the Russian government or promoting progovernment agenda. This finding highlights the necessity to consider local contexts when talking about polarization on SNS. So far, most research on the matter was conducted in the

U.S. context (e.g., Bail et al., 2018; Bakshy, Messing, & Adamic, 2015; Conover, Gonçalves, Flammini, & Menczer, 2012). There were few single-country studies not focused on the U.S. (Grömping, 2014; Gruzd & Roy, 2014), and comparative studies are almost nonexistent (Barberá, 2015; Bright, 2018, are notable exceptions). The present article demonstrates that polarization can take place across different lines, not just left-right/Democrat-Republican dimensions traditionally discussed in the U.S.-focused studies. Comparative studies and research in the non-Western context are necessary to make our understanding of polarization on SNS more comprehensive.

Though Russian news consumers are highly polarized, there is certain audience overlap between progovernment and pro-opposition media pages. It is thus possible to breach the existing divide. Judging from the structure of the audience duplication network, it would be easier to bridge through the broadly circulated media from different camps, such as Forbes, Kommersant, and Izvestia, than through less popular media and blogs, such as Tsargrad or Mediazona. The media outlets with a broader reach are located closer to the center of the network, thus sharing higher percentages of audiences with the media from other camps than the minor sources on the fringe of the network. Another important finding is that though the Russian user-followership network (see Figure 2) is divided into several communities, including a distinct group of users subscribing to politicized content from the sources not affiliated with Russian government in any way, most of these communities include humorous pages. This means that even nonengaged users who are apathetic toward the news and political information can potentially be reached by activists and mobilized through the popular humorous pages on the network. In fact, this may already be happening, and users who prefer entertaining content to hard news may be exposed to political messages as well if humorous pages circulate politically charged jokes. Because conducting content analysis of these pages was not within the scope of this study, it is not possible to test this idea, which is a limitation of this study.

Another limitation is that the study includes only the examination of the users' subscription patterns, not their sharing behavior or friendship ties. Additional analyses have to be conducted to uncover whether users with different political orientations and levels of political engagement communicate predominantly with those whose characteristics are similar to theirs or whether different groups are interconnected through friendships or form echo chambers, as well as whether polarization can be mitigated through active sharing.

Though it is not the focus of the present study, I must note that the network structure of the Vkontakte data hints at a strong gender divide among Russian users. The two largest communities identified by a modularity-based algorithm, the purple and the bright green (see Figure 2), represent interests traditionally associated with male and female roles. The orange community seemingly includes high school students and young people, as it comprises many pages with school-related humor and preparation materials for state exams. Unsurprisingly, the orange community is located close to the pro-opposition, dark green one within the network structure since high school students and young people have been among the most active participants of the protests in Russia in recent years. The network structure thus hints at the presence of not only political but possibly also gender and generational divides in media consumption on Vkontakte in Russia. These might be seen as additional dimensions of polarization, showing that it is not necessarily limited to the political one. I suggest the findings of this study underscore the argument that for better understanding of the phenomena, more studies with evidence from diverse contexts and platforms are necessary.

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Appendix

Table A1. Media from Medialogia That Were Included in the Analysis.

#	Transliterated Name	Short Description
1	Telekanal TNT	entertainment TV channel
2	Radio ENERGY (NRJ)	entertainment radio station
3	RIA NOVOSTI	Russian state sponsored news agency
4	LIFE Novosti	private news media
5	Lentach	opposition-leaning social media page that aggregates news
6	Pervyi Kanal	progovernmental (Russian state sponsored) TV channel
7	Nash Futbol	Our Football, entertainment (sports) media
8	AdMe.ru	entertainment media
9	Radio DFM	entertainment radio
10	Klub National Geographic Rossiya	NatGeo Russia
11	TASS	progovernmental (Russian state sponsored) news agency
12	Interfax	private news agency

13	RBK	private news media
14	Novosti RT na russkom	Russia Today, Russian edition, progovernmental (Russian state sponsored) news media
15	Gazeta.ru	news media, belongs to Rambler Media Group
16	Gazeta.ru	news media, belongs to Rambler Media Group
17	Komsomolskaya Pravda—KP.RU	private news media, progovernment-leaning
18	Fontanka.ru	private news media from St. Petersburg
19	Dni.ru: Novosti	news media, owned by an NGO with ties to the government
20	Znak.com	private news media, Yekaterinburg region
21	Meduza	private news media, opposition-leaning, de jure is registered and operates in Latvia
22	Moskva 24	TV Channel about Moscow, owned by Russian government
23	BBC News—Russkaya Sluzhba BBC	BBC Russian Service
24	BIZNES ONLINE Novosti Kazani I Tatarstana	private news media, focus on Tatarstan region
25	IZ.ru—Izvestiya	news media, owned by National Media Group that has ties to the Russian government
26	Mediazona	private news media, opposition leaning
27	Utro.Ru	private news media
28	Svobodnaya Pressa	private news media, opposition leaning, right wing
29	Mediazona	private news and entertainment media, opposition leaning
30	Volga News—Novosti Samary	private news media, Samara Region
31	Kruglosutochnye novosti Yekaterinburga E1.RU	private news media, Yekaterinburg region
32	VESTI.ru ROSSIYA 24	progovernmental (Russian state sponsored) TV channel
33	Realnoe Vremya	private news media, Tatarstan region
34	Podmoskovye Segodnya	private news media, Moscow region
35	78 NOVOSTI	private news media, St. Petersburg region
36	Novye Izvestia	private news media

37	Argumenty Nedeli	private news media, progovernment leaning
38	NEWSru.com	private news media
39	VSE42.RU Novosti Kemerovo Nozokuznetsk Kuzbass	private news media, Kemerovo region
40	RIDUS	private news media, progovernment
41	The Bell	private news media, opposition leaning
42	Anew—	news aggregator
43	Komanda Navalnovo	Team Navalny, Alexey Navalny and his supporters' page where, among other things, content of his blog and YouTube channel is shared
44	Ilya Varlamov	blogger Ilya Varlamov's page, opposition leaning
45	Telekanal TSARGRAD	private TV channel, right wing
46	Republic	private news media, opposition leaning
47	The Village	private entertainment media
48	Novoe Vremya. The New Times	private news media, opposition leaning
49	Pravda.Ru	private news media, owner has ties to the government
50	Zhurnal "Nozh"	private entertainment media
51	InoSMI	Russian translations of foreign media articles, sponsored by Russian government
52	Afisha	private entertainment media, owned by Rambler Media Group
53	The Insider	private news media, opposition leaning
54	Vzglyad	news media, owned by an NGO with ties to Russian government
55	Radio 1—Pervoe Podmoskovnoe	radio station, Moscow region
56	BFM	business news radio station, belongs to Rumedia holding
57	Vesti FM	news radio station, progovernment
58	Kommersant FM	radio station, owned by Alisher Usmanov who has ties to Russian government

59	Radio Svoboda	Radio Liberty, U.S. government funded, opposition leaning in Russia
60	Golos Ameriki—Voice of Amerika	U.S. government funded, opposition leaning in Russia
61	Ekho Moskvyy	private news media and radio station, opposition leaning
62	Govorit Moskva 94.8 fm	private radio station, Moscow region
63	Radio Sputnik	Sputnik radio station, Russian government funded
64	Radio Komsomolskaya Pravda	private radio station, progovernment leaning
65	NTV	TV Channel, owned by Gazprom media
66	REN TV News	TV channel, owned by National Media Group that has ties to the Russian government
67	Telekanal "Zvezda"	TV Channel, partially controlled by the Russian Defense Ministry
68	Telekanal Dozhd	Private TV channel, opposition leaning
69	Telekanal i klub Moya Planeta	private TV channel, nature and traveling
70	TV Tsentr	state-run TV channel
71	Telekanal Rossiya-Kultura	state-sponsored TV channel, entertainment
72	Pyatyi Kanal Novosti	TV channel, owned by National Media Group that has ties to the Russian government
73	Telekanal "Rossiya"	state-owned TV channel
74	Snob	private entertainment and news media, opposition leaning
75	Cosmopolitan Russia	
76	Esquire Russia	
77	Forbes Russia	
78	Elle	
79	Harper's Bazaar Russia	
80	Zhurnal "Vokrug Sveta"	entertainment media, nature, tourism, and traveling
81	Domashnyi Ochag	entertainment media

82	"Ekspert" Online	private business media
83	StarHit. Zhurnal Andrey Malakhova	entertainment media
84	SNC Russia	
85	Playboy Russia	
86	Hello! Russia	
87	Tatler Russia	
88	Zhurnal Karavan Istorii	entertainment media
89	Nezavisimaya Gazeta	private news media
90	Kommersant	news media, owned by Alisher Usmanov who has ties to Russian government
91	VEDOMOSTI	private business media
92	Rossiyskaya Gazeta	news media, owned by Russian government
93	Moskovskiy Komsomolets (MK)	private media
94	Novaya Gazeta	private news media, opposition leaning
95	Parlamentskaya Gazeta	
96	Argumenty I Fakty/aif.ru	news media, owned by the government of Moscow
97	EG.RU	private news media, belongs to Komsomolskaya Pravda holding
