

## **Pre-Analysis Plan**

### **“Incentivizing Good Digital Governance: Toward a Healthier and More Ethical Online Public Sphere”**

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## 1. Introduction

Democracy is retreating around the world. Over the past decade, the decline in democracy has been notable not only in countries that have just recently transitioned to democracy but also in advanced, stable democratic systems in Europe and North America (Diamond 2021). Political polarization and the spread of misinformation are often cited as culprits in the rise of contested democracy (Finkel et al. 2020; Kingzette et al. 2021; Osmundsen 2021; Vosoughi et al. 2018). In turn, the Online Public Sphere and more specifically the online media sphere has been implicated in both the growth of polarization and the spread of misinformation. The goal of our project is to understand the breadth and contours of the Online Public Sphere (both positive and negative) as well as investigate how it could be structured in ways that encourage more healthy behaviors and support good digital governance.

Many observers and scholars saw promise in the ways that the Online Public Sphere, principally delivered via the Internet, could democratize societies, empower the powerless, and build a more inclusive world (Negroponte et al. 1997). These rosy predictions did not pan out as expected. Although events like the Arab Spring show the positive aspects of the Online Public Sphere (Eltantawy and Wiest 2011), research over the past decade offers a more mixed picture. Access to high quality Internet does increase people's access to information as well as news consumption and knowledge about politics. Nonetheless, it has not translated into increased political engagement and participation (Lelkes 2020). Moreover, increased access to high quality Internet is also associated with an increase in affective polarization, or the degree to which people dislike their political opponents (Lelkes, et al. 2017). Social media are a major contributing factor. By personalizing the stream of information that people receive and doing so in a way that strengthens people's need to reinforce their personal identities, social media distorts people's view of politics and encourages them to see it through an us-versus-them lens (Bail 2021; Settle 2018).

Yet it is not clear what the alternative should be to the current state of the Online Public Sphere. For instance, deactivating social media accounts (e.g., Facebook) affects users in complex ways. It increases feelings of subjective wellbeing but reduces knowledge about politics and can increase specific kinds of polarization, such as offline racial prejudice (Alcott, et al. 2020; Asimovic 2021). Moreover, contrary to common wisdom, most people do not live in online echo chambers. People do often encounter information online about politics that comes from perspectives with which they disagree (Bail 2021; Bakshy et al. 2015; Beam et al. 2018). The reason that people's online experiences lead them to become more hostile toward their political opponents is not because they are only exposed to information that comports with their worldview. It is because when they do encounter information online with which they disagree, it is often couched in provocative ways that are meant to activate emotional responses as outrage (Bor and Petersen 2021), which in turn triggers attitude polarization (Arceneaux and Johnson 2013; Bail 2021).

In this project we propose developing and administering an innovative research design for both understanding how people engage with the online public sphere as well as test interventions that are designed to cultivate healthier and more constructive online behaviors. We plan to do so in the context of the French presidential and legislative elections slated for spring 2022. Following the experience of the last national elections in France, we anticipate that the electoral campaign will be emotionally charged, polarizing, and filled with attempts to spread misinformation. Our research approach will cast a broad net by studying a wide range of attitudes and behavior, both on- and offline.

### ***Cultivating a Healthy and Ethical Online Public Sphere***

With a view to address the current negative effects of the online public sphere, the project will examine the moral foundations of an ethical online public sphere, as well as their political translation. Defining an "ethical" online public sphere implies to move from a negative definition towards a positive one, not solely focused on the pitfalls. In search of ethical foundations, we will draw from ethical models of (offline) public participation, and in particular of deliberative democracy, thereby importing the moral grounds enabling an ethical online environment for sound public dialogue. Ideals of deliberative democracy will be explored through their online transposition for an ethical online space of dialogue, while the communicative and sociological shortcomings will also be taken into consideration.

Further to this, and to address the moral limits of the online public sphere from the scope of their behavioral impact (attention economy) while also considering media monopolies and exposure to diversity, we will investigate the incentives for ethical innovations, as alternatives to the regulatory path. This strand of work will first focus on the typology of monopoly mechanisms, analyzing search engines and social networks amongst the different types of gatekeepers and intermediaries (editors, aggregators, search engines, social bookmarking), investigating the ethical shortcomings of each of them.

The diversity of contents and diversified information will be the cornerstone of this analysis, and the guiding principle in our exploration of ways to instigate an ethical disruption of the online public sphere: issues of diversity stand at the root of polarization, misinformation and unbalanced public debate. Normative aspects underlying the ideal features of an "ethical" online public sphere will serve to investigate the responsibility of the designers, as well as the delegation of responsibility in online contexts.

The boundaries of the unforeseen long-term and large-scale consequences in political/civic life point out to the need for a context-dependent normative analysis of the use of digital mediations. From an impact analysis perspective, the dangers of filtering, the loss of content diversity, the fragmentation of the public discourse, will be set against the extent of the user's individual autonomy and the freedom of choice. Working towards an original definition of a healthy online public sphere, we will combine both these considerations and the existing ethical intentions embedded in the algorithmic design of main Internet platforms, namely the way centralized algorithms channel hostility and misinformation).

Drawing from these normative investigations as the guiding work hypothesis of the experiments conducted in this project, we will define the ideal features of an ethical online public sphere and propose alternatives to the existing online public sphere. In addition to regulatory solutions (governance of algorithms to build informed decision-making processes),

the supply side and innovative incentives will also be examined, in terms of potential pathways for ethically- driven innovation for entrepreneurs (taking into account the implications in terms of market competition). The normative considerations related to transforming the media ecosystem to improve civic discourse and access to diversified information will be the foundation of the experiments to be conducted and will also form the basis for the ethical nudges to be proposed.

## **2. Theoretical Framework**

In this project, we seek to explore how individuals engage in online public environment with and without testing an interference that is designed to encourage healthier and more constructive online behaviors. The focus of our experiments is to determine the “basic” online behavior, and the extent to which this online behavior can be modified (with nudges). In our view, the characteristics of an ethical online public sphere composes diversity of information/contents, high data protection/individual digital privacy, minimal (ideally zero) misinformation, and civic online behavior (no harassment, no hate speech, good deliberation). We focus on the influence of Facebook, since it remains the largest social media platform to date (e.g., Settle 2017).

Our theoretical framework is relatively simple: 1) in the absence of a major online source of information (such as Facebook), individuals will turn to other sources. Some may seek out information on offline sources, others may turn to other forms of social media, and still others may simply forgo seeking out information. As a result, with respect to our specific study, the absence of Facebook should have various implications for how people should behave in politics. 2) Additional nudges about the ways in which one should engage with information on online sources should help motivate individuals better seek out information and, in the process, improve how they seek out as well as what they do with information that they encounter either offline or online.

In this regard, we investigated several different Dependent Variables: (1) Social media use (Facebook), (2) Echo chambers, (3) Agenda setting (4) Social relationships, (5) Degree of social media addiction, (6) Awareness of social media’s adverse effects, (7) News knowledge, (8) Life satisfaction, (9) Strategic voting, (10) Affective polarization (11) Social trust, (12) Political system support; by assigning participants into three groups that are considered as the Independent Variables: Control Group [Group A], Treatment Group I (Deactivate Facebook) [Group B], and Treatment Group II (Deactivate Facebook with the Nudges) [Group C].

Dependent Variables	Control group (Group A)	Treatment Group I - Deactivate Facebook (Group B)	Treatment Group II - Deactivate Facebook + Nudges (Group C)
Social media use (Facebook)	Manipulation check		
Echo chambers		Deactivating Facebook will likely increase the echo-chambers.	Deactivating Facebook + Nudges will likely decrease the echo-chambers, to a degree lesser than the control group and Group B.
-----			
Group A < Group B > Group C			
Agenda-setting		Deactivating Facebook will likely increase the mainstream media news consumption, hence a mainstream agenda-setting.  <i>Observational implication:</i> Group B participants will likely provide similar answers to the “most important problem”.	Deactivating Facebook + Nudges will likely provide less similar answers.  <i>Observational implication:</i> Group C participants will likely provide different answers to the “most important problem”.
-----			
Group A (mainstream) < Group B (similar) > Group C (less similar)			
Social relationships		Group B participants will likely have more in-person/offline social relationships.	Group C participants will likely have even more in-person/offline social relationships than Group B participants.
-----			
Group A (virtual) < Group B (more real) < Group C (more real)			
Degree of social media addiction		Group B participants will likely spend less time on social media tools.	Group C participants will likely spend even less time on social media tools than Group B participants.
-----			

		Group A (addiction) > Group B (less addiction) > Group C (less addiction)	
<b>Awareness of social media's adverse effects</b>		Group B participants will likely state that Facebook is bad for society.	Group C participants will likely state that Facebook is even worse for society than Group B participants.
		Group A < Group B < Group C	
<b>News knowledge and Online Political Engagement</b>		Deactivating Facebook will likely decrease the amount of news knowledge and participants online engagements	Deactivating Facebook + Nudges will likely increase the amount of news knowledge while decreasing the online political engagements.
		Group A > Group B < Group C	
<b>Life satisfaction</b>		Group B participants will likely state that their life satisfaction has improved	Group C participants will likely state that their life satisfaction has improved more than Group B participants.
		Group A < Group B < Group C	
<b>Strategic voting (Round I and II)</b>		Facebook helps people coordinate on support for the most viable alternative to their preferred candidate. In the Round 1 of the 2022 French presidential elections, strategic candidates were: on the left, Mélenchon, on the center right Macron, and on the right Le Pen.	
		Group B participants on the left who supported someone other than Mélenchon on the baseline survey will be less likely to vote for Mélenchon. Group B participants on the center right or right who supported someone other than Macron or Le Pen on the baseline survey will be less likely to vote for Macron or Le Pen.	Group C participants will behave more in line with the control group.

		Group C = Group A > Group B	
<b>Party affective polarization</b>		Facebook deactivation will likely reduce affective polarization in comparison to the control group.	The nudges along with deactivating Facebook will likely reduce affective polarization more than in Group B.
		Group A > Group B > Group C	
<b>Social trust</b>		Facebook deactivation will likely result in a decrease in people's trust in other people compared to the control group.	The nudges along with deactivating Facebook will likely reduce people's trust in other people more than in Group B.
		Group A < Group B < Group C	
<b>Political system support</b>		Facebook deactivation will likely reduce ideological polarization and political distrust and defiance towards the political system.	The nudges along with deactivating Facebook will likely reduce even more distrust levels, more than in group B.
		Group A < Group B < Group C	
<b>Populist support</b>		Facebook deactivation will likely reduce support for populist candidates.	Facebook deactivation will likely reduce support for populist candidates.
		Group A < Group B = Group C	
<b>Knowledge of news facts</b>		Facebook deactivation will likely increase knowledge of news facts	The nudges with further increase knowledge of news facts
		Group A < Group B < Group C	



<b>Trust in traditional media</b>		Facebook deactivation will likely increase trust in traditional media	The nudges with further increase trust in traditional media
		Group A < Group B < Group C	
<b>Trust in social media</b>		Facebook deactivation will likely decrease trust in social media	The nudges with further decrease trust in social media
		Group A > Group B > Group C	
<b>Social affective polarization</b>		Facebook deactivation will likely decrease social affective polarization (measured with 1-10 feeling rating of: Muslims; Immigrants; and North African and African descent)	The nudges with further decrease social affective polarization (measured with 1-10 feeling rating of: Muslims; Immigrants; and North African and African descent)
		Group A > Group B > Group C	
<b>Specific political support</b>		Facebook deactivation will likely increase specific political support (measured as trust in political parties, representatives, and the president)	The nudges with further increase specific political support (measured as trust in political parties, representatives, and the president)
		Group A < Group B < Group C	
<b>Index of positive emotional state</b>		Facebook deactivation will likely increase positive emotional state (measured as positive emotions felt minus negative emotions felt)	The nudges with further increase positive emotional state (measured as positive emotions felt minus negative emotions felt)
		Group A < Group B < Group C	

<b>Social connections to friends and family</b>		Facebook deactivation will likely increase the time spent with friends and family and number of friends with whom you have discussed matters important to you.	The nudges with further increase the time spent with friends and family and number of friends with whom you have discussed matters important to you.
		Group A < Group B < Group C	

### **3. Research Design**

The main obstacle to studying the effects of technological change on society is that we can never observe what the world would look like if technology had not changed. Research designs that attempt to identify effects such as these by comparing those who use technology in one way to those who do not are unreliable. Rather than offering evidence of causal effects, they often show that different people gravitate to different technologies.

In these research designs, researchers randomly assign participants to engage in different behaviors that simulate what the world would look like under different conditions. A recent, topical example are experiments that study the effectiveness of vaccines. A randomly selected placebo group receives a shot of saline, while the treatment group receives a dose of the candidate vaccine. This research design simulates a world in which there is no vaccine (the placebo group) and compares it to one in which the candidate vaccine does (the treatment group).

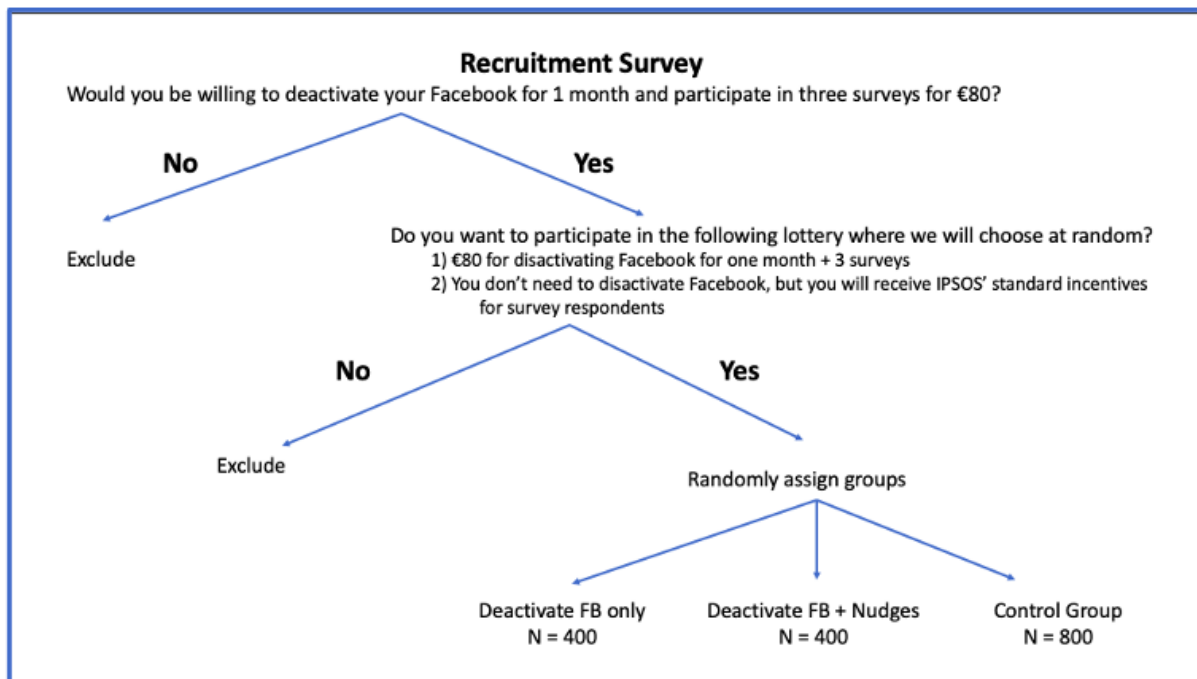
For these reasons, experimental research designs are powerful tools for understanding the effects of media technologies (Arceneaux 2010). Related to our research, Allcott, et al (2020) gave participants in the treatment group a monetary incentive to deactivate their Facebook account for 4 weeks. Relative to the control group, those in the treatment, spent more time socializing with friends and family and felt better about themselves and opposing partisans, but they also knew less about politics. A similar study conducted in Bosnia and Herzegovina found that deactivating Facebook for a week also felt better about themselves but also had less respect for ethnic outgroups (Asimovic et al. 2021).

This pair of studies simulate what the world would look like if people avoided social media, but they cannot simulate a world in which they do not exist. If the people who avoid the online public sphere simply receive the same toxic misinformation from those who participate in it, the negative elements of the Internet will simply be transmitted to those who try to avoid it (Anspach and Carlson 2020; Carlson 2019). In this way, the current online public sphere creates a kind of “landscape trap” in which one cannot escape it even if s/he tries (Baym et al. 2020). Consequently, we must investigate alternative pathways to create a new technological landscape, aligned with the key features of the normative ideal of an "ethical" online public sphere.

#### ***3.1 Sample and Procedure***

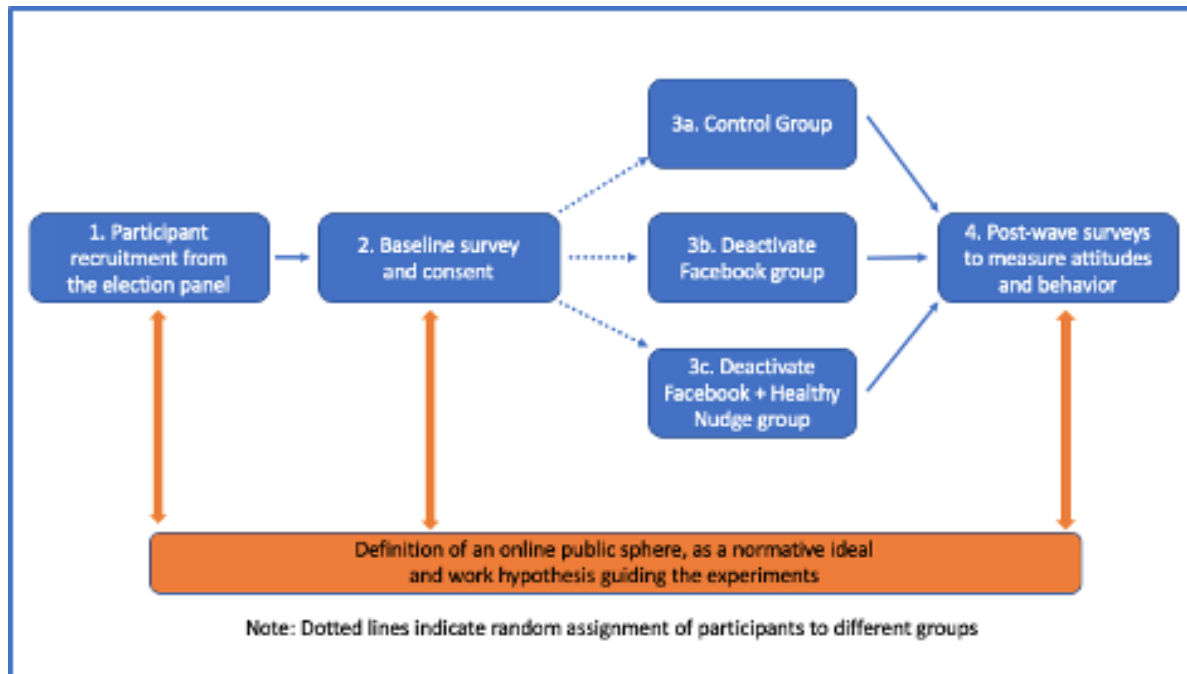
First, we drew on a panel study that follows the same participants over the span of the French presidential elections during April 2022. We consulted with IPSOS in this study and they recruited participants from their large-size election panel. (Fig. 1 and Fig 2, Step 1). The groups were created by randomly assigning people drawn from the pool of potential respondents who were willing to deactivate Facebook and participate in surveys. The consent for the procedure is completed by IPSOS’ internal mechanism.

**Figure 1:** The initial recruitment process schema



Then, Figure 2 illustrates the ways in which our proposed research design offers an innovative path forward for the rest of the experiment. The selected participants were asked to complete a baseline survey that measures a wide range of political attitudes as well as online and offline behaviors (Fig. 2, Step 2). Next, we randomly assigned participants to one of three groups: Control group, Deactivate Facebook group, Deactivate Facebook and healthy nudges group (Fig. 2, Step 3). The Ns were the minimum we asked IPSOS to recruit, which would allow us to detect small effects ( $d=0.20$ ) at a power of 0.95 using two-tailed t-tests with an alpha level of 0.05. That said, we encouraged IPSOS to collect more observations than this if possible.

**Figure 2:** The experimental design



Those in the control group (**3a**) did not change their online or offline behaviors, yet they received the standard financial incentive for their completion of the surveys offered by IPSOS. Those in the treatment groups were asked to do different things in return for a significant monetary incentive (€80). One treatment group (**3b**) deactivated their social media accounts (Facebook). This condition replicates previous work and offers a point of comparison in the extreme as they simulate a world of avoidance — avoiding social media (Allcott, et al., 2020; Asimovic et al., 2021). IPSOS checked participants in the treatment groups daily to verify that their Facebook account had remained deactivated. If an account had been reactivated, the participant was sent a message reminding them of the conditions of the study and requesting that they deactivate their account again.

The other treatment group (**3c**) received the innovative nudges that we developed to encourage healthy online behaviors. In order to understand the technological conditions under which these interventions work, we coupled deactivating social media accounts (Facebook) along with the instructional nudges instructions that aims to inform the participants on how to engage online information in a healthy way (*The coverage of the nudges is detailed in the appendix*). The main themes of the nudges include the following issues: **(1)** social media addiction problem, **(2)** data privacy and access to diversified information, **(3)** fighting against misinformation, **(4)** civility and tolerance for a better democratic debate. Table 1 shows the timeline of both the surveys and the nudges.

Participants in the treatment and control groups will then be followed for the rest of the election period (Fig. 2, Step 4). Across multiple panel waves, participants will be asked

about their emotions about politics (anger, anxiety, etc.), their feelings toward other groups in society (opposing partisans, immigrants, elites, etc.), their knowledge about politics, their belief in misinformation, their self-wellbeing, their offline social behavior, and their purchasing behavior. This wide range of attitudes, self-reported behavior, and observed behavior will allow us to paint a much more complete picture regarding the influence of the online public sphere than extant research. We will be able to see whether nudges coupled with alternative online behavior cause people to engage with politics and each other in more healthy, ethical ways. If successful, these interventions could offer insights into how a decentralized Internet protocol might be best designed from the perspective of good digital governance. The full timeline of the surveys and nudges is illustrated below in Table 1.

**Table 1:** The timeline of the surveys and the nudges.

<b>DATE</b>	<b>SURVEYS</b> <i>(To all 3 groups)</i>	<b>NUDGES</b> <i>(To group C participants only , via email)</i>
<b>1 April</b>	<b>Survey 1</b>	
<i>10 April (1st round of the 2022 French presidential elections)</i>		
<b>12 April</b>		<b>Nudge 1</b> (Social media addiction problem)
<b>14 April</b>		<b>Nudge 2</b> (Data privacy and access to diversified information)
<b>19 April</b>	<b>Survey 2</b>	
<b>21 April</b>		<b>Nudge 3</b> (Fighting against misinformation)
<b>22 April</b>		<b>Nudge 4</b> (Civility and tolerance for a better democratic debate)
<i>24 April (2d round of the 2022 French presidential elections)</i>		
<b>25 April:</b> End of experiments (Groups B and C participants are allowed to use Facebook again)		
<b>29 April</b>	<b>Survey 3</b>	

### 3.2 Survey Measures

The following table presents the dependent variables across the three surveys of our study. For each dependent variable, the related question number is indicated in each survey column. The questions corresponding to the question numbers can be found in the Appendixes. The detailed description of each dependent variable can be found after this table.

**Table 2: Representation of each question corresponding to the dependent variables across the three surveys**

	Survey 1	Survey 2	Survey 3
<b>Dependent Variables</b>			
<b>Social media use (Facebook)</b>	Q1*; Q2	Q1	Q1
<b>Echo chambers</b>	Q8	Q21	Q3; Q20
<b>Agenda-setting</b>	Q10	Q12	Q13
<b>Social relationships</b>	Q15	Q6; Q20	Q7; Q19
<b>Degree of social media addiction</b>	Q3	Q18; Q19	Q17; Q18
<b>Awareness of social media's adverse effects</b>			Q32
<b>News knowledge and online political engagement</b>	Q9	Q3; Q14	Q4; Q14
<b>Life satisfaction</b>	Q17	Q7; Q17	Q8; Q16; Q27
<b>Strategic voting</b>	Q20	Q9	Q25
<b>Affective polarization</b>	Q11	Q4; Q15	Q5; Q15
<b>Social trust</b>	Q13		Q21
<b>Political system support</b>	Q12; Q14; Q16	Q5	Q6; Q22; Q23
<b>Vote related variables / Political Shift</b>			
<b>Likelihood of voting for 2<sup>nd</sup> round</b>	Q4a; Q5a	Q10	

<b>Candidate intention for 2nd round</b>	Q4b; Q5b	Q11	
<b>Voting attitude</b>		Q8	Q9
<b>Casted vote</b>		Q9	Q10
<b>Candidate view after elections</b>			Q11; Q12
	<b>Survey 1</b>	<b>Survey 2</b>	<b>Survey 3</b>
<b>Pre-treatment Controls</b>			
<b>Socio-economic variables / Demographics</b>			
<b>Religion</b>		Q13	
<b>Cognitive Reflection Test</b>		Q16(a,b,c)	
<b>Ideological Spectrum</b>	Q6a; Q6b		
<b>Political Identification (Party) (closeness)</b>	Q18; Q19; Q20		
<b>Google use frequency</b>	Q7	Q2	Q2
<b>Other Descriptive variables</b>			
<b>Opinion about Facebook</b>			Q24
<b>Impact of deactivation</b>			Q31
<b>Missing Facebook</b>			Q28
<b>Diverse social media tools</b>			Q29
<b>Difficulties</b>			Q30
<b>Nudges</b>			Q33 ***
<b>Thoughts (open ended question)</b>			Q26/Q34

**Notes:**

\* Q1 in Survey 1 only investigates the baseline to understand whether participants use facebook or not.

\*\* **Red letters** correspond to questions asked only to groups B and C participants.

\*\*\* Question 33 is asked only for the Group C participants



## ***Dependent Variables***

**Use of social media (Facebook):** This is the manipulation check of the survey. We initially asked respondents in Survey 1 whether they have a Facebook account or not. Once they provided a yes answer, we measured their social media use by asking how often the participants currently check their Facebook on a 5-point scale across all surveys [*Less than once per week (none in survey 2 and 3), once per week, once per day, more than once per day, and more than 10 times per day*]. The answers are coded ordinally: 1 for lowest use and 5 for highest use.

*Note:* If Treatment groups' participants replied any answer apart from "none" in Survey 2 and 3, they received a warning / are asked to recommit to deactivating Facebook, i.e., consent form.

**Echo chambers:** We investigated the echo chambers through two questions. In Survey 1 and 3, we asked participants how often they encountered information they disagreed with on the internet [0 indicating never, 10 indicating very often]. We also asked in Survey 2 and 3 whether the respondents found diversified political information in their online interactions on a scale from 0 for "not diversified" to 10 for "very diversified".

**Agenda-setting:** We asked participants to indicate their top five political concerns (Top three in Survey 1) among several choices (e.g., purchasing power, health system, the environment, immigration, the war in Ukraine etc.). Here we wanted to detect whether any ***observational implication*** occurs under the agenda-setting category. Then we asked them to rank their choices from the first (most important) to the fifth (less important) in Survey 2 and Survey 3. The answers are coded nominally. Later, based on their ranking, each individual's answer also coded ordinally as the top concern indicating 5, and lowest one 1.

**Social relationship:** We asked (across all surveys) respondents how many people there are in their life with whom they have discussed important matters to observe whether any increase happens during the experiment. The answers consist of no one, 1-2 people, 3-4 people, 5-10 people, 10-15 people, and more than 15 people; and are coded ordinally as 1 for lowest amount and 6 for highest amount. Additionally, we measured the type of relationship they had by asking whether the participants mostly connected with people online or offline in Survey 2 and Survey 3. The answers are coded dichotomously: 0 for offline and 1 for online.

**Degree of social media addiction:** We asked participants to indicate how much they spent time on social media last week (0 minutes, less than 30 minutes, between 30-60 minutes, between 1-2 hours, 2 hours and above). The answers are coded ordinally as 1 indicating the lowest amount and 5 for the highest amount. We additionally asked them where they spent more time (only one answer) to observe whether deactivating Facebook made them use alternative social media tools (with friends and family, on Instagram, on Twitter, no tech,

news online, other online, watching TV, reading the written press) in Survey 2 and Survey 3. Here, the answers are coded dichotomously where time spent with friends and family, no tech, and reading the written press as offline (0) and on Instagram, on Twitter, news online, other online, watching TV as online (1).

**Awareness of social media's adverse effects:** We asked only the treatment group in Survey 3 whether deactivating Facebook made them more aware of the negative effects of online platforms on a scale of "0" for "not at all" to "10" for "absolutely".

**News knowledge and online political engagement:** We asked participants to indicate whether the presented statements about current events are true or false in Survey 2 and Survey 3. The statements included 3 political true, 3 political false, 3 non-political true, and 3 non-political false news headlines similar to New York Times or Le Monde. (e.g., *Jean-Luc Mélenchon asks French voters to elect him 'as prime minister'* [political true], *Netflix shares drop 25% after the service loses 200,000 subscribers*. [non-political true], *French presidential debate 2022: Macron attacks Le Pen over her links to Australia on the diplomatic crisis over a scrapped submarine deal*. [political false], *Billionaire Elon Musk offers to buy The Principality of Aigues-Mortes, a micronation in southern France, to launch his "SpaceX Europe" program* [non-political false]). The amount of providing a correct answer is coded ordinally as 0-3 indicating 1, 4-6 indicating 2, 7-9 indicating 3, and 10-12 correct answers indicating 4. Additionally, we measured online political engagement by asking respondents in all surveys whether they have recently been involved in an online discussion related to the elections. The answers were collected dichotomously (1 for yes / 0 for no).

**Life satisfaction:** We measured this in three separate questions. First, we asked participants how satisfied they are with the life they lead. They could provide only one answer, and the response ranged from 0 (not satisfied at all) to 10 (very satisfied). We additionally asked participants to indicate about some specific emotions they felt in the past two weeks on a scale from 0 to 10 in Survey 2 and Survey 3. These emotions included: joy, fulfillment, anxiety, boredom, loneliness, depression, and isolation. Lastly, only for the treatment group participants, we asked respondents to what extent they think deactivating their account has had a positive influence on them. The answers were collected on a 10-point scale, 0 for "very negative" and 10 for "very positive".

**Strategic voting:** We measure strategic voting in the first round of the election by analyzing the voting behavior of those who neither supported Mélenchon, Le Pen nor Macron on Wave 1 of the survey. It is strategic to vote for one's most preferred candidate among the top  $n+1$  candidates, where  $n$  is the total number of winners from this round of voting, which here is 2. So here, a strategic voter would choose their most preferred of the top 3 candidates in this first round. Among those on the left who supported in Wave 1 Arthaud, Hidalgo, Jadot, Poutou, or Roussel, Mélenchon became the candidate considered to be the vote utile (strategic candidate). Among those on the center right who supported Péresse on Wave 1, Macron became the clear strategic candidate. Among those on the right who did not support Le Pen

on Wave 1 (i.e., they supported Dupont-Aignan, Lassalle, or Zemmour) Le Pen became the clear strategic candidate. Based on participants' candidate support in Wave 1, we will code their vote choice in the first round of the election stated on Wave 2 as a 0 if they did not vote for the "strategic candidate" (Macron, Mélenchon, or Le Pen) and 1 if they did.

**Affective polarization:** We asked participants to indicate their level of feelings towards different groups of peoples on a 10-point scale in Survey 2 and Survey 3. We acknowledged the participants by demonstrating that a score of 10 means that they feel very warmly towards this group and a score of 0 means that they do not like them at all. Additionally, a score of 5 means that they had no specific liking or disliking for that group. In the survey, four blocks of groups were presented: Block A (party choice) composed of people who vote for La République En Marche, people who vote for the Rassemblement National (formerly Front National), and people who do not vote; Block B (political spectrum) included people from the political left and the political right; Block C (ethnic/national background) comprised the people of North African and African descent and the people who do not have an immigrant background; and lastly Block D (religion) contained the Catholics, the Atheists, the Muslims. Additionally, we asked participants in each survey round to indicate their feelings toward the number of immigrants in France on a 4-point scale from "should greatly decrease" (coded 1) to "should greatly increase" (coded 4). We will measure affective polarization by calculating the difference in the feeling scale between the participant's ingroup and outgroup (e.g., Christians vs. Muslims). For party choice, we will follow the protocol developed by Wagner (2021) in which the spread between the most liked and most disliked party is calculated for each participant. We will calculate both the raw differences and differences weighted by the vote share of the party from the first round of the presidential election in 2022.

**Social trust:** We measured this in Survey 1 and Survey 3 by asking respondents whether most people can be trusted (coded 1) or people should be careful when dealing with others (coded 0) in a binary manner.

**Political system support:** We evaluated this in three questions. First item was across all surveys by asking respondents how they feel about their country to be run by a specific type of political system: a democracy, a strong leader, and a technocracy. The answers were recorded on a 4-point scale from very bad (coded 1) to very good (coded 4), along with an option of "I don't know (coded 0). Then, we measured institutional trust in Survey 1 and Survey 3 by asking respondents to answer how much they trust social networks, the President of the French Republic, political representatives, political parties, and the traditional media. The answers for each of them were recorded on a 4-point scale ranging from not at all (coded 1) to very much (coded 4) confidently trusting. And lastly, we asked participants to indicate their satisfaction with the democracy in France in Survey 1 and Survey 3. The answers range on a 5-point scale from very dissatisfied (coded 1) to very satisfied (coded 5).

### *Vote-related variables*

**Likelihood of voting in the 2nd round:** First, we asked participants in Survey 1 whether they intend to go and vote in 2nd round if the candidates are Emmanuel Macron and Marine Le Pen or Emmanuel Macron and Jean-Luc Mélenchon (0 meaning that they are really quite certain not to go and 10 that they are really quite certain to go and vote). Then, in Survey 2 (when they actually know who the candidates are), we asked them their intention to go and vote in the second round on a scale of 0 to 10 as it is in the previous question.

**Candidate intention for 2nd round:** First, we asked participants in Survey 1 who they intend to vote for in the 2nd round if the candidates are Emmanuel Macron [coded 1] and Marine Le Pen [coded 2] or Emmanuel Macron [coded 1] and Jean-Luc Mélenchon [coded 3] (along with not voting [coded 97], blank or null vote [coded 98], and do not wish to answer [99] options). Then, in Survey 2 (when they actually know who the candidates are), we asked them who they intend to vote for in the second round (again, along with not voting [coded 97], blank or null vote [coded 98], and do not wish to answer [99] options).

**Voting attitude:** We measured this by asking participants in Survey 2 and 3 how their attitude varied on the election day in an ordinal variable manner. The answers varied whether they didn't vote (coded 1), thought about it but not voted (coded 2), wanted to vote but finally gave up on it or were prevented from doing so (coded 3), and actually voted (coded 4). We also used this information as a dichotomous measure of voting (1) vs. not voting (0) in the both rounds of elections.

**Casted vote:** We asked participants who they voted for in the both rounds of elections. the answers were coded as nominal variables in both waves [*In Survey 2: (1) Philippe Poutou, (2) Nathalie Arthaud, (3) Jean-Luc Mélenchon, (4) Fabien Roussel, (5) Yannick Jadot, (6) Anne Hidalgo, (7) Emmanuel Macron, (8) Valérie Pécresse, (9) Jean Lassalle, (10) Nicolas Dupont-Aignan, (11) Marine Le Pen, (12) Eric Zemmour; (98) voted blank or null; In Survey 3: (1) Emmanuel Macron, (2) Marine Le Pen, (98) voted blank or null*].

**Candidate view after elections:** We measured this in two separate questions by asking respondents whether they see Emmanuel Macron / Marine Le Pen in a stronger or weaker position after winning / losing the presidential elections. For both questions, losing view coded as 0 and winning view coded as 1.

### *Pre-treatment Controls*

**Socio-economic variables / demographics: Age, Gender Identity, Education.**

**Religion:** The participants answered what religion they belong to in Survey 2. The answers were coded as a nominal variable: (1) Catholic, (2) Protestant, (3) Jewish, (4) Muslim, (5) Buddhist, (6) Other religion, (7) No religion, (8) I do not want to answer.

**Cognitive Reflection Test:** In survey 2, we asked respondents three questions to measure their cognitive reflection. Here, we operationalize the answers as intuitive answers (-1), wrong answers (0), and the correct answers (1). Then we utilized the answers in a summated rating scale ranging from -3 to 3.

**Google use frequency:** We measured participants' usage of Google as a search engine by asking how often they use it. The answers ranged on a 4-point scale across all surveys and coded as an ordinal variable (*As little as possible, A few times per day, Several times per day, All day long*). Lower amount of use is coded as 1, higher amount of use coded as 4.

**Ideological Spectrum:** We measured participants' political views by asking if they think they fall on the ideological spectrum on a scale of 0 to 10, where 0 is left and 10 is right. If any respondent answered 5, then the follow up question indicated which of the two statements best describes your choice: I am in the center, I am neither left nor right, I am on the left and on the right, I do not know. For each of these questions, we used the answers as an additional indicator and coded them dichotomously as yes (1) and no (0) answers.

**Party ID (closeness):** In Survey 1, we asked participants whether they feel close to any political party and is there nevertheless a political party or formation from which they feel less distant than others. Both questions consist of yes (coded 1) and no (coded 0) answers. Additionally, we asked them to indicate which political party or formation they feel closest or least distant from and the answers collected as a nominal variable [(1) *Lutte Ouvrière*, (2) *Nouveau Parti Anticapitaliste*, (3) *Parti Communiste Français*, (4) *France Insoumise*, (5) *Nouvelle Donne*, (17) *Génération.s*, (6) *Parti Socialiste*, (7) *Parti radical de gauche*, (8) *Europe Ecologie - Les Verts*, (9) *Autres Ecologie : Union des démocrates et écologistes, CAP21*, (16) *La République En Marche!*, (10) *Le MoDem (Mouvement Démocrate)*, (11) *L'UDI (Union des Démocrates et Indépendants)*, (12) *Les Républicains*, (13) *Debout la France*, (14) *Rassemblement national (ex Front National)*, (18) *Reconquête!*, (15) *Other political party*]

### ***Other variables***

**View on Facebook:** We measured it in Survey 3 by asking the participants to what extent they think Facebook is good or bad for society. The answers range from 0 (very bad for society) to 10 (very good for society).

**Impact of deactivation:** We measured this variable by asking whether they are logging into Facebook less often now; they are more careful about the accuracy of the content you share online now; they are more careful about privacy issues and sharing your personal data online;

whether they are paying more attention to the lack of civic behavior online; and they try to seek out diverse sources of information. The answers consisted of “less” (1), “neither more nor less” (2), and “more” (3) and coded ordinally on a 3-point scale.

**Missing Facebook:** We asked respondents in the treatment group how much they miss using Facebook on a 10-point scale for each of the following actions: Reading content, interactions such as comments or likes, and sharing content.

**Diverse social media tools:** We measured this by asking respondents whether they spend more time browsing online while Facebook was deactivated. The answers were coded ordinally: “less time spent” (1), “neither more nor less (2), and “more time spent” (3).

**Difficulties:** We measured this by asking respondents whether they had trouble connecting to other websites for which Facebook is an entry point during their deactivation period. The answers were collected dichotomously, 0 for no and 1 for yes (along with “I don’t know answer)

**Nudges:** We measured this variable by asking whether they received the nudges; they read the information in them; they already know about the risk of addiction to social networks and the impact on your well-being; they already know that digital platforms harvest their personal information and show them content tailored to their profile; they were already aware of misinformation and its impact on the political sphere; they already noticed the lack of civic behavior on the Internet; it was useful to remind them of these negative effects; and they followed the suggested guidelines. For each of these indicator questions, we recorded answers dichotomously as 1 for yes and 0 for no.

**Thoughts:** At the end of Survey 3, we asked all participants about how they felt about participating in the study over the past three weeks and had them write what comes to mind as an open ended question. We planned to measure this information in a semantic analysis.

### 3.4 Analysis

In our analyses, with the exception of the agenda setting hypothesis, we will use the difference in means (MD) by looking into the distinction between the means of the Control group and two Treatment groups. Since our data consists of three independent samples, we will conduct t-tests in which assume samples' variances are equal. We will do so using a regression model that follows the following general form:

$$\text{Dependent Variable} = \beta_0 + \beta_1 \text{Deactivate} + \beta_2 \text{Nudge}$$

The intercept of this equation ( $\beta_0$ ) provides the mean of the control group,  $\beta_1$  provides the difference in means between the deactivate Facebook group and the control group (Deactivate – Control), and  $\beta_2$  provides the difference in means between the healthy nudge group and the control group (Nudge – Control). As post-hoc test comparing  $\beta_1$  to  $\beta_2$  will allow us to compare the deactivate group to the healthy nudge group. If the dependent variable was measured in an identical fashion on survey wave 1, we will include the pre-experiment measure of the dependent variable on the right-hand side of the equation:

$$DV = \beta_0 + \beta_1 D + \beta_2 N + \beta_3 DV_{w=1}$$

In this equation,  $\beta_0$  provides the secular trend in the DV within the control group and the slope coefficients for the treatment indicators provides a difference in difference in the DV relative to the control group.

For the agenda setting hypothesis, we plan to conduct two analyses: 1) we hypothesize that the variances in the facebook deactivation groups will be lower than the control group (because Fb users are exposed to more diverse information). Therefore, we will compare the variances of the treatment groups to the control group, which we can accomplish by calculating an F-test for the ratio of the variances. 2) We will conduct a content analysis of the three major papers (*Le Figaro*, *Le Monde*, and *Libération*) and identify the top two most frequent topics in tagged to articles in the two weeks preceding the survey wave. Our hypothesis is the following:

$$Pr(\text{Mention one of top two topics} | \text{Treatment}) > Pr(\text{Mention one of top two topics} | \text{Control})$$

We will test this with a logit regression where we regress an indicator variable for mentioning one of the top-two topics (0,1) on indicator variables for the two treatment groups.

### *Moderators*

In order to test whether the treatment effects are moderated by partisanship, cognitive reflection, etc., we will interact the moderator (M) with the treatment indicators and include a matrix of covariates for demographics and the wave 1 dependent variable if applicable (X):

$$DV = \beta_0 + \beta_1 D + \beta_2 N + \beta_3 M + \beta_4 D \times M + \beta_5 N \times M + \Gamma X$$

Detailed description of main hypotheses and moderator hypotheses:

- DV = echo chamber; Moderators = CRT (Treatment = more echo chamber among low CRT); Education (High Education people more likely to expose themselves to diverse info in the Treatment groups)
- DV = Agenda-setting; Moderator = Education, Age (Treatments have a larger effect on High Education/Older participants, because they choose to consume more news)
- DV = News Knowledge; Moderator = Education, Age (Treatments have a larger effect on High Education/Older participants, because they choose to consume more news)
- DV = Trust in Traditional Media; Main hypothesis is that exposure Fb decreases trust in the traditional media (Ladd); Moderator = Education (Treatments have a larger effect on High Education/Older participants, because they choose to consume more news)
- DV = Vote for populists; Main hypothesis = Fb increases exposure to supportive information for populist, thus Fb deactivation decreases support for Le Pen in second round, and decreases support for populist candidates (as measured by Sergei Geuriev). ; Moderators = Independents, low education, and people low on populism in wave 1 are more likely to be influenced by Fb on this DV.
- DV = Strategic voting; Moderator: High education more likely to engage in strategic voting, irrespective of access to Fb.
- DV = party affective polarization (**Lower 1-10 feeling ratings of “people from the political left” if you identify as on the political right or “people from the political right” if you identify as on the political left; Also lower 1-10 feeling ratings of people who vote for La République En Marche! if you voted for Rassemblement National in the second round and lower 1-10 feeling ratings of people who vote for Rassemblement National if you voted for La République En Marche! In the second round; In both cases, lower ratings of one’s ideological opponents indicated greater party affective polarization**); Main Hypothesis = Fb increases party affective polarization; Moderator = Treatment effect larger among high education people (who tend to have higher partisan affective polarization)



- DV = social affective polarization (1-10 feeling rating of Muslims; Difference in 1-10 feeling rating of “People of North African and African descent” and “People who do not have an immigrant background”; in both of these, lower ratings indicate more social affective polarization); Main Hypothesis = Fb increases social affective polarization; Moderator = Treatment effect larger among low education people (who tend to have higher social affective polarization to begin with)
- DV = system support (WVS Index of support for democratic principles; Satisfaction with Democracy in France); Main Hypothesis = Fb reduces system support; Moderator = Treatment effect is larger among low education and the young
- DV = specific support (trust in reps; trust in president; trust in parties); Main Hypothesis = Fb decreases among opposition supporters; Moderator = support for Macron.
- DV = Life satisfaction and connections with friends and family (How satisfied are you with your life, time spent with friends and family, and number of friends with whom you have discussed matters important to you); Main hypothesis = Fb reduces each of these; Moderators: effect is larger among those with low education and those who are younger.
- DV= social trust (trusting other people); Main hypothesis = Fb reduces; Moderators: effect is larger among those with low education and those who are younger.
- DV= social media addiction; Main hypothesis = Fb increases; Moderators: effect is larger among those with low education and those who are younger.
- DV= awareness of social media’s negative effects; Main hypothesis = Fb decreases; Moderators: effect is larger among those with low education and those who are younger.
- DV = Index of “bad emotional state” (measured by an index of how much they have felt a series of positive emotions minus how much they have felt a series of negative emotions); Main hypothesis = Fb increases the bad emotional state; Moderators: effect is larger among those with low education and those who are younger.

**Quality Checks:** 1) We will check the quality of the data by regressing reported Facebook use in Survey waves 2 and 3 on indicator variables for the treatment groups. If participants followed the protocol, they should report spending less time on Facebook in the treatment groups than in the control group. 2) We will assess the integrity of random assignment by conducting balance tests (i.e., comparing the means of the pre-experiment covariates across the treatment and control groups) and calculating Bayes Factors to assess the degree to which there are no differences across groups. 3) We will assess whether panel attrition differed across the treatment control groups.

**Statistical Significance:** We will set the alpha value at 0.05 for all hypothesis tests and use two-tailed tests (where applicable).

**Missing Values:** Missing values will be deleted listwise. If a covariate has more than 10% missing, we will set the missing values to 0 and include an indicator variable that indicates which observations are missing as a covariate in the regression model.



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## 5. Appendix - Full Questionnaires

N.B. The participants have received the three surveys and the four nudges (short messages) presented hereafter in a French version. The material presented here is an English translation of the original contents of this study's experiments.

### *Survey 1*

#### **1. Do you have a Facebook account?**

- Yes
- No

#### **2. How often do you usually check your Facebook?**

- More than 10 times per day
- More than once per day
- Once per day
- Once per week
- Less than once per week

#### **3. How much time do you spend on average per day on Facebook? Please take into account the total time you spend on Facebook, including time spent commenting (photos/articles...), scrolling through your feed (homepage), learning about the different groups you are in, watching videos or reading articles.**

- About 5 minutes or less
- About 10 minutes
- About 15 minutes
- About 20 minutes
- About 30 minutes
- About 45 minutes
- 1 hour or longer

#### **4a. If the second round of the presidential election were to take place next Sunday and if it were between Emmanuel Macron and Marine Le Pen, can you give a score from 0 to 10 on your intention to go and vote in this second round? 0 meaning that you are really quite certain not to go and 10 that you are really quite certain to go and vote.**



**4b. If the second round of the presidential election were held next Sunday, which candidate would you be most likely to vote for?**

- Emmanuel Macron
- Marine Le Pen
- You would not vote
- You would vote blank or null
- You do not wish to answer

**5a. If the second round of the presidential election were to take place next Sunday and if it were between Jean-Luc Mélenchon and Emmanuel Macron, can you give a score from 0 to 10 on your intention to go and vote in this second round? 0 meaning that you are really quite certain not to go and 10 that you are really quite certain to go and vote.**



**5b. If the second round of the presidential election were held next Sunday, which candidate would you be most likely to vote for?**

- Jean-Luc Mélenchon
- Emmanuel Macron
- You would not vote
- You would vote blank or null
- You do not wish to answer

**6a. On a scale of 0 to 10, where 0 is left and 10 is right, where would you say you fall?**

*Far left*

*Far right*



I don't know

**IF Q7 = 5**

**6b. You just marked "5" on the political positioning question, which of the two statements best describes your choice?**

- I am in the center
- I am neither left nor right
- I am on the left and on the right
- I do not know

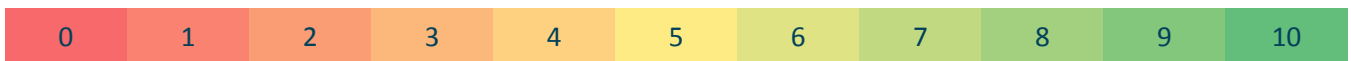
**7. How often do you use Google?**

- As little as possible
- A few times per day
- Several times per day
- All day long

**8. How often do you encounter information on social networks that you disagree with?  
Please give a number between 0 (never) and 10 (very often).**

*Never*

*Very often*



**9. Have you recently engaged in any election-related online discussions on social networks?**

- Yes
- No

**10. Which three of the following issues concern you the most when you think about the situation in the country?**

- Delinquency
- Pensions
- The health system
- The environment (global warming, biodiversity, pollution...)
- The purchasing power (taxes, salaries...)
- Immigration
- Social inequalities
- Terrorism
- Unemployment
- The school system
- The Covid-19 epidemic
- Public deficits and debt
- The organization of political life and the functioning of democracy (voting methods, referendum...)
- The distribution of competences between the State and the territories
- The defense of the Republic and secularism
- Discrimination (racism, sexism, homophobia...)
- The European questions
- The war in Ukraine

**11. Do you think that the number of immigrants living in France should increase, stay the same or decrease?**

- greatly increase
- somewhat increase



- somewhat decrease
- greatly decrease

**12. For each of the following political systems, would you say it is a very good, somewhat good, somewhat bad, or very bad way to govern this country?**

	VERY BAD	FAIRLY BAD	FAIRLY GOOD	VERY GOOD	I DON'T KNOW
Having a democratic political system					
Having a strong leader					
Empowering the military					
Have experts make decisions					

**13. Generally speaking, would you say that...**

- Most people can be trusted
- You can never be too careful when dealing with others

**14. In general, do you trust ...**

	Not at all	Somewhat not	Somewhat	Very much
Social networks				
The President of the Republic				
Political representatives (deputies, senators)				
Political parties				

Traditional media (television, radio, written press)				
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**15. Looking back over the last six months, how many people are there in your life with whom you have discussed matters important to you?**

- No one
- 1-2 people
- 3-4 people
- 5-10 people
- 10-15 people
- More than 15 people

**16. How satisfied are you with how democracy is working in France?**

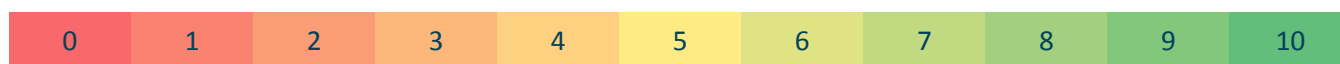
- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Very dissatisfied

**17. How satisfied are you with the life you lead?**

*Not satisfied  
at all*

*Neither  
satisfied nor  
dissatisfied*

*Absolutely  
satisfied*



**18. In general, is there a political party or formation that you feel close to?**

- Yes
- No

**19. Is there nevertheless a political party or formation from which you feel less distant than others?**

- Yes
- No

**20. Which political party or formation do you feel closest or least distant from?**

- Lutte Ouvrière
- Nouveau Parti Anticapitaliste
- Parti Communiste Français
- France Insoumise
- Nouvelle Donne
- Génération.s

- Parti Socialiste
- Parti radical de gauche
- Europe Ecologie - Les Verts
- Autres Ecologie : Union des démocrates et écologistes, CAP 21
- La République En Marche !
- Le MoDem (Mouvement Démocrate)
- L'UDI (Union des Démocrates et Indépendants)
- Les Républicains
- Debout la France
- Rassemblement national (ex Front National)
- Reconquête!
- Other political party

## Survey 2

### 1. How often do you currently check your Facebook?

- More than 10 times per day
- More than once per day
- Once per day
- Once per week
- 0 times per week

### 2. How often do you use Google?

- As little as possible
- A few times per day
- Several times per day
- All day long

### 3. Have you recently engaged in online discussions on social media related to the elections?

- Yes
- No

### 4. Do you think the number of immigrants living in France should increase, stay the same, or decrease?

- greatly increase
- somewhat increase
- somewhat decrease
- greatly decrease

### 5. I will describe different types of political systems. For each one, please tell me whether this way of governing the country would be very good, fairly good, fairly bad or very bad?

	VERY BAD	FAIRLY BAD	FAIRLY GOOD	VERY GOOD	I DON'T KNOW
Having a democratic political system					
Having a strong leader					
Empowering the military					

Have experts make decisions					
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**6. Looking back over the last six months, how many people are there in your life with whom you have discussed matters important to you?**

- No one
- 1-2 people
- 3-4 people
- 5-10 people
- 10-15 people
- More than 15 people

**7. How satisfied are you with the life you lead?**

*Not satisfied  
at all*

*Neither  
satisfied nor  
dissatisfied*

*Absolutely  
satisfied*



**8. One in four voters did not vote in the first round of the presidential election on April 10, 2022. In your personal case, what best fits your attitude on this occasion?**

- You did not vote
- You thought about voting for a while but didn't do it
- You wanted to vote but finally gave up or were prevented from doing so
- You voted in the 1st round of the presidential election on April 10, 2022

**9. Here are the candidates who were running in the first round of the presidential election. Can you tell me which one you voted for?**

- Philippe Poutou
- Nathalie Arthaud
- Jean-Luc Mélenchon
- Fabien Roussel
- Yannick Jadot
- Anne Hidalgo
- Emmanuel Macron
- Valérie Pécresse
- Jean Lassalle

- Nicolas Dupont-Aignan
- Marine Le Pen
- Eric Zemmour
- You voted blank or null

**10. The second round of the presidential election will take place on Sunday, April 24. Can you give a score from 0 to 10 on your intention to go and vote in the second round? 0 meaning you are really quite sure not to go and 10 meaning you are really quite sure to go.**



**11. Which candidate are you most likely to vote for in the second round of the presidential election?**

- Emmanuel Macron
- Marine Le Pen
- You will not vote
- You will vote blank or null
- You do not wish to answer

**12. Please select your top 5 political concerns from the following and rank them from first (most important) to fifth (least important):**

**RANKING**

- 1.
- 2.
- 3.
- 4.
- 5.

**CONCERNS**

- Delinquency
- Pensions
- The health system
- The environment (global warming, biodiversity, pollution...)
- The purchasing power (taxes, salaries...)
- Immigration
- Social inequalities
- Terrorism
- Unemployment
- The school system
- The Covid-19 epidemic
- Public deficits and debt
- The organization of political life and the functioning of democracy (voting methods, referendum...)

- The distribution of competences between the State and the territories
- The defense of the Republic and secularism
- Discrimination (racism, sexism, homophobia...)
- The European questions
- The war in Ukraine

**13. What is your religion, if you have one?**

- Catholic
- Protestant
- Jewish
- Muslim
- Buddhist
- Other religion
- No religion
- I do not want to answer

**14. Please indicate whether the following statements about current events (political and non-political) are true or false. (For each sentence, please check "true" or "false")**

**TRUE OR FALSE**

- The outsourcing of public policies by private consulting firms amounts to 160 billion euros per year.
- France's public debt reached 2.8 trillion euros in 2021, amounting to 116% of GDP.
- Prominent French magazines (l'Express, l'Obs, le Point, Paris Match) are owned by billionaires who are close to the political power.
- Ukraine and the United Kingdom made a joint statement that they are ready to rejoin the European Union.
- In the weeks preceding the elections, a far-left supporter was suspected of sending the deadly poison ricin in an envelope addressed to Marine Le Pen.
- France prepares to withdraw from NATO in response to idleness amidst the war in Ukraine
- Paris to host the 2024 Summer Olympics with the opening ceremony taking place on the Seine.
- France has started using facial recognition, particularly for judicial purposes.
- French court pulls SpaceX's Starlink license.
- A group of scientists discovered that Covid-19 originated in Southern France long before 2020.
- The Metaverse (interconnected virtual worlds promoted by Facebook), will impose all current Facebook users to join the new social network by 2027.
- PSG is the last French team to qualify for the quarterfinals of the Champions League after beating Real Madrid.

**15. We would like to know how you feel about these different groups: please indicate how you feel about these groups using a scale from 0 to 10. A score of 10 means that you feel very warmly towards this group, a score of 0 means that you don't like them at all. A score of 5 means that you have no particular liking or disliking for that group. The intermediate scores help to qualify your feelings.**

*You don't  
like them at  
all*

*You have a very  
warm feeling  
towards this  
group*



**Block A**

- People who vote for La République En Marche !
- People who vote for the Rassemblement National (formerly Front National)
- People who do not vote

**Block B**

- People from the political left
- People from the political right

**Block C**

- People of North African and African descent
- People who do not have an immigrant background

**Block D**

- The Catholics
- The Atheists
- The Muslims

**16a. Please provide an answer to the following question:**

**A bat and a ball cost €1.10 in total. The bat costs €1.00 more than the ball. How much does the ball cost?**

\_\_\_\_\_ euros

**16b. Please provide an answer to the following question:**

**In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?**

\_\_\_\_\_ days

**16c. If you're running a race and you pass the person in second place, what place are you in?**



\_\_\_\_\_ place

**17. How much have you felt each of these emotions over the past 2 weeks?**  
*[for each please indicate a number on a scale from 0 to 10]*



- joy
- fulfillment
- anxiety
- boredom
- loneliness
- depression
- isolation

**18. Last week, how many minutes did you spend reading/watching/listening news about politics, including news on social media?**

- 0 minutes
- Less than 30 min.
- Between 30 min. - 60 min.
- Between 1hr-2hrs
- 2hrs and above

**19. Do you spend more time ... (one answer)**

- with friends and family
- on Instagram
- on Twitter
- no tech
- news online
- other online
- watching TV
- reading the written press

**20. Do you mostly connect with people:**

- online
- offline

**21. Do you consider that you found diversified political information in your online interactions?**

*Not diversified*

*Very diversified*



## Survey 3

Standard questions for all three groups

### 1. How often do you currently check your Facebook?

- More than 10 times per day
- More than once per day
- Once per day
- Once per week
- 0 times per week

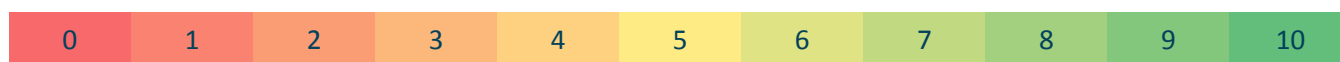
### 2. How often do you use Google?

- As little as possible
- A few times per day
- Several times per day
- All day long

### 3. How often do you encounter information with which you disagree on the Internet ?

Never

Very often



### 4. Have you recently engaged in online discussions on social media related to the elections?

- Yes
- No

### 5. Do you think the number of immigrants living in France should increase, stay the same, or decrease?

- greatly increase
- somewhat increase
- somewhat decrease
- greatly decrease

**6. I will describe different types of political systems. For each one, please tell me whether this way of governing the country would be very good, fairly good, fairly bad or very bad.**

	VERY BAD	FAIRLY BAD	FAIRLY GOOD	VERY GOOD	I DON'T KNOW
Having a democratic political system					
Having a strong leader					
Empowering the military					
Have experts make decisions					

**7. Looking back over the last six months, how many people are there in your life with whom you have discussed matters important to you?**

- No one
- 1-2 people
- 3-4 people
- 5-10 people
- 10-15 people
- More than 15 people

**8. How satisfied are you with the life you lead? [one response only, 0 to 10]**

*Absolutely not satisfied*

*Neither satisfied nor dissatisfied*

*Absolutely satisfied*



**9. Almost three out of ten voters did not vote in the second round of the presidential election on April 24, 2022. In your personal case, what best fits your attitude on this occasion?**

- You did not vote
- You thought about voting for a while but didn't do it
- You wanted to vote but finally you gave up or you were prevented from doing so
- You voted in the 2nd round of the presidential election on April 24, 2022

**10. Here are the candidates who were running in the second round of the presidential election. Can you tell which one you voted for?**

- Emmanuel Macron
- Marine Le Pen
- You voted blank or null

**11. Which statement below about the election best matches your opinion?**

- Emmanuel Macron won the presidential election and is in a stronger position than before.
- Emmanuel Macron won the presidential election but is in a weaker position than before.

**12. Which statement below about the election best matches your opinion?**

- Marine Le Pen lost the presidential election and is in a weaker position than before.
- Marine Le Pen lost the presidential election but is in a stronger position than before.

**13. Please select your top 5 policy concerns from the following and rank them from first (most important) to fifth (least important):**

**RANKING**

- 1.
- 2.
- 3.
- 4.
- 5.

**CONCERNS**

- Delinquency
- Pensions
- The health system
- The environment (global warming, biodiversity, pollution...)
- The purchasing power (taxes, salaries...)
- Immigration
- Social inequalities
- Terrorism
- Unemployment
- The school system
- The Covid-19 epidemic
- Public deficits and debt
- The organization of political life and the functioning of democracy (voting methods, referendum...)
- The distribution of competences between the State and the territories
- The defense of the Republic and secularism

- Discrimination (racism, sexism, homophobia...)
- The European questions
- The war in Ukraine

**14. Please indicate whether the following statements about current events (political and non-political) are true or false.**

**TRUE OR FALSE**

- On April 18, 2022, Ukrainian President Volodymyr Zelensky officially handed over to the European Union envoy in Kiev a completed questionnaire for EU membership.
- Jean-Luc Mélenchon asks French voters to elect him 'as prime minister'.
- Ukraine's President Zelensky on BFM TV: Le Pen should admit that "she was mistaken about Russia and Putin".
- Carmaker Porsche wants to launch its own satellite constellation to compete with Tesla and SpaceX in future autonomous cars.
- Netflix shares drop 25% after service loses 200,000 subscribers.
- The Cannes Film Festival has announced the official selection for its 75th edition, which kicks off on May 17, 2022.
- Jean-Luc Mélenchon hoped that the outcome of the second round of the presidential election would lead to a third round of the presidential election.
- French presidential debate 2022: Macron attacks Le Pen over her links to Australia on the diplomatic crisis over a scrapped submarine deal.
- Last week, the Minister of Economy, Bruno Le Maire had promised to deliver by September 2022 a monthly food voucher of €80 to all low-income households.
- Following the recent contamination with listeria, salmonella and E. Coli bacteria (cheese, chocolate, pizza), the brands concerned have been banned from marketing their products in France.
- Guinness measured an ear-shattering 142.2 dbA roar at Parc des Princes in the PSG's 2-1 rout of Olympique de Marseille.
- Billionaire Elon Musk offers to buy The Principality of Aigues-Mortes, a micronation in southern France, to launch his "SpaceX Europe" program.

**15. We would like to know how you feel about these different groups: please indicate how you feel about these groups using a scale from 0 to 10. A score of 10 means that you feel very warmly towards this group, a score of 0 means that you don't like them at all. A score of 5 means that you have no particular liking or disliking for that group. The intermediate scores help to qualify your feelings.**

*You don't  
like them at  
all*

*You have a very  
warm feeling  
towards this  
group*



**IN LINES, RANDOMIZE BETWEEN BLOCKS AND INSIDE BLOCKS**

**Block A**

- People who vote for La République En Marche !
- People who vote for the Rassemblement National (formerly Front National)
- People who do not vote

**Block B**

- People from the political left
- People from the political right

**Block C**

- People of North African and African descent
- People who do not have an immigrant background

**Block D**

- The Catholics
- The Atheists
- The Muslims

**16. How much have you felt each of these emotions over the past 2 weeks?**

*[for each please indicate a number on a scale from 0 to 10]*



- joy
- fulfillment
- anxiety
- boredom
- loneliness
- depression
- isolation

**17. Last week, how many minutes did you spend reading/watching/listening news about politics, including news on social media?**

- 0 minutes
- Less than 30 min.
- Between 30 min. - 60 min.
- Between 1hr-2hrs
- 2hrs and above

**18. Do you spend more time:**

*(one answer)*

- with friends and family
- on Instagram
- on Twitter
- no tech
- news online
- other online
- watching TV
- reading the written press

**19. Do you mostly connect with people:**

- online
- offline

**20. Do you consider that you found diversified political information in your online interactions, recently?**

*Not diversified*

*Very diversified*



**21. Generally speaking, would you say that...**

- Most people can be trusted
- You can never be too careful when dealing with others



**22. In general, do you trust very much, somewhat, somewhat not, or not at all...**

	Not at all	Somewhat not	Somewhat	Very much
Social networks				
The President of the Republic				
Political representatives (deputies, senators)				
Political parties				
Traditional media (television, radio, written press)				

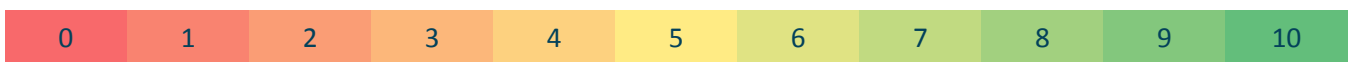
**23. How satisfied are you with how democracy is working in France?**

- Very satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Very dissatisfied

**24. To what extent do you think Facebook is good or bad for society? (From 0 to 10, "0" for "very bad for society", "10" for "very good for society")**

*Very bad for  
society*

*Very good for  
society*



**25. To what extent did the voting recommendation of [FIRST ROUND CANDIDATE CHOICE] had an impact on your vote in the second round of the presidential election? (on a scale of 0 to 10)**

*Not at all*

*Totally*



**26. Thank you for participating in this study! One last thing: take a moment to tell us how you felt about participating in this study. Just write what comes to mind in the box below.**

\_\_\_\_\_ **[OPEN ENDED, NO LIMIT]**

Additional questions for Groups B and C

**27. As part of this study, you were asked to deactivate Facebook. To what extent do you think deactivating your account has had a positive influence on you? (from 0 to 10, "0" for "very negative", "10" for "very positive")**

*Very negative*

*Very positive*

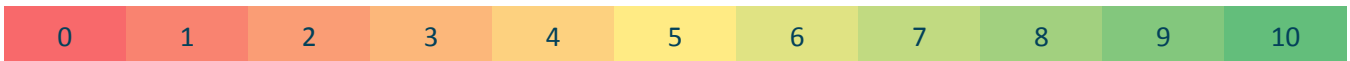


**28. During this experience, how much did you miss the following? Please specify for each (on a scale of 0 to 10)?**

**IN COLUMNS**

*Not at all*

*Immensely*



**IN LINES**

- Read content
- Interact with content (comments, likes...)
- Share content

**29. Did you spend more time browsing online while Facebook was deactivated?**

- More
- Less
- Neither more nor less

**30. When you had to deactivate Facebook, did you have trouble connecting to other websites for which Facebook is an entry point?**

- yes
- no

- I don't know

**31. Since the completion of this study, please indicate the impact of deactivating Facebook on the following:**

**IN COLUMNS**

- More
- Less
- Neither more nor less

**IN LINES, RANDOMIZE ANSWERS**

- Are you logging into Facebook less often now?
- Are you more careful about the accuracy of the content you share online now?
- Are you more careful about privacy issues and sharing your personal data online?
- Are you paying more attention to the lack of civic behavior online?
- Do you try to seek out diverse sources of information?

**32. Overall, has deactivating Facebook made you more aware of the negative effects of online platforms? (On a scale of "0" for "not at all" to "10" for "absolutely")**

*Not at all*

*Absolutely*



Additional question for group C only

**33. During the deactivation period, you received some informative messages by email indicating the negative effects of social media and online platforms**

**IN COLUMNS**

- yes
- no

**IN LINES**

- Did you receive them?
- Did you read them?
- Did you already know about the risk of addiction to social networks and the impact on your well-being?

- Did you already know that digital platforms harvest your personal information and show you content tailored to your profile?
- Were you already aware of misinformation and its impact on the political sphere
- Did you already notice the lack of civic behavior on the Internet?
- Was it useful to remind you of these negative effects?
- Did you follow the suggested guidelines?

Final question to all participants

**34. Thank you for participating in this study! One last thing: please take a moment to tell us how you have felt about participating in this study over the past three weeks. Just write what comes to mind in the box below.**

\_\_\_\_\_ **[OPEN ENDED, NO LIMIT]**

## ***Nudges***

The following boxes are each to be sent to **group 3c participants**, on a weekly basis, via email.

- Nudge n°1 – “Resisting the addictive power of digital platforms”

### ***How much of your life is absorbed by screens?***

According to a scientific study, beyond 30 minutes of exposure to social networks, there is a danger for our mental health\*.

More generally, a correlation can be established between the time spent on digital platforms and a decrease in well-being\*\*.

The risks for mental health are numerous and proven: anxiety, negative self-image, depression, paranoia, among others.

Disconnecting from screens, resisting information overload, means taking back control of your life, your attention, your emotional balance.

#### **3 things you could do:**

- **Suppress the applications from your mobile phone so that you are not tempted to use them.**
- **Engage in offline activities and discussions with real people.**
- **Read offline news media (newspapers, journals and magazines).**

\*Source: Hunt, M. G., Marx, R., Lipson, C., Young, J. (2018). “No more FOMO: Limiting Social Media Decreases Loneliness and Depression”, *Journal of Social and Clinical Psychology*, 37(10), pp. 751-768.

\*\*Source: Courbet, Didier, et al. (2020) «Addictions» et comportements problématiques liés à Internet et aux réseaux sociaux. Synthèse critique des recherches et nouvelles perspectives. *ESSACHESS*, 13(1), 209–35.

- Nudge n°2 – “Preservation of privacy and access to diversified information”

### ***Your privacy is exploited and your access to the world is limited.***

As soon as you connect to the Internet, your personal data is collected and used for advertising purposes: **you** are a source of revenue.

This collection of your personal data also allows digital interfaces (social networks, search

engines, sites) to offer you targeted content based on your presumed tastes.

The consequences:

- You will never know how much information is being retrieved about you and your activity.
- You will never have access to the world's information like your neighbor.

The risks:

- You have no real control over your personal data.
- You may find yourself "imprisoned" in a distorted vision of the world, or even indoctrinated with your own beliefs\*. This is detrimental to democratic debate and can lead you to a disconnected perception of the real world's diversity and priorities.

**3 things you could do:**

- **Try to navigate in "private mode" and to regularly erase your browser's search history.**
- **If you would like to see how your information is collected and shared by online platforms, you can use this software created by the CNIL for information purposes:**  
<https://linc.cnil.fr/fr/cookieviz-une-dataviz-en-temps-reel-du-tracking-de-votre-navigation>
- **You can download an information brochure about the General Data Protection Regulation (GDPR):**  
<https://www.droit-technologie.org/wp-content/uploads/2016/11/annexes/dossier/274-1.pdf>

\*Source: Pariser, Eli (2011). 'The Filter Bubble, What the Internet Is Hiding From You'. New York: Penguin Press.

- Nudge n°3 – “Checking sources to fight misinformation”

***Misinformation only exists if we don't know where the information comes from.***

On the Internet, information circulates very quickly, often before we even know where it comes from. Information is sometimes relayed without any knowledge of its origin or veracity, and real information stands next to false information in an often undetectable way.

False information or “fake news” is promoted either with a bad intention, an interest (political, economic), or simply to take advantage of the online visibility and the revenues they generate. In all cases, the victim is **you**.

Misinformation has a major impact on political life and threatens democratic debate: it can

cause political polarization\*, serve hidden interests and deprive you of the right to have an objective perception of the issues. Misinformation can lead you to have a distorted perception of political agendas and a distorted view of political debates.

**3 things you could do:**

- **Always check who is/are the author(s) or the owner(s) of the website and the type of platform.**
- **Cross-check the information with other media platforms, other views and try to find scientific sources on the topic.**
- **Before you share any content, try to identify: who made it; what is the source; where did it come from; why are you sharing this; when was it published?**

\*Source: Doublet, Yves-Marie (2019). *Désinformation et Campagnes électorales*. Namur : Council of Europe.

- Nudge n°4 – “Adopt civic behavior for a free and qualitative democratic debate”

***Civility and tolerance for a better democratic debate.***

Online content (messages, news feeds, blog posts, articles, etc.) can trigger extreme emotional reactions.

Freedom of expression should never lead to harassment.

Freedom of expression should never lead to hate speech.

A free and quality democratic debate implies being able to accept different opinions, without locking oneself into a position that excludes others. Studies have shown that media platforms (such as YouTube) drive audiences towards politically extreme content\*.

**3 things you could do:**

- **Restrain from any emotional comments on the Internet.**
- **When you disagree with a view or consider it inaccurate, do not enter into a confrontation.**
- **Do online research to avoid viewing the content that is suggested by media platforms (like YouTube).**

\*Source: Ribeiro, M. H., Ottoni, R., West, R., Almeida, V. A. F., and Meira, W. (2020). ‘Auditing radicalization pathways on YouTube’. In Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency (FAT '20). Association for Computing Machinery, New York, NY, USA, 131–141.







