The ‘Communist Killer Dolphin’ Test of Public Perceptions and Reactions to Disinformation in 12 European Countries
Using an invented news story about a ‘Communist Killer Dolphin’, we deployed a survey containing an information stimulus to systematically test how and why citizens interpret disinformation narratives in particular ways, and what factors influence their responses.

The news story vignette was deliberately constructed to be ambiguous in terms of its veracity. Its details were entirely fabricated by the researchers, although its content was intentionally similar to dubious news stories previously reported by media sources.

The purpose of which was to establish the key characteristics of groups of people who were more likely to believe a disinforming narrative, and also, those who were more resistant to being influenced by deliberately misleading information.

This method is innovative because it controlled the disinforming message that respondents were exposed to, in order to test how different citizens from varying backgrounds interpreted and responded to the same unit of disinformation.

A total of 8,630 citizens from 12 countries in Europe were asked a series of questions about the vignette using the Qualtrics online platform between 18th March – 8th May 2020 (survey design details are contained in the methodology).

Respondents who were younger, had fewer years of formal education, identified as a minority, were religious or extroverted, were more likely to believe that they had heard / read about the story elsewhere, believe the story contents to be true, respond emotionally to the story (e.g. feel fearful), exhibit reactance and engage behaviourally with the story.

Individuals from Latvia, Ukraine, Lithuania and Serbia were most likely to think they had previously seen the invented news story.

Highlighting the importance of the ‘repetition effect’, whereby individuals are more likely to believe a message encountered repeatedly over time, the data showed that story recognition was linked to story believability and behavioural engagement.

Across all 12 countries, more respondents correctly identified that the news story was false than believed it was true. Ukraine reported the largest group of individuals who were certain the story was true, followed by Bulgaria, Germany, Latvia and Lithuania – potentially suggesting specific disinformation vulnerabilities.

The story elicited emotions of surprise, anger, fear and excitement to differing degrees in the 12 countries. Those who recognised the story and those who believed the story, experienced the strongest emotional response to the content. In all countries, the data showed a significant link between emotion and behavioural engagement with the news story.

This is an important finding in understanding how and why some disinforming content works; by seeking to provoke an intense emotional reaction it encourages audience members to attend to it.

The findings also highlight the importance of psychological reactance (a motivational state aroused by a perceived threat to a freedom) in accounting for why some disinformation narratives attract greater levels of engagement than others. The news story sparked high levels of psychological reactance in between one fifth and half of citizens in each country, and where it triggered reactance, that drove engagement with the story. Additionally, believing the story and experiencing reactance were found to be linked.

Citizens who generally believed conspiracy theories were more likely to believe the story, were more emotionally impacted by the story, were more likely to experience reactance and were more likely to interact with the story.

Just under half of the sample said they would have interacted with the news story in some way. The two most popular ‘behavioural engagements’ were respondents reporting they would ‘click on the associated weblink’ and ‘tell people offline’. This indicated strong transmission pathways for disinformation both online and offline.

Ukrainians were most likely to respond to the news story, while Estonians were the least likely. Over half of citizens in Bulgaria, Italy, Poland and Serbia would have responded to the news story.

Citizens were more likely to interact with the news story if they believed it to be true.

Respondents who were active users of social media or sourced most of their news from messaging services (e.g. WhatsApp, messenger etc.), were more likely to recognise the story, believe the news story, and respond to the news story.

Citizens who had previously knowingly, or unknowingly shared disinformation were significantly more likely to share the news story, evidencing the existence of ‘super-sharers’.

The data revealed that a proportion of citizens knowingly share disinformation online and offline, highlighting that individuals are driven by different motives which might include directing, debunking and disrupting.
The ‘Communist Killer Dolphin’ News Story Test

The study deployed an online survey to explore audience vulnerabilities to disinformation and how citizens interpret and respond to disinforming narratives. Consequently, the research was designed to systematically illuminate how and why different audience members, when exposed to the same disinformation content, receive and react to the content in different ways.

Previous research has shown that authors of disinforming messages have sought to exploit this heterogeneity by embedding a ‘kernel of truth’ into their disinformation content to manipulate public perceptions and political agendas. Accordingly, the research team designed a fictitious stimulus in the form of a news story about a ‘communist killer dolphin’. Whilst at first view this content may appear somewhat outlandish, the global press has previously reported the use of dolphins and whales for government-led espionage activities therefore offering a ‘kernel of truth’.

The dolphin stimulus was deliberately ambiguous in terms of its veracity, so that different citizens could feasibly arrive at different interpretations and conclusions, thus mimicking a form of disinformation common on social media. The vignette (see below) was translated for each of the 12 sampled countries and was designed to simulate a social media post and contained a source, the story text, a hashtag, a weblink and an image (full details in the methodology).

Unlike previous studies which have researched citizens’ general exposure to disinformation in the media ecosystem, the current study involved a single stimulus, therefore exposing all respondents across all 12 countries to the same news story, capturing their subsequent responses and reactions. This approach allowed for meaningful comparisons and statistical associations to be drawn across the dataset and between individual countries, highlighting the potential psychological and social drivers of the uncovered dis/similarities and citizens’ vulnerabilities and resiliencies to disinformation. The findings centre on a) sample-level analysis (i.e. analysis run with the full 12 country data set) and b) country-level analysis (comparative analysis between individual country samples).
Recognition of the News Story

Following reading the fictitious dolphin news story, survey respondents were asked “have you heard of / read about this story elsewhere?”

Sample-level Analysis:

Across the entire sample 7% of respondents answered ‘yes’ to the above question, while 12% believed that ‘maybe’ they may had heard of the news story before. Most citizens (81%) answered ‘no’, which is reasonable given the story is fictitious.

Respondents who recognised the news story were:

- more likely to be male (Yes = 64% male, 36% female, No = 48% male, 52% = female).
- younger (Yes = 42% 18-39 years old, vs. 20% over 60 years old).
- had fewer years of formal education (Yes = 21% less than 8 years, No = 14% less than 8 years).
- more likely to identify as a minority (according to ethnicity, race, sexual orientation, religion and/or disability). (Yes = 28% identified as a minority, No = 11% identified as a minority).
- more religious (Yes = 45% identified as religious, No = 31% identified as religious).
- more extroverted (Yes = 70% demonstrated extroversion, No = 57% demonstrated extroversion).
- All the above associations were statistically significant.
Factors associated with individuals’ belief that they have previously seen / heard of the invented news story (all the below associations were statistically significant):

- 31% of citizens who preferred to source their news content from messaging services (e.g. WhatsApp, Messenger etc.) answered ‘yes’ or ‘maybe’, which was the highest of all media sources studied (Social Media = 21%; Websites = 20%; Television = 19%; In person = 18%; Written Press = 13%; Radio = 16%).

- The data revealed a significant association between the number of social media platforms used every day and recognition of the story. 28% of citizens who used more than three social media platforms answered ‘yes’ or ‘maybe’, compared to 15% of citizens who used less than three social media platforms daily.

These findings highlight that, as citizens’ use of messaging services and social media platforms increased, the likelihood that they recognised the story also increased. This is important because the more an individual is exposed to a message, the more likely they are to believe the message content.

Country-level Analysis:

Thinking about the social media post, have you heard of this story elsewhere?

- The greatest number of people answered ‘yes’ they had previously seen the story in - Latvia (10%), Ukraine (10%), Lithuania (9%) and Serbia (8%). For all countries, males were more likely to respond ‘yes’ compared to females, except for France which had an equal gender split.

- Citizens in Ukraine (18%), Latvia (17%), Lithuania (17%) and Poland (17%) were most likely to have reported that ‘maybe’ they had previously seen the news story. The fewest citizens responded ‘maybe’ in the Western European countries of Spain (7%), the UK (8%) and France (8%).

- The largest proportion answering ‘no’ (they had not previously seen the story) was in the UK (87%), followed by France (86%) and Italy (84%). The least citizens answered ‘no’ in Ukraine (72%).

Interestingly, for each country, the number of citizens who responded ‘maybe’ they had previously read the news story, was greater than those who answered ‘yes’. This may reflect how much disinformation (including the fabricated news story) contains a kernel of truth, thus making it difficult for readers to discern fact confidently and conclusively from fiction. There is often a tendency in research and political commentary to invoke a binary distinction differentiating between disinformation and not disinformation, when in practice, more effective false messages tend to be more difficult to assess.
Belief in the News Story

The survey asked citizens to indicate the degree to which they believed the news story. For all countries, the data showed a statistically significant association between recognising the story and believing the story. Potentially this may indicate how repetition and familiarity shape the ‘believability’ of disinforming narratives.

Sample-level Analysis:

Across all countries, 4% of respondents were certain that the news story was true. 13% responded ‘I think that it’s true, but I am not completely sure’. 22% of the sample answered, ‘I think that it is false, but I am not completely sure’, almost half of citizens (47%) were certain that the news story was false. 14% of respondents had ‘no idea if the news story is true or false’.

Respondents who believed the news story were:

- younger ('Certain it's true' = 51% 18-39 years old vs. 12% over 60).
- had fewer years of education ('Certain it's true' = 33% had less than 8 years of education; 'Certain it's false' = 12% had less than 8 years of education).
- more likely to identify as a minority ('Certain it's true' = 40% identified as a minority, 'Certain it's false' = 9% identified as a minority).
- more religious ('Certain it's true' = 58% identified at religious; 'Certain it's false' = 27% identified at religious).
- more extroverted ('Certain it's true' = 75% extroverted, 'Certain it's false' = 56% extroverted).
- more neurotic ('Certain it's true' = 62% neurotic, 'Certain it's false' = 42% neurotic).

All the above associations were statistically significant.
Factors associated with individuals’ belief in the news story:

- Over half (53%) of those who recognised the news story believed the content to some degree, compared to 10% of those who did not recognise the story. The association between recognising and believing the story was statistically significant.
- There was a significant association between belief in conspiracy theories and belief in the vignette. Citizens who generally strongly believed in conspiracy theories were more likely to believe the news story (21%), compared to those who generally refute conspiracy theories (10%).
- 24% of citizens who preferred to source their news content from messaging services (e.g. WhatsApp, Messenger etc), believed the news story to some extent. This was the highest of all media sources studied (Social Media = 22%; Websites = 13%; Television = 17%; In person = 18%; Written Press = 9%; Radio = 9%) and was statistically significant.
- There was a significant association between the number of social media platforms used every day and belief in the news story. 27% of citizens who used more than three social media platforms everyday believed the news story to some extent (answered either ‘Certain it’s true’ or ‘I think that it’s true’), compared to 11% of citizens who used less than three social media platforms daily.

These findings show that different segments of citizens, based on their demographic profile, beliefs, and news consumption habits, believed the news story to differing degrees, exposing potential vulnerabilities to disinformation. The above findings also revealed that citizens were more likely to believe what they recognised. This is important because audiences are often exposed to a single piece of disinformation multiple times within and across media channels and are therefore likely to recognise the disinformation when re-exposed. It also accounts for how and why disinformation campaigns often make extensive use of bots to post a misleading message in high volumes, trying to induce repeated audience exposures.

Country-level Analysis:

Thinking about the social media post have you heard of this story elsewhere?

- 8% of Ukrainians responded, ‘I am certain it is true,’ which is notably higher than the other 11 countries. 4% of Bulgarians, Germans, Latvians, Lithuanians and Polish respondents were similarly certain that the news story was true, while individually 3% of French, Italians, Serbians, Spanish and British agreed with this statement. Estonians were least likely to express certainty that the news story was true (2%).
- Focusing on the response ‘I think that it is true, but I am not completely sure’, the data revealed a relative growth in the level of citizens’ agreement for each country. Compared to the other countries, Ukrainian respondents were most likely to believe that the news story was true but with a degree of uncertainty (25%), followed by Poland (19%), and Lithuanians (17%), again highlighting enhanced country level vulnerabilities. By contrast, only 7% of UK citizens selected this option.
28% of Serbians, 27% of Italians, 26% of Lithuanians and 25% of Polish citizens indicated that ‘I think that it is false, but I am not completely sure’. Ukraine (24%), UK (23%) and Spain (21%) also indicated relatively high levels of agreement with this statement. Bulgarians showed the lowest level of agreement with this statement (18%).

For each country, the greatest proportion of those surveyed selected the response to the news story ‘I am certain it is false’. This is noteworthy, because as is stated above, a kernel of truth does underpin the text. Bulgarian citizens were most likely to rate the story as false with certainty (57%), followed by Spain (55%), the UK (54%), and France (52%). By contrast, only 30% of Ukrainians were certain that the story was false.

Interestingly, a portion of the sample in each country indicated that ‘I have no idea if this story is true or false’, thus demonstrating a level of confusion as to its authenticity. Estonians were most likely to select this response (20%), followed by French (18%), Serbians (17%) and Latvians (16%). Only 9% of Bulgarians chose this option.

The country-level findings showed differences within and between countries regarding who believed the news story to be true. While previous research has focused on the levels of engagement and reach of disinformation, this study shows not all citizens start from the same position of message plausibility. Some citizens believed the news story more than others and therefore, different vulnerable audience segments exist within each country. The data also exposed inter-country differences. For example, generally, citizens from Eastern European countries were more likely to believe the news story compared to Western European citizens. Additionally, Ukrainian citizens were twice as likely to believe the story and least likely to rate the news story as false compared to the other surveyed countries.

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**Emotional Responses to the News Story**

Disinformation often exploits controversial topics to incite readers’ emotions. To understand how emotion affects the way disinformation is perceived and travels, the survey asked respondents how the news story made them feel.

**Sample-level Analysis:**

The most common experienced emotion was ‘surprise’ with 42% of respondents feeling this emotion to some extent. Individuals experience the emotion of surprise when a set of rules or expectations are not met and therefore surprise can be either positive or negative in orientation. Subsequent reported emotions were ‘anger’ (29%), ‘excitement’ (17%), and ‘fear’ (15%).
Respondents who were emotionally impacted by the news story were:

- younger (e.g. ‘Surprised’ = 43% 18-39 years old vs. 22% over 60).
- had fewer years of formal education (e.g. ‘Fearful’= 24% had less than 8 years of education, Not ‘Fearful’ = 14% had less than 8 years of education).
- more likely to identify as a minority (e.g. ‘Fearful’ = 25% identified as minorities, Not ‘Fearful’ = 11% identified as minorities).
- more likely to be religious (e.g. Surprised = 41% were religious, Not ‘Surprised’ = 27% were religious).
- more extroverted (e.g. ‘Excited’ = 75% were extroverted, Not ‘Excited’ = 55% were extroverted).
- more neurotic (e.g. ‘Fearful’= 60% were neurotic, Not ‘Fearful’ = 43% were neurotic).
- All the above associations were statistically significant.

Factors associated with individuals’ emotional response to the contents of the news story:

- Those who recognised the news story and those who were certain that the news story was true, experienced all measured emotions to a greater extent than those who were certain that the story was false (statistically significant for all studied emotions).
  - Recognised the story = 36% fearful, 62% surprised, 36% angry, 38% excited.
  - Did not recognise the story = 10% fearful, 39% surprised, 28% angry, 13% excited.
  - ‘I’m certain its true’ = 55% fearful, 74% surprised, 37% angry, 55% excited.
  - ‘I’m certain its false’ = 6% fearful, 30% surprised, 33% angry, 9% excited.

The data showed a significant association between individuals’ belief in conspiracy theories and belief in the news story. Citizens who strongly believed in conspiracy theories were more likely to be emotionally impacted by the story.

- Conspiracy believers = 19% fearful, 48% surprised, 33% angry, 22% excited compared to those who generally refute conspiracy theories = 7% fearful, 24% surprised, 33% angry, 11% excited.
The sample-level data provided evidence that disinformation can incite strong emotional reactions in readers. Two fifths of respondents felt ‘surprised’ by the news story, while almost one third felt ‘angry’. Citizens of different profiles, experienced emotions to differing extents with younger, less educated, religious, different personality types, and those who identify as a minority more likely to experience emotion from reading the story. This suggests that these groups may be more vulnerable to emotional manipulation by disinformation. The findings also highlighted the importance of recognition of the story and itsbelievability. Those who recognised the story and those who believed the story to be true, were statistically more likely to emotionally respond to the story. This finding is important given research shows that emotions are strong drivers of behaviours because they fuel people to act. We further confirm this relationship later in this report.

Country-level Analysis:

- The greatest proportion of individuals in each country agreed to some extent that the news story made them feel ‘surprised’ - over half of Ukrainian (63%), Polish (60%) and Spanish (52%) respondents and over one third of citizens in France (46%), Germany (39%), Lithuania (38%), Serbia (37%), the UK (37%), Italy (37%), Bulgaria (36%), and Latvia (34%).
- The data also revealed consensus across the sampled countries regarding the second most common felt emotional response to the news story - anger (except for Poland and Ukraine where anger was ranked 3rd). A third or more of respondents in Germany (36%), Bulgaria (34%), Spain (33%), Italy (32%), and Latvia (32%) confirmed the story made them feel ‘angry’. Although still comprising almost one fifth of the country sample, Estonians were least likely to agree that the news story made them angry (19%).
- A quarter (25%) of French respondents said the story made them feel ‘fearful’, followed by Poland (19%) and Ukraine (17%). Estonians were least likely to agree that the story made them feel fearful (7%).
- There was a divide between responses from East and West Europe concerning the level of excitement generated among readers. Almost a third (31%) of Polish respondents agreed to some extent that the news story made them feel ‘excited’, followed by Bulgaria (23%), Serbia (19%) and Ukraine (19%). Reporting the least level of agreement was France (11%) followed by the UK (12%) and Italy (12%).

The country-level findings revealed parallels across the 12 countries concerning which emotions were most likely experienced by citizens. However, the data also showed that these emotions were experienced by citizens to differing degrees depending on their location. These findings are important because they demonstrate that while all countries exhibited emotional responsiveness to the story in the same vein (i.e. surprise ranked first), some countries may have a larger proportion of citizens who are vulnerable to emotional manipulation (i.e. German citizens felt most angry while French individuals felt most fearful). These factors can be manipulated by the authors of disinformation who might design different content to trigger different emotions.

Psychological Reactance to the News Story

The survey measured the degree to which the news story generated psychological reactance. Psychological reactance is a motivational state elicited by a perceived threat to a freedom. Therefore, in the current study did the news story cause citizens to feel threatened or constrained? Reactance research shows that when an individual feels that a freedom is threatened, they are impelled to act and restore that freedom. Thus, reactance helps us understand individuals’ psychological and behavioural reactions to disinformation and fake news, the contents of which often play on a threat to a perceived freedom (as is the case in the invented story).
Sample-level Analysis:

- 34% of respondents reported feeling reactance in response to reading the news story.

Respondents who experienced reactance in response to the story were:

- more likely to identify as a minority (Exhibited reactance = 16% identified as a minority, Exhibited no reactance = 10% identified as a minority).
- more likely to identify as religious (Exhibited reactance= 42% religious, Exhibited no reactance = 29% religious).
- more extroverted (Exhibited reactance = 67% extroverted, Exhibited no reactance = 55% extroverted)
- more neurotic (Exhibited reactance = 54% neurotic, Exhibited no reactance = 42% neurotic).

All the above associations were statistically significant.

Factors associated with the degree of reactance experienced by readers of the news story (all statistically significant):

<table>
<thead>
<tr>
<th>Description</th>
<th>Exhibited Reactance</th>
<th>Neutral</th>
<th>Exhibited No Reactance</th>
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<tbody>
<tr>
<td>Those who recognised the news story</td>
<td>41%</td>
<td>12%</td>
<td>47%</td>
</tr>
<tr>
<td>Those who did not recognise the news story</td>
<td>54%</td>
<td>14%</td>
<td>32%</td>
</tr>
<tr>
<td>Those who were certain the news story was true</td>
<td>33%</td>
<td>13%</td>
<td>54%</td>
</tr>
<tr>
<td>Those who were certain the news story was false</td>
<td>60%</td>
<td>12%</td>
<td>28%</td>
</tr>
<tr>
<td>Those who used more than three social media platforms everyday</td>
<td>47%</td>
<td>12%</td>
<td>41%</td>
</tr>
<tr>
<td>Those who used less than three social media platforms everyday</td>
<td>54%</td>
<td>15%</td>
<td>31%</td>
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<tr>
<td>Those who strongly believed conspiracies</td>
<td>47%</td>
<td>12%</td>
<td>41%</td>
</tr>
<tr>
<td>Those who strongly disbelieved conspiracies</td>
<td>58%</td>
<td>19%</td>
<td>23%</td>
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- 47% of citizens who recognised the news story exhibited reactance, compared to 32% of those that did not recognise the news story.
- 54% of citizens who were certain the news story was true exhibited reactance, compared to 28% of those that were certain it was false.
- There was a significant association between the number of social media platforms used every day and reactance toward the news story. 41% of citizens who used more than three social media platforms everyday exhibited reactance, compared to 31% of citizens who used less than three social media platforms daily.
- Citizens who strongly believed in conspiracy theories were more likely to experience reactance (41%) than those who were strongly resistant to a conspiracy mentality (23%).
Citizens who experienced strong emotional reactions to the story also exhibited reactance ('Fearful' = 72% exhibited reactance; 'Excited' = 61% exhibited reactance; 'Surprised' = 50% exhibited reactance; 'Angry' = 48% exhibited reactance).

These findings highlight some of the psychological mechanisms in play when citizens interact with disinformation. Those who believed the news story, experienced greater levels of reactance than those who did not. This relationship was statistically significant. These findings highlight the role of the believability of fake news and disinformation in igniting psychological responses in readers. Citizens also experienced greater levels of reactance if they recognised the story, experienced a strong emotional response to the story and were predisposed to believing conspiracy theories. The analysis demonstrates that psychological reactance is important for understanding why and how citizens respond to disinformation. When disinformation triggers reactance, the reader is more motivated to act than those who did not experience reactance. Thus, in the context of disinformation, reactance may represent an important driver of citizens' online and offline engagement with and sharing of untruths.

Country-level Analysis:

Elevated levels of reactance were reported across the 12 countries, ranging from one fifth of Estonians to half (51%) of Spanish citizens. This finding is important because it evidences how disinformation can evoke strong negative psychological reactions across multiple countries and that citizens in some countries (e.g. Spain (51%) and France (42%)) experienced higher levels of reactance than others (e.g. Ukraine (26%) and Germany (27%)).

The data demonstrated a link between believing the news story and reactance. That is, for all countries, those respondents who were ‘certain’ that the news story was ‘true’, were more likely to experience high levels of reactance than low levels of reactance (except for Estonia and Lithuania). In both Germany (47%) and Ukraine (48%), almost half of each country’s sample who responded to the news story with ‘I’m certain it’s true’, experienced reactance. The highest levels were reported in France (72%), Spain (65%) and Bulgaria (62%).

This association is further confirmed when considering the opposite effect. For all countries sampled, respondents who were ‘certain’ that the news story was ‘false’ typically experienced low levels of reactance. For example, 89% of Ukrainians, 74%, Estonians, 65% of Germans, and 65% of Latvians who on reading the news story selected ‘I’m certain it’s false’, experienced no reactance.

The country-level data illustrates that reactance effects are magnified when the reader believed the news story to be true. This relationship was statistically significant in all countries except Lithuania. The findings showed while a proportion of each country sample experienced reactance in response to reading the news story, different countries reported different degrees of reactance. Consequently, while the authors of disinformation may successfully manipulate this psychological response to disinformation in all sampled countries, some citizens may be collectively more vulnerable to these forces than others.
Respondents were asked to specify if and how they would engage with the news story selecting from multiple response options.

**Sample-level Analysis:**

- Just under half (46%) of citizens reported they would interact with the news story in some way. 16% of respondents reported they would interact with the story via two or more means.

- The most common reported behaviour was ‘clicking on the link’ embedded in the social media post (29%), followed by ‘telling friends and family offline about the story’ (13%).

- Interestingly, of those who would tell others about the story offline, 18% would also share the news story online.

The above findings are noteworthy because they provide insight into how disinformation propagates. Previous research shows that with message repetition comes message acceptance. Thus, the more people engage with a piece of disinformation, the more likely they are to believe it. In clicking the weblink to find out more about the story and sharing the message offline with others, individuals not only increased the occasions and duration with which they interacted with the message personally, they also further propagated the disinformation to other users. Additionally, while research has centred on understanding the proliferation of disinformation online, these findings revealed the extent to which individuals seed online disinformation into offline conversations and highlight how disinformation flows and disseminates between online and offline contexts.
Respondents who interacted with the news story were:

- **were younger** (Interacted with the story in some way = 45% were aged 18 and 39, 18% were over 60).
- **had fewer years of education** (Interacted with the story = 19% had fewer than 8 years of education, Did not interact with the story = 12% fewer than 8 years education).
- **were more likely to identify as a minority** (Interacted with the story = 17% identified as minorities, Did not interact = 9% identified as minorities).
- **were more religious** (Interacted with the story = 42% religious, Did not interact = 26% religious).
- **were more extroverted** (Interacted with the story = 68% extroverted, Did not interact with the story = 50% extroverted).
- **were more neurotic** (Interacted with the story = 53% neurotic, Did not interact with the story = 39% neurotic).
- All the above associations were statistically significant.

**Country-level Analysis:**

The data also showed consistencies across the 12 countries regarding the most common engagement methods, albeit to differing degrees where inter-country differences were shown.

- Clicking on the weblink embedded in the social media post was the most popular form of engagement in every country. Serbians were most likely to ‘click on the weblink to find out more’ (43%), followed by Ukraine (40%) and Poland (38%). Least likely to click the link were Estonia (17%), France (21%) and Latvia (22%).

- The data also showed agreement across all countries (except for Italy), concerning the second most popular method of engagement which was ‘I would tell people offline (i.e. family and friends) about this story’. Serbian citizens were most likely to tell people offline (17%) followed by Poland and Ukraine (both at 16%). Least likely to share the stories with others offline were Estonia, Latvia, and Italy (each at 10%).

- Overall, Ukrainians were most likely to respond to the story (63% of citizens would respond in some way, 23% in more than one way) compared to 28% of Estonians (lowest of all sampled countries only 10% would respond in more than one way). Half or more of the population sampled in Italy (50%), Bulgaria (53%), Serbia (59%), and Poland (60%) and would have responded to the story. Potentially this suggests differentials between audiences in how active a role they play in distributing disinforming and distorted social media content.
Key Drivers of Behaviour

The following section investigates the relationships between the above discussed factors of emotions, reactance, belief in the story, social media usage and citizens’ behavioural responses to the news story. Consequently, we identify these factors as drivers of citizens engagement with disinformation across all 12 studied countries, albeit to differing degrees. All the below discussed associations were statistically significant.

Emotions and Behaviour:

Emotions have been shown to influence the formation of attitudes and drive behaviours.

- The data showed that citizens who were emotionally impacted by the story were more likely to respond to the story. 78% of those who felt very ‘fearful’, engaged with the story in some way (of those who felt no fear at all only 28% engaged with the story). Very ‘surprised’ = 70% interacted in some way (not at all surprised = 16% interacted). Very ‘excited’ = 84% interacted in some way (not at all excited = 24% interacted).

Focusing on the two most frequently reported behavioural responses:

- There were significant relationships between the emotions of surprise, fear and excitement, and the behavioural response of ‘click on the weblink to find out more’ in all 12 countries. The greater the extent that individuals experienced surprise, fear and excitement, the more likely they were to click on the web link.

- This effect is mirrored with the second most popular reported behavioural response to the news story – ‘I would tell people offline (i.e. family and friends) about this story’.

Our research findings showed that those who experienced high levels of emotions engaged with the news story to a greater degree. This mechanism is susceptible to manipulation by the authors of disinformation.

Psychological Reactance and Behaviour:

Individuals who exhibited high reactance toward the news story were more likely to interact with it.

- High reactance respondents = 58% interacted in some way;

- Respondents who exhibited no reactance = 40%

These findings indicate that reactance can prompt behaviour and in doing so, may serve to boost the profile of the disinformation. This association was statistically significant. These findings evidence the link between reactance and behaviour in the context of disinformation. When disinformation ignited reactance, the individual was motivated to act. This relationship was found to be statistically significant between high levels of reactance and all seven forms of behavioural response.

At a country level:

- For all countries, high reactance was positively associated with ‘click[ing] on the weblink to find out more’, except for Lithuania.

- High reactance was positively associated with ‘tell[ing] people offline (i.e. family and friends) about this story’ except for France, Germany, Lithuania, Poland and the UK.
The findings offer some insight into the psychology of why some pieces of disinformation attract greater levels of engagement and proliferation than others. Akin to the issue of emotion discussed above, the reactance mechanism is regularly manipulated by the authors or disinformation. Understanding and engineering online posts around topics which ignite belief and reactance from audiences is a powerful means with which to propagate disinformation. Strategies to disarm disinformation may therefore benefit from considering the role of psychological reactance.

Belief and Behaviour:

The data revealed an association between believing the news story and interacting with the news story.

- 75% of those who recognised the news story would interact with the content, compared to 41% of those who did not recognise it. Recognition increases belief, which in turn increases interaction. This association was statistically significant in all countries.

- 55% of those who strongly believed in conspiracies interacted with the news story. 27% of those who strongly rejected conspiracies interacted with the news story. This evidences how believers of other conspiracies are more inclined to believe new disinformation and thus interact with it. This association was significant in all countries apart from Spain and Serbia.

- 90% of those who were certain the news story was true would interact with the news story in some way. However, 30% of those who were certain the news story was false would still interact with the news story in some form.

The above findings highlighted the link between belief in dis/information and subsequent behavioural responses. Thus, debunking efforts may be effective in undermining citizens’ trust in disinformation across multiple countries because people engage less with disinformation content when they do not believe it. The data also highlighted an interesting segment of individuals - those who knowingly shared fake news. Such individuals are in part immune to debunking efforts because they engage and share disinformation while aware of its inauthenticity. Consequently, alternative strategies are needed to impede this segment from propagating disinformation and fake news online and offline. This might be especially pertinent in countries where these segments were identified as being larger in size (e.g. Serbia and the UK).
Social Media Use:

Aware that some participants were more likely to share disinformation than others, we isolated those who had ever previously knowingly or unknowingly shared inaccurate or exaggerated content, used three or more social media platforms daily and shared political news at least once a day. At sample level, these citizens were statistically significantly more likely to share the news story either offline or online and interact with the story in any of the seven measured methods. This evidences the existence of a group of ‘Super-sharers’ who spread multiple pieces of disinformation over time.

There was a significant association between being a ‘super-sharer’ and sharing the news story either offline or online. 18% of super-sharers would have shared the news story, 23% would tell others about it offline (non-super-sharers = 6% share online, 12% share offline). The association between sharing online and offline was significant in all countries apart from the UK and Ukraine.

- Being a ‘super-sharer’ was significantly associated with sharing the disinformation online in all countries apart from France, Germany and Ukraine.
- Sharing the news offline was weakly associated with being a ‘super-sharer’. However, this association was significant in Estonia, France, Latvia, Lithuania and Spain.

In sum, the data revealed that based on demographic, personality and behavioural profiles, some citizens were more likely than others to interact with the disinformation. Individuals’ responses to the disinformation (believability, emotion, and reactance), were also important predictors of their engagement with the content, highlighting potential vulnerabilities across European citizens. Importantly, the data also highlighted the existence of a small group of ‘super-sharers’ who potentially play a disproportionate role in the dissemination of disinforming social media content.
Conclusion

The findings indicated the existence of general trends across multiple European countries concerning the profile of citizens who were most likely to recognise, believe and respond to, disinformation. The data also revealed that citizens in Eastern Europe were more likely to recognise and believe the invented news story than their Western counterparts. This information is useful to identify populations and segments of citizens across Europe who may be vulnerable to disinformation. Furthermore, the data showed that emotions, psychological reactance, and engagement with social media are important in fostering citizens’ attention to disinformation, and that different countries experience these mechanisms to different degrees. These findings are valuable because they shed light on why some pieces of disinformation gain more traction than others, and why some people may be more susceptible to being influenced by them.

The data also demonstrated the importance of citizens’ socio-demographic profiles, emotions, reactance, and social media behaviours, in understanding why some individuals engage with disinformation more than others. These factors are susceptible to manipulation by the authors of disinformation. While the data showed these factors to be important in all the 12 studied countries, the degree to which they impelled action and engagement differed by country. Consequently, generic interventions designed to manage and mitigate the impact of disinformation might gain more traction if tailored to the specific vulnerabilities associated with audiences in specific countries.
METHODOLOGY

The data reported are derived from a large-scale 12 country survey designed by Cardiff University and administered via the Qualtrics online platform from 18th March to the 30th of April 2020. The survey used 53 questions to assess citizens’ perceptions, vulnerabilities and resilience to disinformation and fake news. The questions covered a wide range of topics including awareness of and attitudes towards disinformation in the media; domestic and world views; values; attitudes and opinions towards ‘wedge’ issues; personality traits; social media usage; demographic information. Sampling quotas were implemented to ensure the representation of age, gender and location (rural vs. urban) for each country.

Over 700 people were sampled per country for:

- **Bulgaria** (n = 711)
- **Estonia** (n = 714)
- **France** (n = 721)
- **Germany** (n = 733)
- **Italy** (n = 739)
- **Latvia** (n = 721)
- **Lithuania** (n = 721)
- **Poland** (n = 715)
- **Serbia** (n = 702)
- **Spain** (n = 724)
- **UK** (n = 722)
- **Ukraine** (n = 707)

The current report analysed questions concerning citizens’ responses to a fictitious social media post designed by the research team which contained disinformation (see above). While the current study focused on one stimulus which was seen by all sample members across all 12 countries, future research could employ experimental design and test the effect of different stimuli on different groups of citizens.

Endnotes