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‘Vox Twitterati’: Investigating the Effects of Social Media Exemplars in Online News Articles

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Abstract

There is a growing trend among online news outlets to include Twitter posts as an equivalent to the traditional ‘vox pop’ or ‘man-on-the-street’ interview. Media effects research has documented the ability of vox pops to influence consumer perceptions of news issues within the traditional media environment, but there is limited research on the possible effects that including social media exemplars as vox pops within editorially curated articles might have on issue perceptions. Drawing on the exemplification effects literature to inform the experimental design, we conduct two studies on two topics of either low or high national salience and find strong evidence that vox pop tweets can influence perceptions of public opinion and, indirectly, readers’ own opinions on an issue. Results are discussed in light of implications for journalistic practice, media effects research and the wider democratic process.

Keywords:

Vox Pop; Twitter; Online News; Exemplification Effect; Public Opinion; Experimental

Introduction

In 2017, more people than ever before used online services as their primary source of news information (Newman et al., 2017). Many traditional media practices have been utilized in almost like-for-like manner within the online news environment; others have been transformed by the opportunities that new website technology has allowed. One such practice that has received a Web 2.0 ‘makeover’ has also been the focus of considerable previous ‘media effects’ research: the ‘vox pop’ (Anstead and O’Loughlin, 2015).

Vox pops or ‘popular exemplars’ (defined as a 'man-on-the-street' type interview with ordinary people not directly connected to the issue at hand and apparently chosen for inclusion at random) are often employed by journalists (across media channels) as a quick, cheap and lively addition to illustrate perhaps otherwise dry news reports (Lefevere et al., 2012). However, instead of being taken as merely illustrations, research shows that consumers are influenced by vox pops through the “exemplification effect”. This effect – hypothesized to be due to a combination of: the apparently random selection of opinions from within a population, cognitive processing heuristics (such as those related to ‘representativeness’, ‘availability’ or ‘similarity’) as well as their generally vivid nature – results in vox pops being picked up (unconsciously) as influential public opinion cues that subsequently impact people's perceptions of public opinion (Bryant and Oliver, 2009: 55; Lefevere et al., 2012: 106; Zerback and Fawzi, 2016: 5; for a review on the mentioned heuristics see Kahneman, 2011). Hence, an unrepresentative illustration of an issue has the power to influence people’s perceptions of how the public thinks about that issue as well as override more representative base-rate data such as poll information (Daschmann, 2000).

Previous work has found the use of vox pop tweets to be a growing phenomenon and efforts have been made to investigate how journalists employ such devices (e.g., Beckers and Harder, 2016; Broersma and Graham, 2012, 2013). Investigations have found multiple instances where Twitter posts from state-sponsored Russian ‘troll’ accounts have inadvertently been included as genuine vox pops in political online news stories by established news organisations (Hern et al., 2017). However, there has been limited investigation of their effects on the readers’ perceptions of the issue at hand.

Despite the limited research on tweets as vox pops (compared to, for example, the level of research on exemplification effects associated with, user placed, social media comments on dedicated websites, see, e.g., Reinhardt et al., 2018; Zerback and Fawzi, 2016), there are reasons to believe that tweets’ idiosyncrasies may make them as influential as other types of popular exemplars, if not more so. In contrast to regular man-on-the-street interviews, which provide an insight into what individuals think privately when asked to give their opinion, tweets are already publicly expressed opinions and part of a wider debate occurring on the platform. With Twitter being a platform for public debate among highly demographically diverse users (e.g., Statista, 2018) and its encouragement of widespread discussions through the use of hashtags, key words, re-tweeting and sharing, the simple inclusion of a tweet by a journalist could simultaneously indicate both that there is a debate on the topic, and that the tweet in question is representative of the opinions voiced.

Given that selecting vox pops tweets allows scope for ‘cherry picking’ (Beckers and Harder, 2016), if such tweets are taken as indicators of public opinion on an issue, it follows that their use by journalists may allow for both deliberate and non-deliberate manipulation of readers’ perceptions of public opinion on major political issues. This can have significant ramifications for the wider democratic process. Previous studies show that individuals’ perception of public opinion influences not only voter turnout (Sudman, 1986) and subsequent vote intention (e.g., the ‘band wagon’ and ‘underdog’ effects (Ceci and Kain, 1982; Marsh, 1985) but even citizens’ propensity to voice their own opinion – through the Spiral of Silence effect (Noelle-Neuman, 1974).

To investigate the effects of tweets as vox pops in online news articles, we conduct two online survey experiments in England on two issues of either low or high public salience: the local construction of the Norwich Northern Distributor Road (NDR), a low-key issue, and the nationally salient policy of NHS health and social care integration in England (HSCI). The experimental design draws heavily from traditional media research by employing a between-subjects approach that measured the effects of an article with predominantly pro-policy or anti-policy vox pop tweets compared to a control condition that featured the same news article with no vox pop tweets. The results herein are discussed in light of their relevance for journalistic practice, media effects research and their wider democratic implications alike.

Literature review

‘State of the media’ context and vox pop usage research.

In recent years, ordinary people’s opinions, along with general representation of ‘the common man’ have been increasingly included as vox pops in reports across news media channels (De Swert et al. (2008) as cited in Beckers et al., 2016; Turner, 2010). This is perhaps unsurprising given the commercial and economic conditions many news agencies and their journalists find themselves under. Against the backdrop of falling advertising revenues, increased competition and the move to an almost constantly evolving 'information cycle' requiring them to fluidly update online news articles, journalists are being stretched to produce more content, in less time and with fewer available resources (Chadwick, 2011; Freedman, 2010). This has led to further 'churnalism' practices that consist of journalists’ reworking of easy to include ‘news wire’ information, free-to-access online content and readily provided copy information to cut time and resources (Broersma and Graham, 2012; Fenton, 2010; Street, 2011).

In such an environment, tweets are particularly attractive to incorporate as vox pops. Firstly, the wealth of opinion on Twitter allows journalists a virtually unlimited pool to choose quotes from. Secondly, the majority of Twitter content is shared publicly allowing for much easier access to comments compared to networks with more stringent privacy norms such as Facebook (Beckers and Harder, 2016). Thirdly, this public nature of the content and the fact that such tweets can be embedded in online news articles freely means that there is no need to negotiate with sources directly in order to provide a quote which thus saves time and effort while the practice of embedding also seems to provide additional source transparency (Broersma and

Graham, 2013). Fourthly, Twitter is already associated with news both as a source and an arena to ‘break’ stories, and research shows that inclusion of tweets increases perceptions of journalistic credibility over that of traditional ‘man-on-the-street’ or Facebook vox pops (Gearhart and Kang, 2014).

The incentives to use vox pop tweets are reflected in findings from research into journalists’ use of Twitter in news stories. Broersma and Graham’s (2013) quantitative content analysis of UK news articles found that stories containing tweets had rapidly increased in frequency between 2007-2011 and that of these, vox pops were the third most prevalent form (after celebrity and athlete tweets). Furthermore, they found that vox pop tweets were being used for hard and soft news items across quality and popular outlets. Broersma and Graham (2012: 412) found that, within coverage of the UK 2010 general election, vox pops were the most predominant form of tweets included in articles, and an investigation of Dutch articles found that the use of vox pop tweets increased dramatically during the 2012 election campaign compared to non-election periods (Brands et al., 2018: 168). Such findings illustrate vox pop tweets’ association with, and importance for, stories covering major political events. Their research and others’ (e.g., Paulussen and Harder, 2014) demonstrates that this is a growing phenomenon and a trend that spans European news production.

A pioneering investigation by Beckers and Harder (2016), into how this new practice is being employed by journalists in European news articles, found that tweets were often accompanied by framing which suggested that individual tweets were indicative of either groups transcending Twitter itself (in 60.4% of the cases), or at least wider groups present on Twitter (37.3%). Moreover, Beckers and Harder (2016) also found that many articles included quantifier terms intended to give an impression of how prevalent the opinion was within the ‘Twittersphere’. Of these quantifier terms, the majority were problematic due to their lack of verifiability, and many were vague, if incontestable (e.g., ‘some’) (Beckers and Harder, 2016: 916-917).

In short, Beckers and Harder’s (2016) important findings raise concerns with this journalistic practice. What we do not learn from their research is what impact, if any, the inclusion of such vox pop tweets has on readers’ perceptions about the issue at hand. This study aims to investigate these effects, drawing on the existing media effects literature.

Vox pop media effects literature review.

Research into the presentation of illustrative popular exemplars in traditional media news reports has found that the ratio of ‘pro-issue’ vs ‘anti-issue’ popular exemplars in a news story can significantly impact citizens’ perceptions of public opinion on the issue. The impact of vox pop distributions is particularly important given the evidence that vox pops are often presented in an unbalanced way on traditional media channels (Beckers et al., 2016; Perry and Gozenbach, 1997: 230).

Over a series of experiments and scenarios, Brosius and Bathelt (1994) found – in both radio format and in print – that popular exemplar distributions could be used to influence estimates of public support in the direction of the larger number of exemplars. That is, if the ratio of pro-issue vox pops to anti-issue vox pops was of 3:1, then participants perceived public opinion to be significantly more in favor of the issue, with this effect being reversed in the case of a 1:3 distribution (Brosius and Bathelt, 1994: 64). Furthermore, such findings have been replicated (using TV news report stimuli) in context of more 'value-laden' topics such as legalizing prayer in US schools (Perry and Gozenbach, 1997).

In addition, Brosius and Bathelt (1994) found that this effect was still present when popular exemplars were presented alongside base-rate information and, moreover, that the exemplar distribution outweighed the effects of such base-rate data on participants’ estimates of public opinion. This finding was robust regardless of whether more ‘absolute’ quantifiers were given (as in “the anchor spoke about “a large majority” or “small minority” of people who expressed an opinion about the problem”) or if vox pops were accompanied by more vague and relative ‘dynamic’ quantifiers (such as ‘“more and more” people are complaining’) (pp. 60-63). Taken together, these findings suggest that journalists’ use of such unsubstantiated quantifiers to accompany vox pop tweets might have little sway on the public opinion, when compared to the distribution of the tweets themselves.

These findings are replicated by Daschmann (2000) who found that popular exemplar distribution in newspapers could even override the significantly more representative public opinion cues presented in poll information. More specifically, this study found that participants’ estimates of wider levels of party electoral support in a German election campaign were primarily influenced by popular exemplar distribution and with a much greater magnitude than polling information.

The importance of ordinary people’s opinions for exemplification effects is also apparent in online contexts. Lee and Jang (2010) found that participants who read online news articles that were accompanied by user comments that contested the journalist’s stance, tended to estimate lesser levels of public support for the arguments put forward by the journalist. More recently Reinhardt et al. (2018) found that comments on a doctor rating site influenced participants’ estimates of support for the doctors amongst users of the site.

Taken together, such research leads to the following hypothesis:

H1: Participants in the pro-policy condition (exposed to a ratio of 4:1 supportive to opposing vox pop tweets) will estimate the general public opinion to be more favorable toward the policy than participants in the control condition (with no exemplars). The same effect will be present, albeit its direction reversed, for the anti-policy condition (exposed to a ratio of 1:4 supportive to opposing vox pop tweets).

In a study of ‘online news’ containing interviews reported as vox pops, Peter and Zerback (2017) found, in addition to the expected effects from exemplar distributions, that the characteristics of those expressing the viewpoints in the vox pops mattered as well. Specifically, effects were more pronounced for perceptions relating to the demographic group that the person giving the vox pop was part of. These findings are explained by the authors to reflect the theoretical argument that such exemplification effects work along representativeness and similarity heuristics as proposed in Zillman and Brosius (2000), that “if the correspondence between an object and the attributes of a class of objects stored in memory is sufficiently high, the object is considered a member of that class. Hence, people’s tendency to generalize from exemplars to larger populations should increase the more similar they are (i.e. the more features they share)” (Peter and Zerback, 2017: 74-5).

Similar results were observed in a social media exemplar study by Zerback and Fawzi (2016). The researchers found that the distribution of Facebook comments (as popular exemplars) posted after a video, depicting an immigration issue, significantly influenced participants’ estimates of wider German support for evicting violent immigrants. Results in the 10-exemplar condition showed that the exemplification effect was more pronounced for the participants’ estimates of support among the exemplified ‘German internet users’ population compared to their estimates for Germans in general (Zerback and Fawzi, 2016: 10).

Taken together, the above evidence leads to the following hypothesis:

H2: When asked to estimate levels of support for the policy among *Twitter users*, the effects of the exemplars distribution will be greater than those effects seen for estimates of support among the *general public*.

The findings of research into the effect of vox pops on participants’ own personal opinions of issues have been rather mixed. For example, Brosius and Bathelt (1994) and Lee and Jang (2010) found that the exemplar distribution impact was less pronounced on own opinions than on perceptions of others’ opinions and Zerback and Peter (2018) found no effects at all. Contrary to this, Daschmann (2000) found that popular exemplar effects on personal opinion were as strong as on people’s perceptions of public opinion. Given the mixed evidence, we formulate the following research question:

RQ1. Does the distribution of Twitter exemplars, in the news report, affect participants’ own opinion on the policy?

Methods

To test for the above hypotheses, we conducted two online survey experiments among England citizens. Each experiment had a between-subjects design in which participants were exposed to a high-quality mock-up online news article on a topic.

Participants were recruited using a company called Prolific. The surveys could only be taken using desktop or laptop computers, to ensure the correct presentation of the stimuli. After reading the online news article, participants answered a questionnaire, were debriefed and paid. To ensure that minimum comprehension was achieved, we excluded participants whose reading speed was above 15 words per second (or 900 words/minute).[1] Data for Experiment 1 were collected on 25 July 2017, data for Experiment 2 were collected between 27-30 March 2018. Table 1 presents the demographic composition of the sample in each experiment.

[Table 1 here]

Design and procedures

Policy topics.

In Experiment 1, the article was about the Norwich Northern Distributor Road (hereafter, NDR), a longstanding public infrastructure project in the Norwich, UK area aiming to improve driving conditions around the city. Over the years, the infrastructure project has caused controversy due to its potential environmental impact. Having been planned more than a decade ago, the NDR was a relatively a low-key issue at the time of study, while still featuring periodically in the regional public news.

In Experiment 2, the article was about the latest initiative for health and social care integration (hereafter, HSCI) in England. This is a highly pressing issue across England, as the policy to integrate NHS healthcare with social care services (such as for ‘ongoing needs’ including help with dressing, bathing, etc.) is part of a nationwide drive to improve aging patients’ experience whilst simultaneously reducing costs. While policy efforts were initiated in 1999 by the then Labour government, the ‘Better Care Fund’ is the latest government initiative to integrate health and social care services, introduced by the Conservative-Liberal Democrat coalition in 2013. Notable events occurring a week before the data collection for Experiment 2 took place (such as the Secretary of State for Health and Social Care launching his plans to reform social care) meant that the topic was highly publicized around the time of the study.

In each experiment, participants were randomly allocated to one of three groups. All groups read the same journalist report about the policy. In the “pro-policy condition” the article was accompanied by tweet exemplars, with a majority slanted toward support for the policy. In the “anti-policy condition,” the majority of the accompanying tweets were against the policy.

Power calculations and sample sizes.

In light of each topic’s different degree of national salience, we expected larger experimental treatment effects for the low-key NDR issue than for the highly-publicized HSCI. Consequently, following Cohen (1988: 31), we adjusted our sample size targets to detect moderate effects (Cohen’s d =0.50) in the case of the NDR study and small effects (Cohen’s d=0.20) in the case of the HSCI one (with a power level of 0.80 for a significance criterion of 0.05).

Stimuli

Control condition

Experiment 1

The control condition stimulus consisted of a balanced online news article describing recent funding for the NDR. The bulk of this article originated from a BBC online news piece that contained much of the basic information about the NDR project and was written by a professional journalist. The date was changed to make it seem more ‘relevant’ and sections added to more fully reflect the spectrum public opinion and explicitly present supporting and opposition viewpoints. The paragraph detailing opposing opinions came to 32 words, while the paragraph detailing supportive opinions was 35 words, each with the same number of points. Next, the text of this edited article was incorporated into the design and presentational format of a less well-known, regional, newspaper with an online offering.

Experiment 2

The control condition article gave a brief synopsis of the results from a 2016 National Audit Office report on the progress made by the government’s Better Care Fund integration initiative. The bulk of the article originated from a website for social care professionals. Editing ensured the content was accessible to a lay audience, and the date was changed to make it more ‘recent’. Three positive aspects were reported about the policy’s progress (48 words) along with three negative aspects (43 words). A final paragraph reiterated that both positive and negatives had been found (28 words). The article was then incorporated into the design of an online news website with national scope and appeal, but with a low-readership in the UK.

Experimental conditions.

In the experimental conditions, participants were exposed to the identical article as those in the control condition but with the addition of five vox pop tweets. In order to maximize the realistic nature of the stimuli and thus the ecological validity of the study, the presentation of the tweets was in keeping with the findings of Beckers and Harder (2016). Vox pop tweets were presented in embedded form so participants could view the posters’ profile picture, user name and Twitter handle and tweets were preceded by a brief introduction. This introductory statement included vague and incontestable terms (‘some’, ‘another’, ‘others’) that could be interpreted as quantifier terms meant to be indicative of wider Twitter sentiment, or perhaps, merely introducing the ‘few’ tweets specifically mentioned in the article. This was done to reflect the vagueness of real-life introductions as previously discussed by Becker and Harder (2016). The sentiments in the tweets, were designed so that opinions voiced in them would be along the same lines as the points made in the article body and not add any new arguments pro or against the policy. In Experiment 1, all tweets displayed location-tags that indicated that they were posted from within the Norwich area. In Experiment 2 there were no regional identifier tags. None of the tweets indicated that they had been ‘liked’, ‘retweeted’ or commented as adding such base-rate data may have been a confounding factor in our design. Instead, we embedded hashtags and key words on the topic to indicate that the posts were part of a wider debate taking place on Twitter.

In the pro-policy conditions, there were a total of four exemplars supportive of the policy and one exemplar voicing opposition to the policy (4:1 ratio). These were presented in a 2:1:2 format where the participants were first exposed to two pro-policy tweets, then one anti-policy tweet, followed by two more pro-policy tweets. In the anti-policy conditions, the format was maintained but the ratio of pro-policy tweets to anti-policy tweets was reversed (1:4).[2] Figure 1 presents the “anti-policy” stimuli in Experiment 2 for illustration purposes. The complete stimuli for both experiments are available upon request.

[Figure 1 here]

Variables and model.

Table 2 summarizes the questions and response scales of our main dependent and control variables.

[Table 2 here]

To test H1, we estimate the following model with Stata14:

Perceived General Public Opinion= b1*Pro-Policy +b2*Anti-Policy +bn*Controls + ε

Where the controls include age, gender, education, political ideology and Twitter use. For Experiment 2, we also control for Knowledge of the HSCI, and for Experience with Social Care Services.[3] The models are estimated with bootstrapped standard errors over 1000 replications.

To test H2, we run the same model, but with Perceived Twitter Public Opinion as the Dependent Variable. We then estimate the effect sizes of the treatment variables with bootstrapped confidence intervals and compare them across the different models.

Results

Perceived general public opinion

H1: The distribution of Twitter exemplars (pro- or anti-policy) affects estimates of support for the policy among the general public.

We present the model results in Table 3, and we plot the estimated general public opinion estimates for both experiments in Figure 2.

[Table 3 here]

[Figure 2 here]

The results strongly support H1 in both experiments. Considering first Experiment 1, we see from the Model A results, and from the left panel in Figure 2 that participants who read the version of the article with the pro-NDR Twitter exemplars estimated the general population support for the NDR to be about 1.20 points higher on the 5-point scale than in the control condition. With an estimated Cohen’s *d* of about 1.39, calculated with bootstrapped confidence intervals among 1000 replications, the experimental effect of the tweets is very large. In the anti-NDR tweets condition, perception of NDR general population support was about 0.54 points lower than in the control condition. In this case, the estimated Cohen’s *d* is about 0.59, indicating a moderate tweets effect.

Similarly, in Experiment 2, the results for Model C and the right panel in Figure 2 show that those who read the article with a greater number of pro-policy tweets, estimated the public HSCI support to be about 0.25 higher on the 5-point scale than those in the control condition. The estimated Cohen’s *d* is about 0.30, indicating a small to moderate effect of the tweets. On the other hand, those who read the article with the added anti-HSCI tweets estimated the general public support to be lower by about 0.91 than those in the control condition, which is a large effect (with an estimated Cohen’s *d* of about 0.97). Thus, while, as expected, the magnitude of the effects is lower in the case of the high national salience HSCI issue than for the low-key local NDR project, the results suggest a strong impact of Twitter exemplars on the estimates of public opinion in both cases.

Perceived public opinion among twitter users

H2: Exemplification effects will be more pronounced on participants’ estimates of support among Twitter users.

Models B and D in Table 3 present the results of the analysis with the estimated Twitter public opinion as a dependent variable. The estimated levels of support in each experiment are presented in Figure 3.

[Figure 3 here]

As models B and D show, exemplar distribution also affected respondents’ estimates of issue support among Twitter users. To examine whether these effects are stronger than for the general public, we compare the Cohen’s *d* statistics indicative of effect sizes for Models A and B for Experiment 1, and for Models C and D for Experiment 2. In Experiment 1, H2 receives mixed support. Contrary to H2, the effect of the pro-NDR tweets on estimates of Twitter users’ support is smaller than for the general public opinion, as the Cohen’s *d* takes a value of 1.00 in Model B (which is less than 1.39 for Model A). However, in line with H2, reading anti-NDR Twitter comments has a slightly stronger effect on the estimates of the Twitter population support than for the general public (the Cohen’s *d* for the effect of the anti-NDR tweets in Model B is 0.74, which is higher than the value of 0.59 in Model A).

In Experiment 2, the Cohen’s *d* for the pro-HSCI tweets condition in Model D is 0.44 (therefore higher than for Model C, and indicating a moderate effect). This is due to respondents in the control condition perceiving Tweeter users as significantly more against the policy than the general public. For the anti-HSCI tweets condition, the Cohen’s *d* in Model D is also higher than for Model C, and is estimated at 1.33 (indicating a very large effect). Thus, treatment effects are amplified when people estimate Twitter users’ opinions, as compared to the general public opinion, offering support for hypothesis H2.

Personal opinion

RQ1. Does the distribution of Twitter exemplars affect respondents’ own opinion about the project?

To investigate this question, we perform a structural equations model analysis, in which we estimate both a direct effect of the experimental condition on one’s own expressed view, and an indirect effect, mediated by one’s perception of the general public opinion, with standard controls. The results for Experiments 1 and 2 from the model estimation with bootstrapped standard errors are given in Figure 4.[4]

[Figure 4 here]

In Experiment 1, the results indicate that the pro-NDR condition had a sizable total effect on one’s own opinion, as the overall change in opinion following exposure to pro-policy tweets led to an increase in personal support of about 0.58 points on the 5-point scale when compared to the control condition. Much of this effect, or about 59%, is mediated through the effect on the perceived support among the general public. Moreover, while much smaller, there is also an indirect effect of exposure to the anti-NDR tweets (with a coefficient of -0.15, $p<0.05$). The total effect of the anti-NDR condition also approaches conventional levels of significance.

In Experiment 2, both tweet conditions have significant indirect effects. Exposure to the negative tweets indirectly decreases one’s own support for HSCI by 0.55 on the 1 to 5 scale, while exposure to pro-HSCI tweets indirectly increases one’s support by 0.15 through perceptions of public opinion. In both cases, the direct effects of tweets are insignificant, meaning that the total effect of the negative tweets results almost entirely from their indirect effect on public opinion perceptions. In the case of the pro-policy tweets condition, the combination of direct and indirect effects, which have different signs, leads to an insignificant total effect.

Discussion of results

The primary aim of this study was to investigate whether journalists’ inclusion of tweets in online news articles (as a more modern equivalent to the vox pop) affects how readers perceive the public opinion on the issue at hand. As outlined in the introduction and literature review, not only are tweets indicative of an issue-specific public debate taking place on a widely used platform, but also this journalistic practice has been growing in prevalence.

The design of the studies drew heavily on previous vox pop research within traditional media settings – much of which found the propensity for vox pop distributions to affect participants’ perceptions of wider public opinion on the issue presented (e.g., Bathlet and Brosius, 1994). Through the strong support for H1, in both experiments, this investigation replicates such results by finding that those participants exposed to a greater number of pro-issue popular exemplars perceived public support for the issue to be significantly higher when compared to those in the control condition exposed to no popular exemplars. Furthermore, the effect was similarly observed when participants were exposed to a majority of anti-issue popular exemplars, with such participants’ estimating general public support as significantly lower than those in the control condition. An additional interesting finding, in terms of the exemplification effect, is that the influence of vox pop tweets on perceptions of general public opinion was larger in the context of a local issue (Experiment 1), than for a nationally salient topic (Experiment 2).

Next we hypothesized, in H2, that exemplification effects would be stronger for the perception of Twitter users’ opinions than for the general public, through the mechanics of group similarity. We found that these effects were magnified in three out of four comparisons.[5] This finding complements previous research on social media comments in situ – e.g., in the case of Zerback and Fawzi’s (2016) study on Facebook posts.

Taken together, therefore, these findings strongly suggest that tweet vox pops do elicit an exemplification effect as found in studies of traditional media vox pops and in other online contexts (Lee and Jang, 2010; Zerback and Fawzi, 2016; Ziegele & Weber, 2015), and that they are taken as being representative of the balance of sentiments expressed in wider public communities.

Interestingly, while we observe effects for both the pro- and anti-policy tweets conditions in both experiments, the magnitude of the effects is higher for the positive condition in Experiment 1, and higher for the negative condition in Experiment 2. This suggests that, while we can expect a baseline effect level, which argument side has more potent effects depends on the issue at hand. While we can only speculate why that is in these two cases, we note that in the case of the NDR issue, the project has not only gone over the budget, but has also failed to solve the traffic problem it was intended to fix. Both these facts were apparent in the journalist account and map included in the stimuli. Thus, given these limitations and the absence of a clear positive result from the project, respondents in the control condition estimated the public opinion as being rather negative, even if the journalist account included the views of both the NDR supporters and NDR opponents. In the case of HSCI, the stimulus article also actively cited both positive and negative results of the integration policy, but, given the general long-term, cross-party consensus of the need for integration, these balanced results may have led control condition respondents to estimate the public support as relatively positive. Thus, it appears from our studies, that larger effects may be expected if, on balance, the sentiments expressed in the tweets go against the baseline public sentiment estimated on the basis of other information. Further studies should explore the importance of the policy issue further.

In addition to this exemplification effect being present when asked to estimate public support, we use structural equation modeling to show that the distribution of vox pop tweets indirectly affects respondents’ own opinion about the issue in both experiments. Thus, the inclusion of tweets can be a powerful tool not only to affect perceptions of what the public thinks, but to indirectly modify public opinion, by potentially determining how individuals position themselves on the issue.

Limitations and further study

Despite our best efforts, these two experimental studies have a number of limiting factors. For instance, regarding the stimuli, participants could not ‘click through’ the embedded tweet to assess the posters’ profile to make inferences as to source credibility. It is in the interest of further research to incorporate this capability, as exemplification research within traditional media has found source type (and cues to profession) to influence such exemplars’ effects on perceptions of the public opinion (Bosch, 2014).

Additionally, in an attempt to maximize ecological validity, we used deliberately vague introductions to the tweets (i.e., “some,” “another,” and “others”) to reflect what Beckers and Harder (2016) found to be common place in the presentation of such tweets in real articles. The wealth of previous research (as cited above) suggests such base-rate information of this nature is of negligible consequence compared to the distribution of exemplars. However, further study should investigate the effect of different qualifiers explicitly within the online news environment.

The current investigation chose policy topics on which there was no clear partisan polarization. Future research might focus on testing the effects of vox pop tweets on highly partisan issues (e.g., immigration, education, etc.) as well as during a consequential time such as an ongoing election campaign, as has been the case in vox pops research in print media (Daschmann, 2000).

Conclusion

Our study contributes to the general body of research on popular exemplars and exemplification effects in a number of ways. From a theoretical point of view, vox pop tweets stand apart from other popular exemplars as, through their sheer nature, they are integral parts of a wider, ongoing, public debate on a highly popular platform for opinion exchange and, thus, they might be viewed as a mediated snapshot of the modern-day public sphere. This is in contrast to regular man-on-the-street interviews (where individuals offer their private opinions only when solicited to do so by journalists), and is also in contrast to individual online posts which individual users themselves choose to share with others (such as when posting comments on a website or below a Facebook video). By embedding tweets in their articles, journalists confer a sense of prevalence and legitimacy to the opinions expressed within, and give voice not just to ordinary citizens, but to the entire communities of debate that the tweets are part of.

We show that tweets included in journalist-produced news articles have the ability to manipulate readers’ perceptions of the wider community’s consensus of opinion on public issues of either low or high national salience. In the current media environment, the implications of these findings are particularly salient, not only because disinformation troll tweets (designed to manipulate) have been inadvertently included as vox pops in mainstream news, but also in light of evidence that perceptions of public opinion can affect vote intentions and citizens’ propensity to engage in political debate.

The sum of these findings suggests that, despite their convenience, lack of cost and the current high-pressure media environment, journalistic use of Twitter vox pops should be undertaken only with extreme care and consideration as to the influence they can have on perceptions of public opinion and, by extension, the wider democratic process.

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No conflict of interest to declare

Notes

[1] According to Rayner et al. (2016: 24), the average reading speed with adequate comprehension is about 250 words/minute, while the average speed-reading rate with adequate comprehension is about 650 words/minute. The decision to set the cut-off at 900 words/minute was taken to avoid excluding legitimate faster-than-average readers, while at the same time, ensure minimal comprehension. The large majority of respondents read at rates close to the average reading rate reported by Rayner and colleagues; the median reading rate in both experiments ranged between 3.3 and 4 words per second (data available upon request).

[2] To ensure a high degree of similarity between the presentations of tweets in each experimental condition, the tweets shared the same approximate length and similar hashtag content, as these features have been found to be associated with perceptions of tweet credibility (Gupta and Kumaraga, 2012). Additionally, in order to minimize potential confounding effects associated with source appraisal of the tweeters, the tweets were all presented to have been posted by male

Twitter users and none of their usernames or Twitter handles were outlandish or gave any indication that they were a public figure or officials. The dates and times of each post and Twitter posters profiles themselves were kept constant across both experimental conditions – only the text inside the tweet was altered. Very little difference existed between the vox pop tweet posters' profiles exhibited in Experiment 1 and Experiment 2.

[3] We do not control for prior knowledge in Experiment 1 because only 2% of the sample indicated they had heard of the NDR project.

[4] For presentation purposes we exclude the controls from Figure 4. Results are available in full in Appendix 1.

[5] The only condition where we do not find an effect amplification is the pro-policy tweets condition in Experiment 1. It is possible that in this case, the size of the effects on the general public opinion was already very large, thereby limiting the potential for amplification for a more specific population. Moreover, it is also possible that our question in Experiment 1, referring to "most Twitter users from the Norwich area" might have made it difficult for respondents to consider only those who actually physically live there, and instead might have led them to consider those who originate from the area (but do not live there necessarily). These considerations prompted us to slightly change the wording in Experiment 2, where we actively mentioned "living in England" in the Twitter users opinion question (see Table 2).

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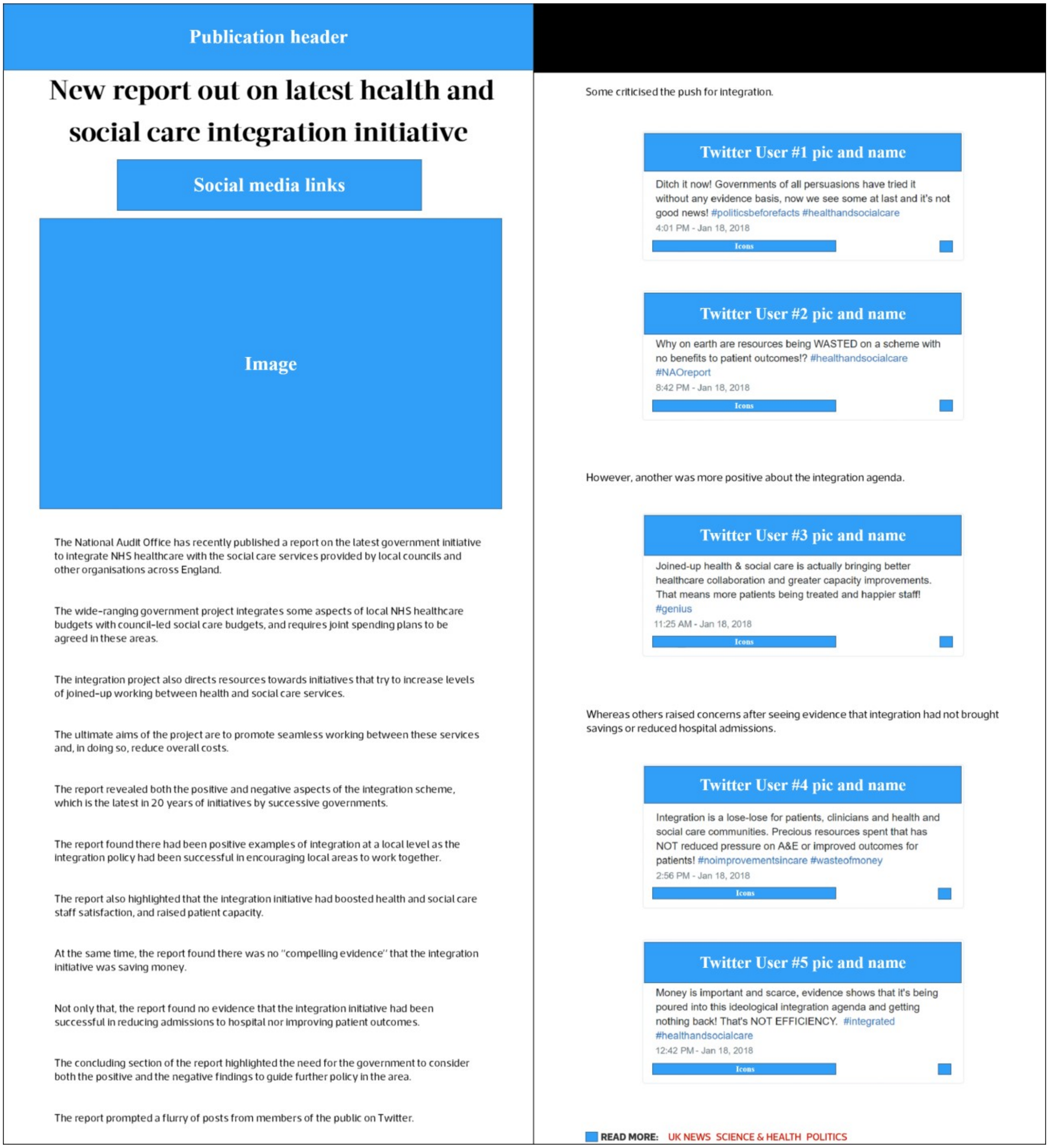

Publication header

New report out on latest health and social care integration initiative

Social media links

Image

The National Audit Office has recently published a report on the latest government initiative to integrate NHS healthcare with the social care services provided by local councils and other organisations across England.

The wide-ranging government project integrates some aspects of local NHS healthcare budgets with council-led social care budgets, and requires joint spending plans to be agreed in these areas.

The integration project also directs resources towards initiatives that try to increase levels of joined-up working between health and social care services.

The ultimate aims of the project are to promote seamless working between these services and, in doing so, reduce overall costs.

The report revealed both the positive and negative aspects of the integration scheme, which is the latest in 20 years of initiatives by successive governments.

The report found there had been positive examples of integration at a local level as the integration policy had been successful in encouraging local areas to work together.

The report also highlighted that the integration initiative had boosted health and social care staff satisfaction, and raised patient capacity.

At the same time, the report found there was no “compelling evidence” that the integration initiative was saving money.

Not only that, the report found no evidence that the integration initiative had been successful in reducing admissions to hospital nor improving patient outcomes.

The concluding section of the report highlighted the need for the government to consider both the positive and the negative findings to guide further policy in the area.

The report prompted a flurry of posts from members of the public on Twitter.

Some criticised the push for integration.

Twitter User #1 pic and name

Ditch it now! Governments of all persuasions have tried it without any evidence basis, now we see some at last and it's not good news! #politicsbeforefacts #healthandsocialcare

4:01 PM - Jan 18, 2018

Icons

Twitter User #2 pic and name

Why on earth are resources being WASTED on a scheme with no benefits to patient outcomes!? #healthandsocialcare #NAOreport

8:42 PM - Jan 18, 2018

Icons

However, another was more positive about the integration agenda.

Twitter User #3 pic and name

Joined-up health & social care is actually bringing better healthcare collaboration and greater capacity improvements. That means more patients being treated and happier staff! #genius

11:25 AM - Jan 18, 2018

Icons

Whereas others raised concerns after seeing evidence that integration had not brought savings or reduced hospital admissions.

Twitter User #4 pic and name

Integration is a lose-lose for patients, clinicians and health and social care communities. Precious resources spent that has NOT reduced pressure on A&E or improved outcomes for patients! #noimprovementsincare #wasteofmoney

2:56 PM - Jan 18, 2018

Icons

Twitter User #5 pic and name

Money is important and scarce, evidence shows that it's being poured into this ideological integration agenda and getting nothing back! That's NOT EFFICIENCY. #integrated #healthandsocialcare

12:42 PM - Jan 18, 2018

Icons

READ MORE: UK NEWS SCIENCE & HEALTH POLITICS

Figure 1. Anti-policy stimuli in Experiment 2.

Notes: The article is split in this Figure for presentation purposes. Respondents saw it as a single image, with regular size fonts. For copyright purposes, we block all images and individual information in the figure. The full stimuli are available upon request.

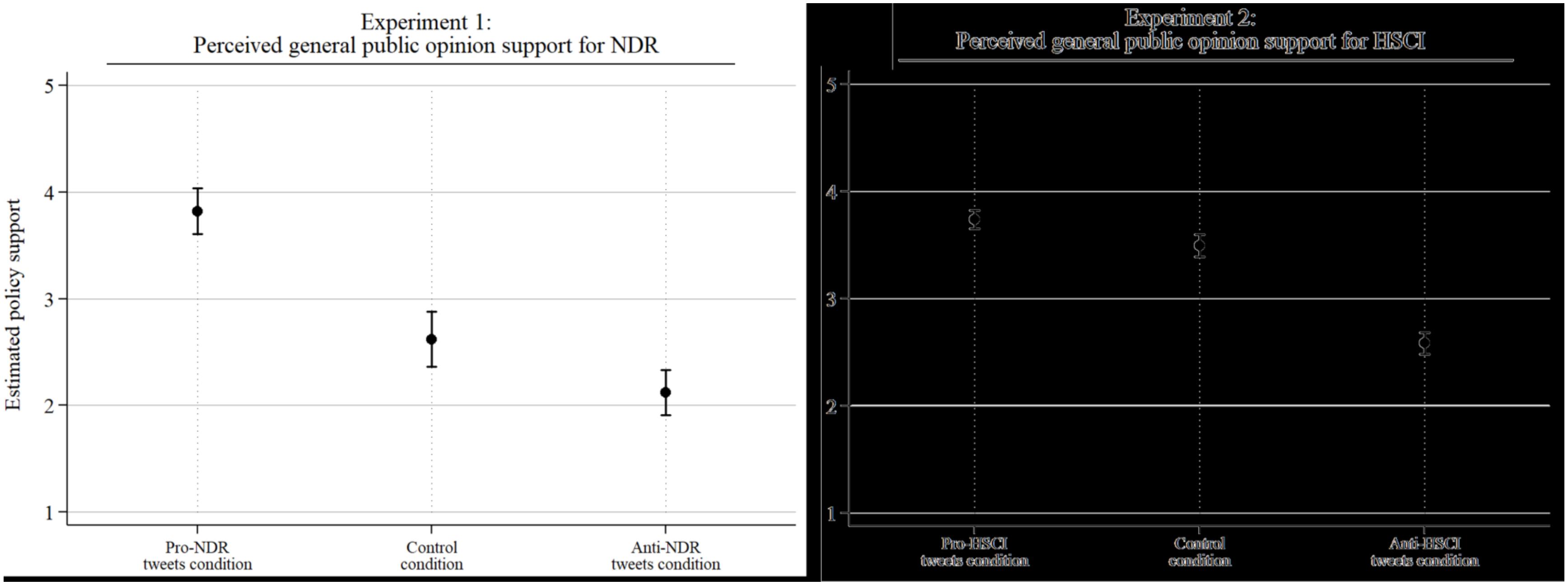

Figure 2. Estimated perceived general public opinion support for the policy in each experiment, by experimental condition with 95% confidence interval error bars.

Note. The estimates in the left panel are based on Model A in Table 3. The estimates in the right panel are based on Model C in Table 3.

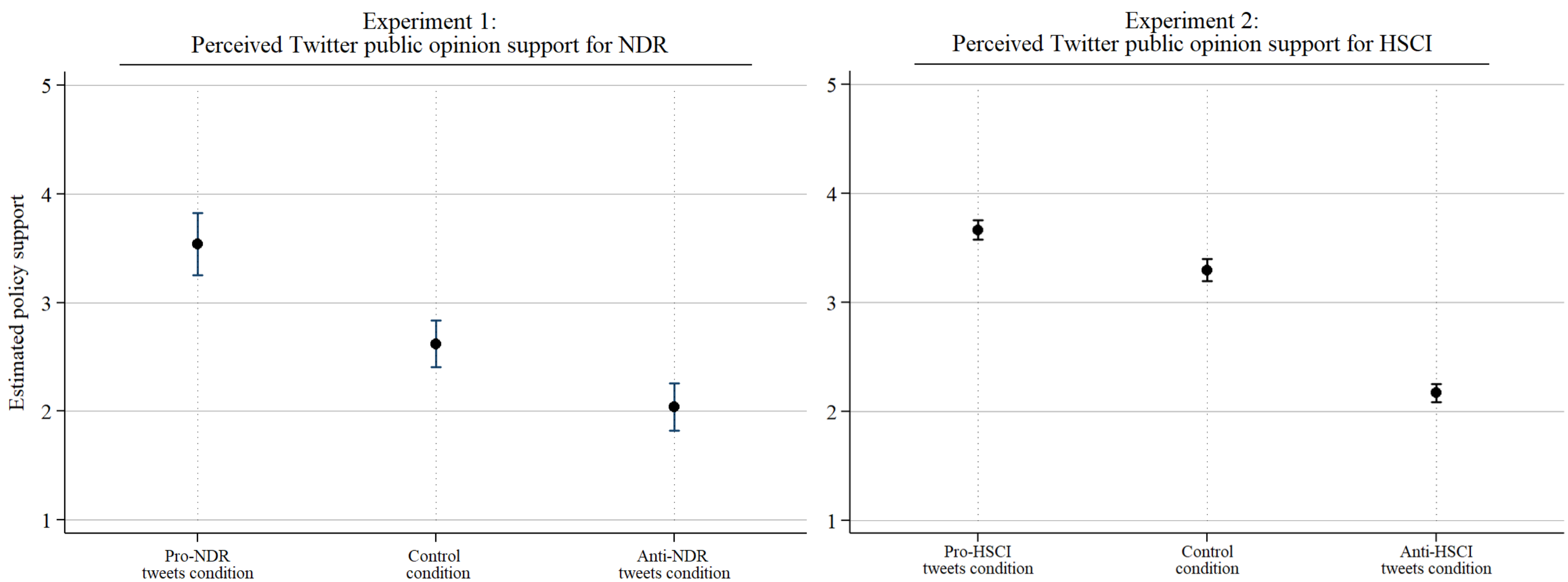

Figure 3. Estimated perceived Twitter public opinion support for the policy in each experiment, by experimental condition with 95% confidence interval error bars.

Notes: The estimates in the left panel are based on Model B in Table 3. The estimates in the right panel are based on Model D in Table 3.

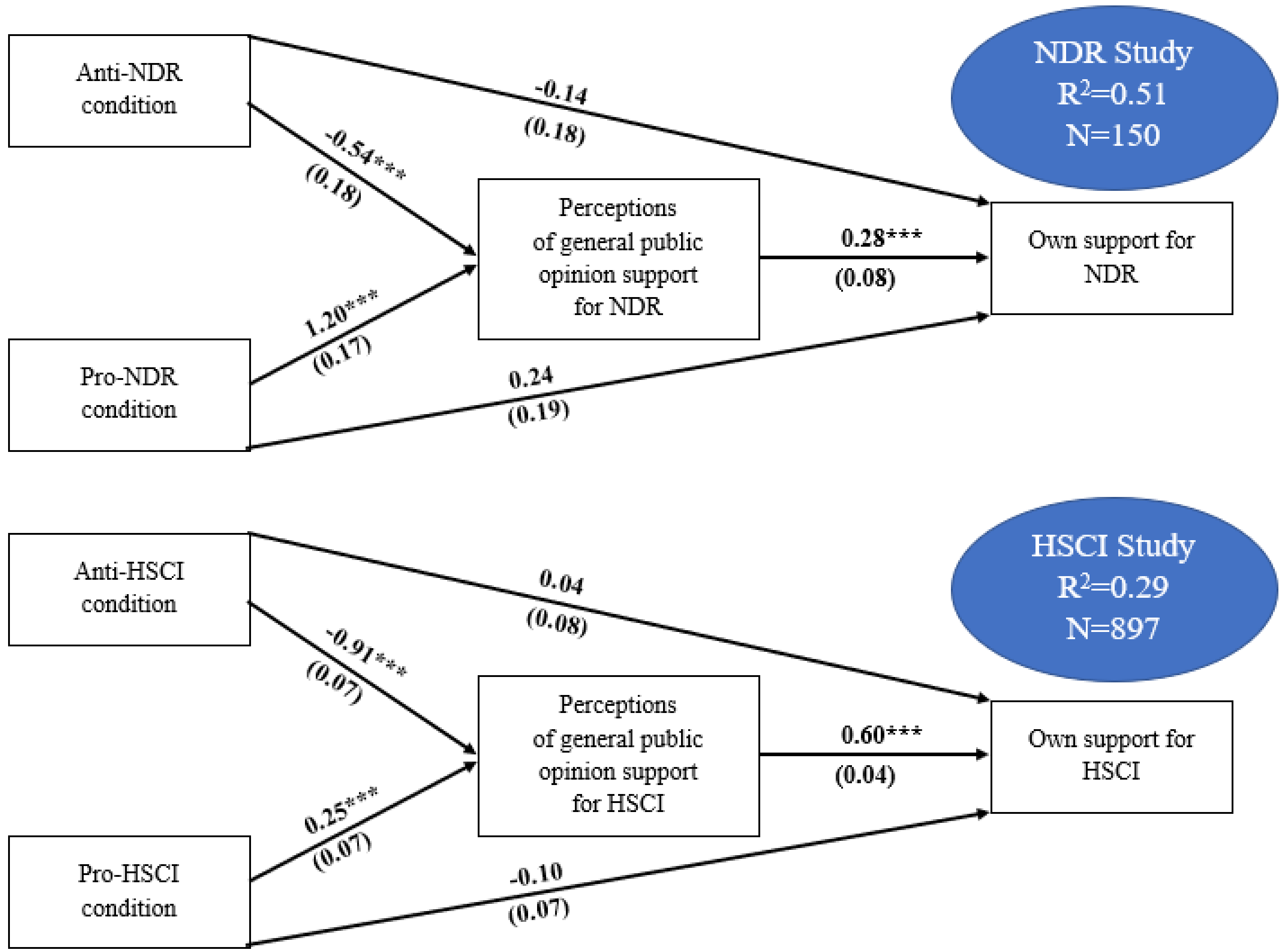

Figure 4. The effects of Twitter exemplar distribution effects on respondents’ own NDR/HSCI opinion, as mediated by perceived general population support. Notes: Bootstrapped structural equation model results computed with Stata14 over 1000 replications. The models control for age, gender, education, ideology, Twitter use, Issue knowledge (HSCI only), social care experience (HSCI only). All the variables are described in Table 2. ***p<0.01

Table 1. Variable distributions by experiment

	Experiment 1: NDR project			Experiment 2: Health and Social Integration Policy (HSCI)		
	Control Condition (*N*=50)	Pro-NDR Condition (*N*=50)	Anti-NDR Condition (*N*=50)	Control Condition (*N*=301)	Pro-HSCI Condition (*N*=263)	Anti-HSCI Condition (*N*=334)
Demographic variables						
Gender:% Female	50.0%	50.0%	50.0%	67.8%	62.4%	62.9%
Ethnicity % Caucasian	90.0%	94.0%	94.0%	91.7%	87.4%	89.8%
Mean age (S.d.)	33.68 (8.87)	35.92 (11.94)	35.46 (11.56)	36.63 (11.87)	37.67 (12.37)	37.34 (11.79)
Education						
No formal qualifications	4.0%	0.0%	0.0%	1.0%	1.0%	1.2%
Secondary school/GCSE	10.0%	14.0%	26.0%	10.7%	14.5%	12.6%
College/A levels	36.0%	48.0%	38.0%	35.0%	32.7%	29.3%
Undergraduate degree (BA/BSc/other)	38.0%	20.0%	24.0%	37.0%	36.9%	40.4%
Graduate degree (MA/MSc/MPhil/other)	12.0%	16.0%	8.0%	14.7%	12.2%	14.1%
Doctorate degree	0.0%	2.0%	2.0%	1.7%	2.7%	2.4%
Ideology						
No ideology (N/A)	22.0%	28.0%	20.0%	13.6%	18.3%	18.3%
Left	36.0%	36.0%	38.0%	36.9%	36.9%	40.1%
Centre	28.0%	28.0%	28.0%	34.9%	33.8%	31.7%
Right	14.0%	8.0%	14.0%	14.6%	11.0%	9.9%
Regular Twitter User	66.0%	60.0%	64.0%	53.8%	56.3%	54.5%
Previous knowledge of the issue (%Yes)	6.00%	2.00%	0.00%	16.3%	16.7%	17.1%
Previous experience with social care (%Yes)				29.2%	32.3%	31.1%
Experimental treatment variables						
Mean perceived general public opinion (S.d.)	2.62 (0.92)	3.82 (0.80)	2.12 (0.77)	3.49 (0.91)	3.73 (0.69)	2.58 (0.96)
Mean perceived Twitter public opinion (S.d.)	2.62 (0.75)	3.54 (1.05)	2.04 (0.81)	3.30 (0.92)	3.67 (0.75)	2.17 (0.78)
Mean own opinion (S.d.)	3.00 (0.99)	3.50 (0.81)	2.72 (0.83)	3.74 (1.03)	3.79 (0.95)	3.23 (1.05)

Note. The variables are described in Table 2.

Table 2. Variables, question text and response scales

Variable	Question text Experiment 1	Question text Experiment 2	Response Scale
Perceived general public opinion	“How do you think most people from the Norwich area feel about the NDR project?”	“How do you think most people in England feel about the latest initiative to integrate health and social care services?”	1 = ‘*strongly oppose*’;2 = ‘*somewhat oppose*’; 3 = ‘*neither oppose, nor support*’; 4 = ‘*somewhat support*’; 5 = ‘*strongly support*’
Perceived Twitter public opinion	“How do you think most Twitter users from the Norwich area feel about the NDR project?	“How do you think most Twitter users living in England feel about the latest initiative to integrate health and social care services?”	
Own opinion	“What is your own opinion about the NDR project?”	“What is your own opinion about the latest initiative to integrate health and social care services?”	
Prior knowledge	“Had you heard of this NDR project before reading the online news article?”	“Had you heard of the latest initiative to integrate health and social care before reading the online news article?”	‘*yes*’; ‘*no*’; ‘*not sure*’ (recoded as 1=‘yes’, 0= ‘no/not sure’) .
Social care experience	N/A	“In the past five years, have you or someone close to you had any experience with social care services in England?”	
Regular Twitter user	“Do you use Twitter on a regular basis (=at least once a month)?”	“Do you use Twitter on a regular basis (=at least once a month)?”	‘*yes*’ (coded as 1); ‘*no*’ (coded 0)

Note. The means and standard deviations for all these variables are presented in Table 1. Perceived public opinion and personal opinion measures have been minimally adapted from those used in Gunther and Christen (2002: 182).

Table 3. Twitter exemplar distribution effects on perceptions of general public opinion (H1) and Twitter opinion (H2)

	Experiment 1: NDR project						Experiment 2: Health and Social Integration Policy (HSCI)					
	Model A (H1)			**Model B (H2)**			**Model C (H1)**			**Model D (H2)**		
	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p
Pro-policy tweets condition	**1.20**	**0.17**	**0.000**	**0.90**	**0.19**	**0.000**	**0.25**	**0.07**	**0.000**	**0.37**	**0.07**	**0.000**
Anti-policy tweets condition	**-0.54**	**0.17**	**0.003**	**-0.65**	**0.15**	**0.000**	**-0.91**	**0.07**	**0.000**	**-1.13**	**0.07**	**0.000**
Issue knowledge							**0.19**	**0.09**	**0.037**	0.12	0.08	0.132
Social care experience							-0.03	0.06	0.578	-0.09	0.06	0.136
Twitter user	0.07	0.14	0.593	-0.15	0.15	0.315	0.03	0.06	0.631	-0.00	0.06	0.969
Age	0.01	0.01	0.252	0.01	0.01	0.379	**0.01**	**0.00**	**0.004**	0.00	0.00	0.079
Woman	-0.14	0.14	0.316	-0.08	0.14	0.568	0.00	0.06	0.971	0.00	0.06	0.995
Education	-0.08	0.08	0.305	-0.14	0.08	0.066	**0.09**	**0.03**	**0.003**	**0.06**	**0.03**	**0.041**
Ideological position:+												
Left	0.18	0.20	0.369	**0.44**	**0.20**	**0.030**	0.03	0.09	0.735	-0.02	0.08	0.832
Right	0.31	0.27	0.244	0.01	0.29	0.963	0.11	0.11	0.371	0.02	0.11	0.834
Center	0.07	0.21	0.727	0.27	0.22	0.209	0.06	0.09	0.462	-0.09	0.08	0.288
Constant	**2.55**	**0.42**	**0.000**	**2.70**	**0.38**	**0.000**	**2.83**	**0.17**	**0.000**	**2.98**	**0.16**	**0.000**
Adjusted R-squared	0.42			0.34			0.27			0.38		
N	150			150			897			897		
Number of bootstrap replications	1000			1000			1000			1000		

Note. Bootstrapped OLS regression results computed with Stata 14. All the variables are described in Table 2.
Coefficients in bold are significant at the p=0.05 level. +The reference category for the ideological position is "none."

Appendix 1

Table A1. RQ 1: Direct, indirect and total effects of Twitter exemplar distribution effects on respondents’ own NDR opinion, as mediated by perceived general population support.

	Mediator: Perceived General Population Support			**DV:** Own NDR Support								
	Total effects			Direct effects			Indirect effects			Total effects		
	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p
Perceived general population support				**0.28**	**0.08**	**0.001**				**0.28**	**0.08**	**0.001**
Pro-NDR tweets condition	**1.20**	**0.17**	**0.000**	0.24	0.19	0.213	**0.34**	**0.10**	**0.001**	**0.58**	**0.18**	**0.001**
Anti-NDR tweets condition	**-0.54**	**0.18**	**0.002**	-0.14	0.18	0.423	**-0.15**	**0.07**	**0.034**	-0.29	0.18	0.101
Twitter user	0.07	0.14	0.608	0.24	0.14	0.100	0.02	0.04	0.612	0.26	0.15	0.079
Age	0.01	0.01	0.237	**-0.02**	**0.01**	**0.021**	0.01	0.01	0.275	-0.01	0.01	0.066
Woman	-0.14	0.14	0.316	0.09	0.14	0.548	-0.04	0.04	0.343	0.05	0.15	0.753
Education	-0.08	0.07	0.286	-0.11	0.07	0.121	-0.02	0.02	0.323	-0.13	0.07	0.068
Ideological position:$^{+}$												
Left	0.18	0.20	0.366	0.09	0.21	0.650	0.05	0.06	0.399	0.15	0.21	0.498
Right	0.31	0.27	0.254	0.49	0.30	0.103	0.09	0.08	0.285	0.57	0.31	0.068
Center	0.07	0.21	0.729	0.32	0.20	0.118	0.02	0.06	0.732	0.34	0.21	0.109
Equation goodness-of-fit statistics												
Variance predicted	0.54			0.22								
Residual	0.65			0.64								
R-squared	0.45			0.26								
Overall R-squared	0.51											
N	150											
Number of bootstrap replications	1000											

Note. Bootstrapped structural equation model results computed with Stata14. All the variables are described in Table 2.
Coefficients in bold are significant at the p=0.05 level. $^{+}$The reference category for the ideological position is “none.”

Table A2. RQ1: Direct, indirect and total effects of Twitter exemplar distribution effects on respondents’ own HSCI opinion, as mediated by perceived general population support.

	Mediator: Perceived General Population Support			**DV:** Own HSCI Support								
	Total effects			Direct effects			Indirect effects			Total effects		
	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p	Coeff.	B.S.E.	p
Perceived general population support				**0.60**	**0.04**	**0.000**				**0.60**	**0.04**	**0.000**
Pro-HSCI tweets condition	**0.25**	**0.07**	**0.000**	-0.10	0.07	0.169	**0.15**	**0.04**	**0.000**	0.05	0.08	0.523
Anti-HSCI tweets condition	**-0.91**	**0.07**	**0.000**	0.04	0.08	0.645	**-0.55**	**0.05**	**0.000**	**-0.51**	**0.08**	**0.000**
HSCI knowledge	**0.19**	**0.09**	**0.030**	-0.02	0.09	0.844	**0.12**	**0.05**	**0.032**	0.10	0.11	0.372
Social care experience	-0.03	0.06	0.592	0.08	0.07	0.243	-0.02	0.04	0.593	0.06	0.08	0.428
Twitter user	0.03	0.06	0.644	0.06	0.06	0.305	0.02	0.04	0.644	0.08	0.07	0.265
Age	**0.01**	**0.00**	**0.004**	0.00	0.00	0.794	**0.00**	**0.00**	**0.005**	0.00	0.00	0.109
Woman	0.00	0.06	0.971	-0.01	0.06	0.881	0.00	0.04	0.971	-0.01	0.07	0.914
Education	**0.09**	**0.03**	**0.003**	**0.07**	**0.03**	**0.043**	**0.05**	**0.02**	**0.003**	**0.12**	**0.04**	**0.001**
Ideological position:[+]												
Left	0.03	0.09	0.740	-0.12	0.09	0.175	0.02	0.05	0.740	-0.10	0.10	0.322
Right	0.10	0.11	0.376	-0.00	0.11	0.988	0.06	0.07	0.377	0.06	0.13	0.640
Center	0.06	0.09	0.485	-0.08	0.08	0.351	0.04	0.06	0.486	-0.04	0.07	0.265
Equation goodness-of-fit statistics												
Variance predicted	0.28			0.35								
Residual	0.73			0.74								
R-squared	0.28			0.32								
Overall R-squared	0.29											
N	897											
Bootstrap replications	1000											

Note. Bootstrapped structural equation model results computed with Stata14. All the variables are described in Table 2. Coefficients in bold are significant at the p=0.05 level. [+]The reference category for the ideological position is “none.”