

FULL PAPER

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Abstract: Popularity cues, such as likes and shares, point to mainly positive user reactions. On an aggregated level, they either indicate relevance assignments or endorsements of on-line items, particularly in the context of political communication. Second, popularity cues may affect the audience's political perceptions, behaviors, and attitudes. This paper addresses theoretical and methodological issues for both perspectives. Drawing on concepts such as perceived relevance, attitudinal consonance, and persuasion, the antecedents of liking and sharing are discussed. Then, the effects of popularity cues are described, mainly against the backdrop of the spiral of silence theory and heuristic processing. The degree of elaboration is identified as a key factor for understanding why political content is liked or shared and how Likes and Shares render political effects on an individual level. Methodological issues concerning data collection as well as the validity and viability of studies on popularity cues are discussed.

Keywords: Popularity cues, liking, sharing, social media, political communication, media effects

Zusammenfassung: Popularitätshinweise wie Likes und Shares signalisieren grundsätzlich positive Nutzerreaktionen. Im Kontext politischer Kommunikation sind sie in ihrer aggregierten Form entweder Indikator für Relevanzzuweisungen von oder die Zustimmung zu Online-Beiträgen. Popularitätshinweise können aber auch Faktoren sein, welche die Wahrnehmung, das Verhalten und die Einstellungen des Publikums beeinflussen. Dieser Beitrag thematisiert theoretische und methodologische Aspekte für beide Perspektiven. Im Rückgriff auf Konzepte wie wahrgenommene Relevanz, Einstellungskonsonanz und Persuasion, werden zuerst die Gründe für das Liken und Sharen diskutiert. Danach wird die Wirkung von Popularitätshinweisen hauptsächlich vor dem Hintergrund der Schweigespiraltheorie und heuristischer Informationsverarbeitung erörtert. Die Informationsverarbeitung wird als Schlüsselfaktor identifiziert um zu verstehen, wie das Liken und Sharen politischer Inhalte entsteht und welche politischen Effekte Popularitätshinweise auf Individualebene hervorrufen. Die methodologische Diskussion bezieht sich auf Fragen der Datenerhebung, sowie der Validität und der Durchführbarkeit von Studien zu Popularitätshinweisen.

Schlagwörter: Popularitätshinweise, Liking, Sharing, Soziale Medien, politische Kommunikation, Medienwirkung

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1. Introduction

A great deal of the expected societal and political consequences of evolving online media stems from the suspicion that these follow other logics than media in the traditional sense. Popularity cues, as represented by Likes and Shares, are online phenomena that are part of such kinds of genuine online logic. Popularity cues are drivers of what Webster (2011) recently conceptualized as “privileging popularity” in the online world, which means that online, popular content is privileged over unpopular content. This applies to both the supply and demand sides. On the one hand, communicators thoroughly monitor their published items and promote those that have been the most popular among the users (Singer, 2014). On the other hand, when forming their opinions, users are certainly overwhelmed by the multitude of online items that present different perspectives. Then, users may form their opinions based on online items that were previously liked by their peers and could be encouraged to share these items, just as the privileging popularity paradigm predicts. Thus, political actors, such as parties, candidates, or other political campaigners, may conclude that their political messages online should reach as many Likes and Shares as possible to have the intended impact, often involving of setting one’s own agenda, or, most archetypically, to persuade. In campaigns, when political debates often get controversial and the tone often rough, informed suspicions have been voiced that the visible popularity of political messages online is manipulated applying software-driven social bots (e.g., Woolley, 2016). While a robust empirical analysis on the effect of social bots on the production of visible popularity is still needed, the potential problem for political communication is evident: A reasoned public discourse (Habermas, 2006) under the conditions of publicly uttered opinions that pretend to be supported by many fellows impedes the citizens from learning how strongly the public backs certain political positions, and thus also prevents the citizens from receiving a valid repertoire of opinions from which oneself can deliberately form one.

On one hand, Likes and Shares may be subject of manipulation – with potentially severe harm to the public sphere. On the other hand, however, they most likely provide some degree of orientation when forming personal opinions. This ambivalence points to the need to look behind the Likes and Shares and untangle why we visibly support political content online and how political content visibly supported by others affects the citizens’ political attitudes and behaviors.

In a broad sense, Likes and Shares were conceptualized as popularity cues that represent metric information about previous users’ behavior or their evaluations of entities (see Haim, K mpel, & Brosius’ definition in this issue). Popularity cues may have different labels across different platforms. For the purpose of this paper, Likes, Shares, and other metric cues are narrowly defined as popularity cues that primarily point to user reactions that might either indicate attention and

relevance assignment to social media messages or online media items or indicate support and endorsement.

The aim of the paper is to specify the role of popularity cues in social media messages or online media items in the realm of political communication research. To investigate the factors inducing liking or sharing and the effects these cues have, different theoretical approaches and empirical evidence from various strands of research dealing with issues and actors of the political sphere are discussed. The paper is divided into two main sections: Popularity cues are first discussed as dependent variables and secondly as independent variables in media selection and effects research in the field of political communication. The discussions result in two analytical perspectives. From the first perspective, popularity cues are conceptualized as metric outcomes on the individual level indicating relevance assessments, attitudinal consonance, and persuasion (see section 2.1). However, popularity cues are “cues” only for the subsequent users. Seen from this second perspective, popularity cues are understood as causes for a variety of outcomes, such as media selection, or perceptual and cognitive effects (see section 2.2).

Moreover, the paper provides a critical review of the methods applied to studying the causes for liking and sharing (see section 3.1) and the effects of popularity cues (see section 3.2), pointing out possible pitfalls and potentials for further research. In this paper, popularity cues are considered in two contexts of media reception: first, within online media items, and second, social media messages. The latter can be regarded as spaces where popularity cues are typical outcomes of political messages that may influence their potential effects. However, because Likes and Shares of social media messages compete with additional social cues that could influence why individuals apply popularity cues and whether they are affected by them, different contexts of reception were considered whenever appropriate.

2. Theoretical approaches to popularity cues

2.1 Popularity cues as dependent variables

Why do we like, and why do we share political content? The answers to these questions are in the center of this section. This starts with a discussion of what users have in mind when they apply popularity cues and elaborates on the commonalities and differences between liking and sharing (for the related concept of external relevance cues designated by users, see Haim, Kümpel, & Brosius’ related discussion in this issue). While both are mainly positive reactions toward political messages, they may be understood as products of different amounts of cognitive evaluation. The discussion then goes on, highlighting some key message features (e.g., formal features, such as the use of links or photos, and content elements, such as the use of different rhetorical strategies) that predict the number of Likes and Shares of political messages. These reviews shall provide insights into the meanings of Likes and Shares by drawing conclusions from onliners’ liking and sharing behavior. In addition, we show how to make use of the number of

Likes and Shares as non-reactive information about citizens' attitudes and behavior in political communication research.

2.1.1 Functions of popularity cues

The Like button is established and frequently used "to express a variety of affective responses such as excitement, agreement, compassion, understanding, but also ironic and parodist liking" (Gerlitz & Helmond, 2013, p. 1358). Whereas the most attributed meaning of a Like seems to be an expression of a positive attitude toward the message, the two last-mentioned examples seem to be negative. Reviewing empirical literature might help to paint a clearer picture. In in-depth interviews, Gao (2016) distinguished between referential and expressive *motives of liking*. Whereas "liking the content" is the most reported referential motive to like a post, liking to show other users "having read" the article is a less relevant motive. The most reported expressive reasons for liking a post are agreeing with the author (e.g., sharing the same attitude), appreciating the mood, or sharing the same interests. Other studies employing focus groups and semi-structured interviews identified the positive evaluation of content or the posters' behavior as strong motives for liking content on Facebook as well (e.g., Hayes, Carr, & Wohn, 2016). Brandtzaeg and Haugstveit (2014) found different reasons for liking on Facebook; users reported liking posts because they feel socially responsible, emotionally attached, or because they want to present themselves as responsible. Moreover, a minority of users tend to like because the costs are low and liking is a routinized behavior. De Vries, Gensler, and Leeftang (2012) asked whether the valence of the message influences the willingness to like or to comment on brands' posts on SNSs. Users tend to comment on negative or positive brand posts to the same extent, but liking is positively related to the valence of the post. Twitter offers users the same option: Likes "are commonly used to show appreciation for a Tweet" (Twitter, 2016). An investigation of the motives of liking Tweets showed that users like Tweets because they actually like the content of the Tweet (Meier, Elsweiler, & Wilson, 2014).

By introducing the Like button, Facebook aimed to offer "an easy way to let people know that you enjoy it without leaving a comment" (Facebook, 2016). Summarizing the findings, we argue that the *function of Likes* is to indicate the endorsement of a message's content. In political communication, the number of Likes seems to be an applicable indicator to assess the degree of public appeal of political positions online. From the individual point of view, liking a certain political position expressed in an online item may present a low-threshold way to change public opinion, first because one knows that one's sole "Like" adds to possibly many others and second, each additional like may lower the others' restraints to support certain opinions as well—changing public opinion on the user-level.

Recent studies have identified several *motives of sharing* online content. According to a meta-analysis by K mpel, Karnowski, and Keyling (2015), these motivations are self-serving, altruistic, and social motives. Lee and Ma (2012) found that users share content to get in touch with other users, to store information, and to enhance their own reputation. Oh and Syn (2015) showed that reputation,

reciprocity, and community interest correlate strongly. For that reason, it is plausible that users, when sharing content, are looking for the interests of others as well. Bobkowski (2015) found that users share news they perceive as relevant for themselves as well as for their peers, thereby relying on the perceived consequences, the likelihood that news will affect the users and their peers, and their immediacy. Other researchers have found that users are more likely to share news in line with their own attitudes or reflecting their own views and experiences (Choi 2016), rather than sharing messages that oppose their own political beliefs (An, Quercia, & Crowcroft, 2013). However, users also share content from ideologically biased news outlets: Because online peers tend to be similar in socio-demographic and political attitudes, sharing content in line with their own beliefs seems to be a logical consequence if users want to increase their reputation by sharing online content. Concerning Twitter, Boehmer and Tandoc (2015) found that users' interest in the topic, perceived relevance for followers, and expressed opinions in line with their own attitudes are predictors of Retweets as well.

With the Share button, Facebook gives users the opportunity to spread content in their personal network. We conclude that the *function of Shares* on Facebook or Twitter is to indicate the relevance users attribute to a message. Given the empirical insights, the number of shares may point to how important political issues in online messages were considered by previous users. In this sense, to share not only means to highlight an item, but also to gradually change what political issues fellow users perceive to be important on a visible micro-level.

Regarding the underlying motives, liking and sharing both seem to be mainly positive reactions toward a (political) message but might be a product of different amounts of cognitive evaluation. This assumption can be explained by at least two different mechanisms. First, compared to a simple Like, which is one among many and only visible under the liked post, sharing content leaves visible traces on users' own timeline, where other users can see the post and might criticize the author. Referring to the fear of social isolation (Noelle-Neumann, 1993), studies show that group conformity effects can reduce the willingness to post content in public (Lee & Nass, 2002). In comparison to liking any content, users might elaborate the messages deeper before sharing them because they want to prove whether the message is in line with the opinion climate. Further, the effects of the fear of social isolation can be equalized if people are certain about their point of view (Matthes, Morrison, & Schemer, 2010), which is strongly predicted by the amount of cognitive elaboration (Smith, Fabrigar, MacDougall, & Wiesensthal, 2008).

Second, as stated above, the motives of liking and sharing differ. Liking is mainly a result of a positive evaluation of the message. The main motive of sharing content seems to be the perceived relevance for the peer group. Whereas strong attitudes toward an issue might end in biased processing, its perceived relevance is positively related to users' involvement, which might result in more in-depth elaboration (Petty & Cacioppo, 1986). This again leads to the conclusion that, compared to liking, sharing a post seems to be a result of a process of higher elaboration. This preliminary conclusion is a case of how popularity cues research can benefit from a recipient-oriented perspective (see the call for such an approach by Haim, Kümpel, & Brosius in this issue).

2.1.2 *Effects of media content on popularity cues*

Political communication research often involves surveys or experiments to explore the effects of political messages (exposure to hard news, campaign media, etc.) on recipients' attitudes and behaviors. In both cases, research might suffer from using reactive methods. In surveys, respondents sometimes give answers that are socially desirable (Presser, 1990). In experiments, subjects could guess the aim of the study and intentionally give answers that support or disprove the hypotheses. Therefore, several researchers have recently attempted to replace surveys and experiments with the use of non-reactive online analyses (e.g., Scharkow & Vogelgesang, 2011).

As stated above, aggregated popularity cues could serve as indicators for both the positive evaluation and perceived relevance of a message. Political communication literature indicates that various message features influence the attitudes toward political messages (e.g., Maurer & Reinemann, 2016). Therefore, these features should have a positive effect on the number of Likes and Shares a message gets. Statistically, these message features (independent variables) should explain the variance in the amount of popularity cues (dependent variables). In the following section, possible perspectives in political communication are outlined that might benefit from using popularity cues as dependent variables in research designs, as there is research on news factors, political persuasion, and visual political communication.

Since social media have become a relevant part of online news distribution and consumption (e.g., Mitchell & Page, 2013, 2014), the selection processes of journalists and recipients work similarly, as they both rely on news factors while selecting news for distribution or consumption. Whereas news factors are part of the journalistic routine, they also guide users and determine their retention of news (Eilders, 2006). Studies show a significant positive relation between several news factors and the perceived relevance of news stories (e.g., Weber & Wirth, 2013) or a positive effect on both the selection and recall of news (Eilders, 2006). Popularity cues allow researchers to investigate which attributes of messages enhance the potential of getting shared and might deepen our understanding of the role news factors play for audiences of political content online. In that case, the number of Shares might be a proper indicator for the perceived relevance of news, and consequently, political issues at stake. In this respect, non-experimental findings suggest that news factors, such as personalization and negativism, enhance the tendency to share news articles with one's Facebook friends (Ha ler, Jost, & Maurer, 2016).

A prominent field of political communication deals with the persuasive effects of communication strategies. For instance, attacking one's political opponent (e.g., Lau, Sigelman, & Rovner, 2007), using evidence (e.g., Reinard, 1988), or strategic ambiguity (e.g., Aragones & Neeman, 2000) seem to be successful strategies to form new, strengthen, or even change existing attitudes. In the context of persuasion research, both Likes and Shares might be suitable indicators to investigate the amount of endorsement or support. Analyzing the 100 most-retweeted Tweets in the 2009 German National Election, Jungherr (2014) found that personalization and contest in campaign messages increase the number of Retweets. Bader et al.

(2016) found that Tweets including evidence and two-sided arguments were more often retweeted than those lacking such presentation characteristics. Empirical findings also support the assumption that Shares result from a process of deeper elaboration than Likes, as users tend to share posts of politicians more often if they contain strong arguments including evidence and strategic ambiguity, whereas liking content is merely determined by peripheral cues, such as visual elements (Jost & Maurer, 2016). However, whether individuals in fact engage with the content they share is disputed (Gabiellkov, Ramachandran, Chaintreau, & Legout, 2016). Sharing is nevertheless plausibly linked with higher levels of elaboration, but more empirical evidence is needed to support this assumption.

Finally, in the field of visual communication, several experimental studies have indicated that visual signals increase recipients' attention toward a message (e.g., Graber, 1990). Moreover, visual signals contribute to political opinion formation, especially in the case of politically uninvolved voters (Maurer & Reinemann, 2016). Consequently, the relevance of photos and videos for liking and sharing a post can be used as an indicator for the importance of visual signals in the context of social media. Hence, the vividness of a post, measured by visual elements, has a positive effect on both liking and sharing on Facebook (De Vries et al., 2012) and Twitter (Rogers, 2014). Future studies should also consider content elements of photos and videos to investigate the role of, for example, gestures and facial expressions for the likelihood of liking or sharing a post.

2.2 Popularity cues as independent variables

Popularity cues not only serve as expressions of appreciation or, in rare cases, even the rejection of media content or specific formal features of a news item or social media post. Since they are readily available in political messages online and easy to grasp, they are also simple indicators of previous users' reactions to a post. Thus, they may consequently affect the political behaviors, cognitions, and attitudes of the audience. Meanwhile, popularity cues may be the aggregate of valid user reactions to political messages; however, as previously stated, social bots could cause severe misrepresentations of aggregate popularity cues and harm public opinion formation. Thus, political communication research has to untangle the mechanisms behind the possible individual susceptibility to popularity cues. This section therefore reviews approaches from media effects research suited to enhance our understanding of how popularity cues influence the audience in political terms.

2.2.1 *Effects on exposure*

Communication research has developed several theoretical approaches to explain why users prefer specific types of media content (for an overview, see Hartmann, 2009). Motivational factors, cognitive factors on the users' side, and media characteristics have commonly gained the most attention. Regarding the latter dimension, there is a wide strand of research on how presentation and formal media characteristics affect news exposure (see e.g., Eilders, 2006). Knobloch-Westerwick, Sharma, Hansen, and Alter (2005) addressed challenges for online

media in emphasizing relevant content. Especially when legacy media items are embedded in social media platforms, relevant news items are no longer indicated by their position on the first page or in first place in TV or radio news. Instead, popularity cues next to mass media items in social media now serve as sources to infer the relevance of a news item. But why should individuals follow such cues?

One point of departure is the spiral of silence theory (Noelle-Neumann, 1993). According to this approach, people monitor their social environment for cues about public opinion on controversial political issues. It is assumed they do so because they want to avoid situations of expressing opinions that deviate from the predominant opinion. People hence need information to get an idea about the public opinion. For most people, media represent an important part of the social environment. They are easily available sources in gathering information about what other people think.

In online media, news items that have received a great deal of user reactions draw particular attention from consecutive users (e.g., Messing & Westwood, 2014). People could thus infer that the opinions in such popular news items reflect the opinions of the majority. To prevent social isolation, people are likely to expose themselves to such news items, trying not to miss new and popular cues on the alleged majority opinion. Thus, if an online item is popular – that is, liked by many users – the item could be seen as reflecting the opinion of many others, or even the public. Following spiral of silence theory, as a consequence, individuals would then select the item because they want to know which opinion is endorsed by the public. Seeing many Likes next to political news items will very likely attract attention and induce the respective selection by individuals sensitive to what other people think, even if they do not support the opinions on political issues presented in those news items.

While the assumed popularity of opinions according to online news items can only be assessed with regard to the size of the audience, the users do not necessarily consider this relation in their assessment of an item's popularity. However, alleged popularity may stimulate exposure to the items emphasized through popularity cues. The explanation ties in with psychological approaches from media use and effects research that have contributed to better understand the processing of political information, such as need for orientation (Matthes, 2006). Individuals with a high need for orientation are expected to be satisfied when they can select content previously judged by their co-audience as relevant or worthy of support because they can use such content to reduce their uncertainty about issues in which they are strongly involved. Popularity cues reveal collective behavior, that is, the selection of content. This visible behavior points to acceptable online news that are helpful to guide one's own opinions on often abstract and complex public affairs and are thus worthy to select and adapt—in a manner known as the bandwagon effect (Sundar & Nass, 2001). Research shows that individuals' exposure to online news is promoted by visible popularity cues (Knobloch-Western et al., 2005) and that they opt for online news with many popularity cues over others without such cues (e.g., Messing & Westwood, 2014).

Moreover, popularity cues provide information that might help in assessing whether other audience members' relevance assignments correspond with one's

owns. In the case of correspondence—that is, if one observes that subjectively relevant political content is shared by many users—such social comparisons (Corcoran, Crusius, & Mussweiler, 2011) may foster exposure patterns because many other users would affirm one’s behavior. If, however, media users have not developed robust relevance assignments, comparing themselves with others cannot guide exposure. Popularity cues can nevertheless facilitate the decision to read or watch a specific item on political issues because they point to popular content that might be worth noticing.

2.2.2 *Effects on perceptions and attitudes*

Recently, communication researchers have begun to focus on socially and politically relevant perceptual and attitudinal consequences of encountering popularity cues. These inquiries particularly concern the effects of popularity cues that endorse the valence of posts or media items, such as Likes, on personal opinions and the perception of public opinion. However, to date, there is no coherent and convincing theoretical rationale explaining the effects.

Empirical evidence regarding the effects of Likes on perceptions and attitudes is mixed: Oh (2014) found that most-liked user comments affected perceived public opinion on presidential candidates in the direction of the comments’ valence more strongly than comments without Likes. Jin, Phua, and Lee (2015) found that the number of Likes on Facebook breastfeeding pages promoted positive attitudes toward breastfeeding – a topic that strongly refers to the definition of social norms and may lead to political debates. In contrast, Lee and Jang’s (2010) and Peter, Rossmann, and Keyling’s (2014) data showed that other users’ Likes next to online media items did not change public opinion perception on issues of social relevance.

Users show a preference for media items or posts with many Likes or Shares because they help to assess what political opinion the majority is likely to support—at first sight. Such information is necessary and worth selecting to determine whether one could fear social isolation when expressing positions not supported by many others. Popularity cues thus serve as proxies for public opinion and consequently shape its perception. This possible explanation, driven by the spiral of silence approach, applies to perception effects as well as attitudes. Forming personal opinions may be subject to the same mechanism: Users adopt opinions they assume to represent public opinion.

Next to social conformity as a driving force for being susceptible to popularity cues, individual information processing can further explain popularity cues’ effects. First, previously developed pre-attitudes certainly lower the tendency to conform to the opinion apparently supported by others. A second theoretical point of departure is the anchoring heuristic. When asked for estimations about unknown issues, people pay attention to anchors, that is, information that appears first (Tversky & Kahneman, 1974). Popularity cues may serve as such anchors; they often appear next to the titles of online media items at the beginning. Regarding public opinion perception, the anchor heuristic could consist as follows: Likes at the beginning of online items are received as guiding cues to assess

how the public's endorsement regarding certain issue positions looks like, especially when previous knowledge on these issues is low. Aggregate popularity cues, to a certain degree, function as easy-to-process statistics about public opinion, such as prominently placed survey results in media items that present strong cues for public opinion (Zerback, Koch, & Kr mer, 2015). When previous perceptions of public and personal opinions on political and social issues are lacking, first-place popularity cues can be convenient to develop preliminary perceptions and opinions on political issues.

2.2.3 *Boundary conditions of popularity cues' effects*

Personal factors and further media content characteristics may intervene in the relations between popularity cues and exposure to media items, or between popularity cues and perceived public or personal opinion on political issues. Following Lee and Jang (2010), the type of information processing is the key factor (also see section 2.1.1). Dual process theories suggest a differentiation between central and peripheral information processing (e.g., Petty & Cacioppo, 1986). On one hand, the central route is associated with high levels of involvement or need for cognition (Cacioppo & Petty, 1982). It leads to searching for relevant verbal content and arguments when scanning political media messages. On the other hand, the peripheral route, which is associated with low degrees of issue involvement or need for cognition, leads to a more random-type media use with fewer expectations in mind.

Hence, even if people look for political information online to assess public opinion, peripheral processing makes them less attentive to media's verbal content than to media features that facilitate cognitive access. Peripheral processing, in turn, make users more susceptible to popularity cues that emphasize the items' relevance. After selecting media items with these features, individuals are likely to apply a heuristic to catch a message or opinion. Users could rely on popularity cues to quickly understand the importance of positions on often complex political issues depicted in media items. In consequence, personal opinion and perception of public opinion may be affected in the direction supported by popularity cues. At the same time, familiarity could intensify popularity cues' effects: The more people get used to specific media outlets, the more they develop conceptions of their co-audiences (Hartmann & Dohle, 2005). This concerns information on the positions the co-audiences usually take and whether these positions can be generalized to the public in total or remain audience-specific.

A firm personal opinion will most likely prevent people from adopting different opinions, even if they were backed by 1,000 Likes. In such a case, public opinion perception will also hardly depend on aggregate cues expressing endorsement for certain public opinions but be more strongly influenced by projecting one's own opinions on public opinion perception (Fields & Schuman, 1976). Further, need for distinction (Brewer, 1991) and seeking uniqueness (Snyder & Fromkin, 1980) may impede popularity cues' effects. People striving to be different than others may resist selecting media items many others have previously read or

seen (Knobloch-Westerwick et al., 2005). They may also be hesitant to adopt the opinions endorsed or to accept them as public opinions.

There are several other media characteristics that compete with popularity cues affecting media selection. First and foremost, news factors (Eilders, 2006), such as conflict or unexpectedness and humor (Keyling, Kümpel, & Brosius, 2015), catch the online audience's attention and prevent it from being susceptible to popularity cues' effects. Finally, context matters: People may consider popularity cues regarding opinions on issues depicted in the media, especially if the issues are controversial, as it is particularly important to know the public opinion in such cases.

3. Methodological approaches to popularity cues

After providing a theoretical discussion on the functions, conditions, and possible effects of popularity cues around the communication of political issues and actors, this section is devoted to a critical methodological review of how popularity cues research is conducted. The aim of this section is to engender a sensibility for issues that appear in the collection and analysis of popularity cues in all areas of communication research, including political communication research. Solutions to such issues may be found in the latter field as well as neighboring areas.

3.1 Popularity Cues as Dependent Variable

3.1.1 Technical challenges

When analyzing popularity cues, researchers face the same technical challenges as when conducting content analyses of conventional websites (Haßler, Maurer, & Holbach, 2014). Besides challenges such as dynamics, multimediality, hypertextuality, and personalization, there are a few further difficulties that need to be addressed when analyzing popularity cues.

First, researchers need to choose the right technical tools for data collection. To date, a wide variety of instruments is available enabling the automated or semi-automated storing of popularity cues (Gaffney & Puschmann, 2014). There are two main kinds of such tools: The first stores Likes, Shares, upvotes etc. via the front-end by taking screen shots or crawling websites. The second uses the back-end by storing information provided by the application programming interface (API) of the SNS (Keyling & Jünger, 2016). On one hand, these tools offer the advantage to store great amounts of information on popularity cues very quickly. On the other hand, most APIs only provide meta or raw data. Thus, further tools are necessary to analyze or to visualize these data. While most content information about liked or shared articles is fully available via APIs, information about graphic design and especially layout is not available via the back-end of SNS. Therefore, the specific research question determines which tools should be used to store information.

Second, researchers need to decide whether to analyze popularity cues from original (e.g., journalistic or political) websites or from social media sites. On the

one hand, research questions focusing on the characteristics enhancing the number of Likes and Shares in social media can only be addressed when the exact formal and content characteristics are measured. On the other hand, especially journalistic websites are among the most far-reaching websites. As many provide aggregated popularity cues directly with their articles, this information can easily be stored together for analyses (Ha ler, Maurer, & Holbach, 2014). Storing all information directly from (journalistic) websites has the advantage that a wide variety of aggregated popularity indicators can be analyzed together with formal and content characteristics of original articles. Thus, not only Likes and Shares on Facebook or Tweets can be analyzed, but also the amount of upvotes, views, or comments.

Third, researchers need to choose the right interval of data collection against the backdrop of their specific research questions. Regardless of the source from where aggregated popularity indicators are stored, researchers need to decide how often and how long aggregated popularity indicators are to be monitored to answer the specific research questions. Storing all information on the article and aggregated popularity cues under scrutiny at the same time seems to be the easiest form of data collection. However, this harms the comparability of the amount of popularity cues because the individual publication time affects how often an article is liked or shared. Posts that were published hours ago might have attracted more Likes than posts published only seconds ago. Thus, the time of publication always needs to be considered when analyzing aggregated popularity cues (Castillo, El-Haddad, Pfeffer, & Stempeck, 2014). Furthermore, it is impossible to measure the growth of popularity or trends when storing data only once. Thus, long storage intervals offer advantages for answering questions on when and how long articles are liked or shared.

3.1.2 Validity

As explained previously, knowing the factors influencing the articulation of popularity helps us to understand what makes sources and messages interesting or even persuasive. To isolate the factors influencing the articulation of popularity, it is necessary to measure the popularity cues themselves as well as formal and content factors of the messages that are liked or shared. Therefore, the first issue of validity concerns strategies of data analysis. Generally, there are three basic approaches to analyze the factors influencing Likes and Shares:

First, factors can be analyzed by focusing on messages that have generated considerable amounts of Likes and Shares. For example, Jungherr (2014) analyzed features of the 100 most-retweeted Twitter messages. Although his analysis offers useful insights into characteristics of popular tweets, his results do not inform about the characteristics of messages that influence liking or sharing. The analyzed characteristics could have been present in, for example, the 100 least-retweeted messages as well. A *second* approach compares articles or posts that contain certain factors and articles that lack these factors. Using this approach, Bader et al. (2015) compared the mean values of Retweets of articles that used statistical evidence, two-sided arguments, or irony as rhetorical devices and articles that did not use these rhetorical devices. Albeit the opportunity to compare

the characteristics of popular as well as unpopular tweets, this bivariate approach cannot be used to analyze more than one influencing factor. To address the shortcomings of these approaches, *third*, multivariate analysis can be used to analyze two or more factors that might simultaneously influence the number of Likes or Shares. Trilling, Tolochko, and Burscher (2017) used regression analyses to analyze the effects of various content criteria on the number of Likes and Shares controlling for influences of other content criteria (see also Haßler, Jost, Maurer, 2016). As this procedure clearly allows to identify the influence of different message elements on popularity cues, multivariate analysis is recommended.

A second issue of validity concerns the question of whether findings from social media can be generalized. One formal factor that needs to be considered when analyzing the success criteria of either Facebook pages or the number of Likes of website articles is the popularity of the source itself. A Facebook page or a website that has hundreds of thousands of Likes or followers will most likely generate more Likes on single articles than a page with a total of, for example, 20 Likes. Another formal factor is the article placement on a website. For example, articles placed on the top of websites are more likely to be shared – and liked – than articles at the bottom (Berger & Milkman, 2012). Moreover, researchers need to consider what the baseline regarding the amount of popularity cues is and if the exact amounts of popularity cues can always be easily compared with each other. There are websites that like their own articles soon after they share them on Facebook. Moreover, many journalistic websites do not allow liking or sharing for all their articles.

In addition, specific characteristics of SNS need to be taken into consideration when generalizing the results from Likes, Shares, or Retweets to general attention criteria or processes of persuasion. Trilling et al.'s (2016) results indicate that either the Facebook algorithm or Facebook user habits favor different content criteria than have been found for Twitter. As shown above, there might be a positivity bias favoring positive messages, as they are more “likeable” than negative ones (see Reinecke & Trepte, 2014).

Finally, regarding generalizability, social media users' socio-demographic factors must be taken into account. For example, they are younger than newspaper audiences (Perrin, 2015). This, for example, raises the question of whether their relevance criteria are different from those of other people. Therefore, researchers not only need to choose between different analysis procedures, but also consider characteristics of the communicator, the message, and the receiver when generalizing results from analyses of factors influencing Likes, Shares, and Retweets.

3.2 Popularity cues as independent variables

3.2.1 External Validity

The effects of popularity cues are usually studied in experimental designs where the effects are isolated and other factors are controlled. Since the experiments aim at a high degree of correspondence with real-world settings, popularity cues have been placed prominently next to real (Messing & Westwood, 2014), but mostly

fictitious (e.g., Jin et al., 2015; Peter et al., 2014) online news and information items. Some fictitious experimental settings have been particularly realistic and had external validity according to experts, for example, journalists (Oh, 2014). Regarding political communication research, however, popularity cues on political messages have rarely been tested. Given the potentially severe consequences of being susceptible to Likes, further inquiry must be provided testing popularity cues' consequences on issues that relate to collective norms and interests.

While the layout of online media items is similar in most studies, the operational implementation of aggregate popularity cues is diverse. Some researchers have used Facebook Likes (Jin et al., 2015; Messing & Westwood, 2014; Peter et al., 2014) or generic forms of Likes (Lee & Jang, 2010; Oh, 2014), while others have used generic content ratings (e.g., Knobloch-Westerwick et al., 2005). Interestingly, the different operationalizations apparently do not correspond with systematic differences in the findings reported in the previous section. However, there are other problems related to the operationalization that remain to be solved: Using the number of Likes as the stimulus, it is difficult to determine the difference between many and few Likes in participants' perceptions. This might explain the variance in the findings.

Another problem concerning external validity in this strand of research relates to the competition between online media items. Under real-live conditions, exposure to specific online media items depends not least on the other media items available. In experimental settings, however, the online media item under scrutiny is mostly presented separately from the larger context. To establish realistic conditions for selective exposure, a great deal of effort (especially Messing & Westwood, 2014) was put into creating online environments where individual media items can be selected out of several other items. Although this elaborated approach deserves credit for meeting external validity criteria and needs to be considered in further research, it has sparked few similar studies.

3.2.2 *Internal validity*

Popularity cues in experiments can exert their effects when proper testing conditions are fulfilled – that is, while keeping all other possible variations constant in the experimental and the control conditions, popularity cues are included in the experimental condition only. However, political communication research must keep in mind that besides constructing clear manipulations, these must reflect real-world conditions to provide appropriate estimations. Obviously, there is certainly a clear difference in the effects of five versus 500 Likes on a news item. Most manipulation checks that have been applied show popularity cues to be recalled or perceived as intended (Jin et al., 2015; Knobloch-Westerwick et al., 2005; Lee & Jang, 2010). Nevertheless, even if manipulation checks are part of the solution, they are also part of the problem when testing for internal validity. The problem appears when participants are asked about their perception of popularity cues before dependent variables are measured. Then, the latter assessment will most likely be affected by the fact that subjects know that popularity cues are supposed to make a difference. The reverse case is unfortunately harmful as well:

Asking about cognitions and perceptions first may increase the sensitivity to later confirm that numeric cues have been perceived. This is likely to take place when subjects want to justify why their cognitions and perceptions have changed following stimulus exposure. Finally, manipulation checks are not helpful when they measure a variable that is identical or too close to the dependent variable that is presumed to be affected by popularity cues. In such cases, it is probably wiser to justify internal validity with proper testing conditions.

4. Discussion

Today, popularity cues are widespread online phenomena that consist of gradually reflected individual behaviors, but most recently also detrimental software-driven manipulations. The online environment systematically privileges popularity (Webster, 2011), and thus popularity cues appear there in a self-reinforcing way: The more fellow users apply popularity cues to label political messages as popular, the stronger political communicators promote the availability of such messages online (Singer, 2014). Thus, it becomes more likely that certain political messages receive further popularity cues by consecutive users – and multiply their potential impact. Despite the questionable credibility of popularity cues (human- or bot-caused), as social media have become more and more important in the communication processes of news media, political actors, and political organizations, popularity cues, such as Likes and Shares, may also become more and more important for the individual information orientation and political opinion formation. Consequently, several questions arise concerning popularity cues as either a dependent or independent variable in the political communication process: (a) Why do recipients like or share online political messages (functions of popularity cues)? (b) Which message elements explain why some political messages or items are frequently liked or shared, while others are not (success criteria of popularity cues)? (c) Which politically relevant effects do popularity cues have on recipients (effects of popularity cues)?

The theoretical considerations and empirical findings discussed in this paper suggest the following answers to these questions: Popularity cues are indicators of the perceived relevance and the usually positive evaluation of news items and political messages. Generally, Likes and Shares are indicators of both relevance perception and evaluation. However, Shares seem to result from a more in-depth elaboration process.

To examine which message elements enhance the popularity of a message, several established theories in communication research can be consulted. For example, political messages that include persuasive elements or news factors are liked and shared more often than messages without these elements. In turn, political communication research could benefit from analyzing the causes of the popularity of social media messages, as they provide access to easily available and non-reactive data. Finally, popularity cues can be used as independent variables in several media effects theories. For example, concerning the spiral of silence theory and heuristic processing, users may be attentive to first-placed popularity cues that can be easily grasped when monitoring the environment for information on

public opinion. They serve as proxies for public opinion and shape public opinion perception, especially under conditions involving the lack of personal opinion and uncertainty. This paper only pointed to several feasible theoretical explanations. Other approaches that are able to back up the susceptibility to popularity cues are necessary for further theory building.

The analysis of popularity cues is also subject to several methodological challenges: The first concerns questions of data collection, for example, how the large amounts of messages and the frequently changing amounts of popularity cues to these messages can be stored. Second, the question arises of whether data exclusively involving the group of social media users can be generalized to the total media audience, for example, when the effects of persuasive message elements or the spiral of silence theory are under examination. Third, applying fictitious media items limits external validity when testing for popularity cues' effects. Running manipulation checks may be one way to test for the internal validity of popularity cues; however, they go hand in hand with several limitations. In general, an appropriate test design is key to assume that participants may be susceptible to popularity cues' effects. Finally, how many Likes are considered an indication of the popularity of political positions remains an open empirical question that also has to consider other social media platforms, as for example YouTube or Instagram, that have been disregarded so far.

Altogether, empirical research involving popularity cues, especially relating to political media content, is still rare. While data on the effects of formal factors like links and pictures are collected by social media companies, little is known about the role of content elements of messages and media items. Further, political communication research that sheds light on the behavioral, cognitive, and attitudinal consequences of popularity cues is in its infancy. In this early stage, consistent conclusions cannot be derived. Since the effects of popularity cues are likely to underlie specific boundary conditions, further research is needed to clarify how the personal characteristics and features of political messages modify the effects of popularity cues on the behaviors, cognitions, and attitudes of the audience. Media effects and information processing theories suggest investigating concepts such as controversy and unexpectedness on the content level, as well as involvement, need for orientation, and opinion certainty on the level of personal characteristics. Applying these basic concepts to analyze the effects of popularity cues in the context of political communication is likely to enhance our understanding of how Likes and Shares shape political behavior, cognitions, and attitudes and why they sometimes fail to show the expected effects. Taken together, popularity cues extend the features of political messages commonly considered in research on offline communication and, as the debate around social bots shows, become part of a political issue itself. Highlighting the premises and outcomes of popularity cues in the realm of political communication research is thus a desirable approach for the future.

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