Should we worry about filter bubbles?

Frederik J. Zuiderveen Borgesius  
*Institute for Information Law (IViR), University of Amsterdam, Amsterdam, The Netherlands*

Damian Trilling  
*Department of Communication Science, University of Amsterdam, Amsterdam, Netherlands*

Judith Möller  
*Department of Communication Science, University of Amsterdam, Amsterdam, Netherlands*

Balázs Bodó  
*Institute for Information Law (IViR), University of Amsterdam, Amsterdam, Netherlands, bodo@uva.nl*

Claes H. de Vreese  
*Department of Communication Science, University of Amsterdam, Amsterdam, Netherlands*

Natali Helberger  
*Institute for Information Law (IViR), University of Amsterdam, Amsterdam, Netherlands*

Published on 31 Mar 2016 | DOI: 10.14763/2016.1.401

Abstract: Some fear that personalised communication can lead to information cocoons or filter bubbles. For instance, a personalised news website could give more prominence to conservative or liberal media items, based on the (assumed) political interests of the user. As a result, users may encounter only a limited range of political ideas. We synthesise empirical research on the extent and effects of self-selected personalisation, where people actively choose which content they receive, and pre-selected personalisation, where algorithms personalise content for users without any deliberate user choice. We conclude that at present there is little empirical evidence that warrants any worries about filter bubbles.

Keywords: Filter bubble, Personalisation, Selective exposure

Article information

Received: 06 Oct 2015 Reviewed: 15 Feb 2016 Published: 31 Mar 2016

Licence: Creative Commons Attribution 3.0 Germany

Competing interests: The author has declared that no competing interests exist that have influenced the text.

URL: http://policyreview.info/articles/analysis/should-we-worry-about-filter-bubbles

1. INTRODUCTION

Media content is becoming increasingly personalised. Before the advent of digital media, news outlets generally featured exactly the same content for all users. Now, in theory, the same news website can show each visitor personalised content. Such personalisation has led to worries about filter bubbles and selective exposure: personalised content and services could limit the diversity of media content people are exposed to and thus have an adverse effect on the democratic discourse, open-mindedness and a healthy public sphere (e.g., Pariser, 2011; Sunstein, 2002). For instance, the High Level Expert Group on Media Diversity and Pluralism, an independent group advising the European Commission, warned for the impact of personalised communication on our democratic society:

Increasing filtering mechanisms make it more likely for people to only get news on subjects they are interested in, and with the perspective they identify with. There are benefits in empowering individuals to choose what information they want to obtain, and by whom. But there are also risks. This new reality will decrease the role of media as editors and interpreters of information. It will also tend to create more insulated communities as isolated subsets within the overall public sphere. (...) Such developments undoubtedly have a potentially negative impact on democracy. (Viķe-Freiberga, Däubler-Gmelin, Hammersley, & Pessoa Maduro, 2013, p. 27)

A dire warning, but is it true? How personalised are online news media today? What are the effects of personalised media on media exposure and the information choices people make? Even harder questions concern the long-term effects of personalisation. Does personalised content really influence consumers, newsreaders, citizens, and voters in a negative manner? Are concerns about filter bubbles supported by empirical evidence?

To address these questions, we provide an overview of concerns that have dominated the public information policy discourse, and review the main insights from empirical research. For this paper, personalisation is described as the phenomenon that media content is not the same for every user, but tailored to different groups or individuals.

In Section 2, we introduce the notion of personalisation, and distinguish self-selected personalisation from pre-selected personalisation. In Section 3, a brief overview is given of the main concerns about filter bubbles in current public policy discourse, based on a review of policy documents. Then, we review empirical evidence of the prevalence (Section 4) and effects (Section 5) of personalised communication.

2. SELF-SELECTED AND PRE-SELECTED PERSONALISED COMMUNICATION

In his book Being Digital, Negroponte (1995) discussed the idea of the ‘daily me’. He suggested that people would soon be able to choose their own personalised media experiences:

“Imagine a future in which your interface agent can read every newswire and
newspaper and catch every TV and radio broadcast on the planet, and then construct a personalized summary. This kind of newspaper is printed in an edition of one.” (Negroponte, 1995, p. 153)

Others worry that people can lock themselves in information cocoons or echo chambers. For instance, somebody might read only left-leaning blogs and websites, listen only to left-leaning radio, and watch only left-leaning television. Pariser coined the term ‘filter bubble’, “a unique universe of information for each of us” (Pariser, 2011, p. 9). For example, a personalised news website could give more prominence to conservative media items, based on the inferred political interests of the user. When they form their political ideas, users of such personalised services may encounter fewer opinions or political arguments.

We distinguish between two main types of personalisation: self-selected personalisation and pre-selected personalisation. Others have used different terms to describe similar phenomena: For instance, self-selected personalisation could also be called ‘explicit personalisation’, and pre-selected personalisation could be called ‘implicit personalisation’ (Thurman & Schifferes 2012; see also Treiblmaier, Madlberger, Knotzer, & Pollach, 2004).

Self-selected personalisation concerns situations in which people choose to encounter like-minded opinions exclusively. For example, a person who opposes immigration might want to avoid information that specifies how much a country has gained due to immigration, while paying a lot of attention to news stories about problems related to immigration. People tend to avoid information that challenges their point of view, for example by avoiding news outlets that often feature editorials that favour an opposing political camp. In communication science, this phenomenon is conceptualised as selective exposure (e.g. Stroud, 2011).

Pre-selected personalisation concerns personalisation driven by websites, advertisers, or other actors, often without the user’s deliberate choice, input, knowledge or consent. Concerns about pre-selected personalisation are often summarised with the term ‘filter bubble’ (Pariser, 2011).

Pre-selected personalisation may be chosen by the user, or not. For instance, some people may realise that Facebook personalises the content in its newsfeed. If these people explicitly use Facebook to see the curated, pre-selected collection of news about ‘friends’, the newsfeed is an example of chosen pre-selected personalisation. Other people, however, may not realise that the newsfeed on Facebook is personalised; those people do not explicitly choose pre-selected personalisation.

3. CONCERNS AROUND PERSONALISED COMMUNICATION

Below, we summarise the main concerns regarding personalisation that have been brought forward in policy and scholarly circles. We discuss the effects of personalisation on democracy, the role of new gatekeepers and influencers of public opinion, autonomy-related concerns, the lack of transparency around personalisation, and the possibilities for social sorting. Examining the privacy implications of the massive collection of user data that is often involved in personalisation lies beyond the scope of this paper (for privacy implications of personalised services, see Zuiderveen Borgesius, 2015).
应我们担心过滤器泡沫吗？

**Effects on Democracy**

许多担心个性化沟通可能对民主产生的影响。当高级专家小组在媒体多样性和分歧问题上评论个性化策略时，其中一个主要担忧是人们会遇到更少的意见，这可能对公共领域和民主意见形成过程产生负面影响（Vīķe-Freiberga et al., 2013）。同样，欧洲理事会（2012，附录，第I节，第2段）警告，搜索引擎中信息的排序和排名可能影响信息访问及人们接触到的信息的多样性。

专家小组的担忧与学者辩论中的论点相呼应，其中包括Sunstein（小组引用的对象）（Vīķe-Freiberga et al., 2013）。Sunstein讨论了个性化的风险。他主要关注的是自我选择的个性化：人们将自己锁定在“信息茧”中，即“沟通宇宙，在其中我们只听我们选择的和使我们舒适和愉悦的”（Sunstein，2006，第9页）。给一个当前的例子：有人可能自我选择个性化，关注持相同观点的人。

Sunstein讨论了个性化的两种风险。首先，在民主社会中，人们需要接触与自己意见不同的意见，以充分发展自己。否则，人们可能陷入态度强化的螺旋，朝着更极端的观点发展（Sunstein，2002，第9页）。这也是专家小组所关注的：“人们担心替代方案存在，因此产生了一种封闭的、僵化的立场，这可能妨碍社会的共识形成”（Vīķe-Freiberga et al., 2013，第27-28页）。Sunstein警告说，“未计划、未预料的交流是民主的核心”（2002，第9页）。

其次，如果人们将自己锁定在自己的信息茧中，他们可能有更多的共同经验。Sunstein认为在一个多元的民主社会中，需要共享经验作为‘社会胶水’（2002，第9页）。哈贝马斯对公共领域的理解，其中社会上重要的想法被提出、协商和分配，同时控制和指导统治当局的行动，尽管这一想法受到了相当大的批评，但仍然作为重要参考点，因为这一观点得到了广泛的重视。

**New Gatekeepers and Influencers of Public Opinion**

在公共政策讨论中，对搜索引擎、应用商店和社会网络的许多关注，作为新的守门人和意见影响力（例如，欧洲委员会，2013，第13页；Vīķe-Freiberga et al., 2013）。在媒体法律和政策中对守门人控制的调节有着悠久的传统，因为这种控制可能威胁到实现媒体多样性、公共辩论和想法市场中竞争的重要政策目标。

然而，新的信息中介，如搜索引擎、社会网络网站和应用商店，在许多方面都与更传统的守门人类别不同，如过去的媒体巨头和内容和基础设施的控制者。其中一个最重要的不同是行使守门人控制的机制，这些机制惯常被认为是与用户互动的、对用户数据的控制，以及对多样化信息的接触（Helberger, Kleinen-von Königslöw, & Van der Noll, 2015）。

一个实验显示，Facebook说服其用户参加美国大选的决定。
the power of new opinion influencers well. The "results suggest that the Facebook social message increased turnout directly by about 60,000 voters and indirectly through social contagion by another 280,000 voters, for a total of 340,000 additional votes. That represents about 0.14% of the voting age population of about 236 million in 2010" (Bond, Fariss, Jones, Kramer, Marlow, Settle, & Fowler, 2012, p. 1). Because of the potential power of gatekeepers, various scholars call for meaningful transparency regarding their algorithms and their profiling practices (Hildebrandt & Gutwirth, 2008; Pasquale, 2015; Bozdag, 2015).

AUTONOMY-RELATED CONCERNS

Personalised communication may also restrict people's autonomy, according to some authors (e.g. Zarsky 2002, p. 42). In brief, people’s opinions might be steered by personalised media, while they are not aware of being influenced.

However, personalisation, at least self-selected personalisation, could also enhance people’s autonomy, because people can express which content they wish to receive. In contrast, in the traditional mass media situation, the editor determines which content is presented in which form. In other words, personalisation strategies can also have an empowering effect on users. In fact, pre-selected personalisation can also be used to help users make more diverse choices (Helberger, 2011).

LACK OF TRANSPARENCY

Another prominent item on the media policy agenda is the lack of transparency regarding pre-selected personalisation. The lack of transparency could affect the way people respond to personalised messages (Vīķe-Freiberga et al., 2013), and could make it harder for regulators to monitor the media sector. If people do not realise they see pre-selected content, they might think they see the same content as everybody else.

The Council of Europe seems to suggest that transparency about the search algorithm can help to promote media diversity and information access, and help to mitigate the filter bubble risk (Council of Europe, 2012, paragraph 7 and Appendix, Section 1, paragraph 4). Transparency in itself may not promote diversity of supply and exposure, but transparency is a necessary, albeit insufficient condition to detect problems with diversity. It is also unclear whether information about the way search engines work can cause people to choose more diverse content or can help people to avoid being trapped in a filter bubble. However, transparency about personalisation is at least essential to inform the policy discussions.

SOCIAL SORTING

Topics that received little attention in the public policy discourse on personalised communication are social sorting and discriminatory practices. Scholars have paid more attention to these topics. Social sorting involves, in Lyon’s words, “obtain[ing] personal and group data in order to classify people and populations according to varying criteria, to determine who should be targeted for special treatment, suspicion, eligibility, inclusion, access, and so on” (Lyon, 2003, p. 20). In particular, profiling and classification in one domain (for example in advertising) may outgrow its original context and define other domains of our life (Turow, 2011). Social sorting, thus, “may further erode the tolerance and mutual dependence between diverse groups that enable a society to work” (Turow, 2011, p. 196).

CONCLUSION

In public policy and academic discourse, personalised communication is regarded with much concern. Much of the existing public policy discourse makes little reference to empirical evidence, leaving unclear to what extent concerns are justified, exaggerated, or underestimated.
Empirical research into the extent of personalised communication, and its effects on access to diverse information, can serve as a reality check. Empirical research can help to adjust the priorities in public policy, and to identify areas in which we simply do not know enough to make any conclusive policy statements. Below, we focus on empirical evidence of the spread of personalised news services and its likely effects on political polarisation and political information.

4. HOW COMMON IS PERSONALISATION?

PREVALENCE OF SELF-SELECTED PERSONALISATION

Selectively using information that matches pre-existing beliefs is human. People tend to avoid media content that conflicts with their beliefs (Festinger, 1957). The first data on this were collected during a US election campaign in 1940: Democrats were more likely to be exposed to the Democratic Campaign, and Republicans to the Republican campaign (Lazarsfeld, Berelson, & Gaudet, 1944). Many European countries have known a strong party press until the first half of the 20th century, with people being exposed to mainly like-minded information (Hallin & Mancini, 2004). A prime example is the period of pillarisation (verzuiling) in the Netherlands, where Catholics were commonly assumed to read a Catholic newspaper, to join a Catholic sports club, and to listen to Catholic radio. Left-voting labour workers had their own pillar, as did protestants (Lijphart, 1968; Wijfjes, 2004). Although the premise that the cleavages were that rigid has been challenged somewhat (Bax, 1988; Blom & Talsma, 2000), being exposed to like-minded content was pretty likely.

Nevertheless, in a literature review from as early as 1967, Sears and Freedman (1967) contest the idea that selective exposure occurs because of cognitive dissonance. In the decades that followed, interest in the topic was lost, in part because media choice was limited to few TV channels and newspapers, rendering the mechanism somewhat irrelevant. Once the choice grew with the advent of cable TV and the internet, the topic gained renewed scholarly interest. Whereas it is trivial to show that the audience of partisan media outlets in general is partisan as well, this does not have to be problematic from a normative point of view. It is insufficient to look at usage of isolated media outlets, because those who use a lot of partisan information also use an above-average amount of mainstream news (e.g., Bimber & Davis, 2003; Trilling & Schoenbach, 2015; Zaller, 1992). Furthermore, at least in Europe, most people by far still get their news via traditional sources, most notably public-service television (Blekesaune, Elvestad, & Aalberg, 2012; Trilling & Schoenbach 2013a, 2013b, 2015). The fact that fewer people watch mainstream TV news and read newspapers does not mean that people massively turn to alternative specialist outlets; most online outlets with a substantial reach are spin-offs of traditional media. Thus, those who use extremely partisan outlets are mostly exposed to moderate ideas as well. If there are echo chambers, the walls are pretty porous. Therefore, Garret distinguishes between selective exposure and selective avoidance: while there is some evidence that people select information they agree with, it is much less certain whether people actually avoid possibly conflicting information (Garret, 2009a, 2009b; Garret, Carnahan, & Lynch, 2011).

In summary, people self-select information they agree with, but the importance of this might not be as dramatic as often suggested, because even if people self-select consonant content, they may well be confronted with conflicting content as well.
**PREVALENCE OF PRE-SELECTED PERSONALISATION**

In contrast to self-selected personalisation, pre-selected personalisation is not a result of a user’s direct choice - but of a choice that is determined by algorithms. This is commonly known from recommendations on online shopping sites or on YouTube (O’Callaghan, Greene, Conway, Carthy, & Cunningham, 2013) and in the context of online search results (Van Hoboken, 2012; Dillahunt, Brooks, & Gulati, 2015). It is debatable how common and far-reaching pre-selected personalisation is. For example, there is some evidence that 11% of Google searches differ due to personalisation (Hannak, Sapiezynski, Molavi Kakhki, Krishnamurthy, Lazer, Mislove, & Wilson, 2013). Whether this 11% is a high percentage or not is impossible to tell as we lack the adequate benchmarks.

On news sites, algorithmic personalisation is still less prevalent. People generally have the choice whether they want their online news to be personalised or not. Additionally, people who choose pre-selected personalisation are more likely to use an above-average amount of general-interest news as well (Beam & Kosicki, 2014), and to encounter messages that are not in line with their own ideas (Beam, 2013). However, as personalisation on news websites is still in its infancy, in the future the effects may be different (Thurman & Schifferes, 2012; Turow, 2011).

While personalisation features on news sites themselves are not common yet, de facto algorithmic personalisation can arise on two other layers: news aggregators and social networks. Purely algorithmic news aggregators like Google News have mostly failed to become a major news source for a large audience, but more and more traffic to news sites goes via social media sites, which use a blend of algorithmic and human recommendations to define the supply of news items for the individual.

Social media sites can lead to two sources of personalisation. First, although people connect with different types of contacts (friends, family, colleagues etc.) on such sites, many people might mostly connect to people who resemble them. If someone’s network is rather homogeneous, this means that the content shared by someone’s contacts may be in line with the person’s preferences as well. This argument is based on the assumption that people only share content they agree with – an assumption that has been challenged by some (Barbera, Jost, Nagler, Tucker, & Bonneau, 2015; Morgan, Shafiq, & Lampe, 2013).

Second, on some sites, most prominently on Facebook, an opaque algorithm determines what content is shown in a user’s newsfeed. A recent study suggests that the influence of this algorithm is lower than the influence of the user’s choices (Bakshy, Messing, & Adamic, 2015). However, the validity of this study is debated among social science scholars and beyond (Lumb, 2015).

In sum, it looks as if either personalisation is still in its infancy on news sites, or we have too little empirical evidence on what is actually happening in this domain. More independent research is necessary.

**5. WHAT ARE THE EFFECTS OF PERSONALISATION?**

An even harder question concerns the long-term effects of personalisation. Does personalised content really influence people? Does, or could, personalisation really harm democracy? While the effects of self-selected personalisation on democracy have been studied in a number of experiments and surveys, the effects of pre-selected personalisation have not been investigated.
in a comprehensive academic study so far.

In general, we can expect effects of selective exposure or selective avoidance on two different variables that are relevant in democratic societies: political polarisation and political knowledge.

**POLARISATION AS A CONSEQUENCE OF SELF-SELECTED PERSONALISATION**

Numerous scholars of political communication have studied the effects of a selective media diet on democratic societies. Most of these studies are concerned with one potential consequence of selective exposure that might be harmful to democratic societies: partisan polarisation.

According to this line of research, people who are repeatedly exposed to biased information that favours a particular political standpoint that is close to their own will eventually develop more extreme positions and be less tolerant with regard to opposite points of view. Empirical evidence from the US supports this argument. For example, Stroud (2010) used representative American election survey data to show that Americans who adopt a homogenous partisan news diet become more extreme in their views during the campaign. Similar effects of self-selective exposure to partisan news on polarisation were also found in experimental settings (e.g., Knobloch-Westerwick & Meng, 2011).

To understand the importance of cross-cutting information in a democracy, Price, Cappella, and Nir (2002) investigated the effects of being exposed to information in the mass media that contradicts existing attitudes and beliefs. They found that people who regularly encounter diverse opinions in the media are not only better able to provide reasons for their own political choices; they also have a better understanding of what motivates the perspective of others.

The effect of personalised news on polarisation is conditional on the political system. Most of the research on the effect of polarisation stems from the US, which is characterised by a bipolar political system, in which the issue of polarisation is substantially different than, for example, in the Dutch political system where more than ten parties compete with each other (e.g., Trilling, Van Klingeren, & Tsafati, 2016). This difference between political systems must be kept in mind when discussing the effects of personalisation.

**POLITICAL LEARNING, AS IMPACTED BY SELF-SELECTED PERSONALISATION**

While there is a growing body of studies providing evidence that selective exposure is related to polarisation, evidence on the effect of selective exposure or selective avoidance on knowledge gains is scarce. Yet, there is a strong theoretical link between political knowledge and self-selected personalised communication.

First, many media users take advantage of the abundance of media outlets to avoid political information altogether. Hence, these users lose an important information source to form political opinions (Prior, 2007). Second, if media users select political information that is attractive to them, they will be better motivated to process the information they encounter.

Hence, personalisation might lead to knowledge gaps in society: News avoiders know little. Those who self-select political news learn more from the news. This holds in particular for online news sources where users can choose news they are interested in (Kenski & Stroud, 2006). However, the effects of self-selection of news on polarisation and political knowledge are – like most media effects – small. Additionally, the effect of a personalised and selective news menu is different for each individual, and many people are not affected (Valkenburg & Peter,
Should we worry about filter bubbles?

The fact that the relationships introduced above are statistically significant means that there is convincing empirical proof that selective exposure to news and polarisation and differential knowledge gains are related. Yet, the fact that the effect is small means that selective exposure to news explains only a small fraction of the variance in political attitudes and political knowledge we find in democratic societies.

One of the reasons for the small effect is that hardly anyone lives in an absolute information cocoon, as mentioned previously. In the current fragmented media landscape, people can access an abundance of news sources. In addition, we often get information about current events through conversations with colleagues, friends, or family members. In such conversations people may be introduced to news items, or to different perspectives. Cross-cutting conversations about politics also can occur online, mostly in an environment that does not usually deal with political information, like an online hobby group (Wojcieszak & Mutz, 2009).

**EFFECTS OF PRE-SELECTED PERSONALISATION**

Empirical research into the long-term effects of pre-selected personalisation is scarce (see Van Hoboken, 2012). The lack of empirical evidence can be partly explained by the fact that algorithms which automatically pre-select news items for individual users have only been developed in the past few years.

It is, however, possible that potential effects of pre-selected personalisation are in line with effects of self-selected personalisation. Being repeatedly exposed to the same news frame, for example, may lead to reinforcing framing effects (Lecheler & De Vreese, 2011). Potentially, algorithms that favour news items framing events in a perspective close to the reader’s point of view will lead to a more polarised society. One of the first studies of news personalisation using search behaviour and social media as point of departure indeed found polarising effects, while also demonstrating an increase in cross-cutting exposure through social media (Flaxman, Goel, & Rao, 2014).

With regard to systematic gaps of knowledge about current events, pre-selected personalisation might contribute to social sorting, as explained above. If algorithms are programmed to favour news items that cover only a small set of topics that users are assumed to be interested in, users will not be exposed to information on many other topics that are important for society at large. As interest in news and politics correlates with higher education and higher social economic status, this could lead to a divided citizenry.

Moreover, commercial news providers gain power because they can control the algorithm. For example, a recent experiment carried out by Facebook shows that they were able to influence people’s emotions by manipulating content. The experiment involved manipulating the selection of user messages (‘posts’) that 689,003 users saw in their newsfeeds. “When positive expressions were reduced, people produced fewer positive posts and more negative posts; when negative expressions were reduced, the opposite pattern occurred” (Kramer, Guillory & Hancock, 2014, p. 1). Hence, Facebook succeeded in influencing the emotions of users. However, the effects were rather small. In another study, the effects appeared to be stronger: Epstein and Robertson (2015) claim that differences in Google search results can shift voting preferences of undecided voters by 20%.

As outlined in a previous section, news users have always limited their exposure to specific news items themselves: a process of self-selected personalisation. Perhaps pre-selected personalisation by algorithms merely anticipates choices that news users would have made themselves?
Even if it were true that personalisation could influence people deeply, would the many possibilities to broaden one's horizon outweigh the effects of personalisation? For example, the web offers many ways to encounter unexpected content.

The effects of personalisation may be counteracted by other forces. For example, people who self-select content on some blogs and encounter a lot of pre-selected content on their Facebook newsfeed may still be avid users of non-personalised news sites as well.

Another reason to doubt whether there is a big risk that personalised content will steer people's worldview is that current personalisation technologies may be insufficient. For instance, with targeted online advertising (behavioural targeting) the click-through rate on ads is around 0.1% to 0.5% (e.g. Chaffey, 2015). This suggests that algorithms of companies do not predict people's interests very accurately. After all, around 999 out of 1,000 people do not click on ads – perhaps the ads do not appeal to the interests of most people. On the other hand, the low click-through rate on ads could perhaps be explained by scepticism towards advertising rather than by bad personalisation.

In sum, there is no reason to worry about pre-selected personalisation leading to filter bubble problems, briefly put, because the technology is still insufficient. With technological developments, however, problems may arise. As Hildebrandt notes, pre-selected personalisation could be seen as an early example of ambient intelligence: technology that senses and anticipates people's behaviour in order to adapt the environment to their inferred needs (Hildebrandt, 2010). Consequently, algorithmic accountability through transparency becomes more and more important as the technology develops (Diakopoulos, 2014).

6. CONCLUSION

Some fear that personalised communication can lead to information cocoons or filter bubbles. In brief, the idea is that democratic society is at risk because personalised content and services limit the diversity of media content people are exposed to. In this way, personalisation could steer people's ideas and behaviour surreptitiously.

We discussed whether we should worry about filter bubbles. We distinguish between self-selected personalisation, where people actively choose which content they see, and pre-selected personalisation, where algorithms personalise content for users without any deliberate user choice. We summarised empirical research on the extent of personalisation in practice and on the effects of personalisation.

We conclude that – in spite of the serious concerns voiced – at present, there is no empirical evidence that warrants any strong worries about filter bubbles. Nevertheless, the debate about filter bubbles is important. Personalisation on news sites is still at an infant stage, and personalised content does not constitute a substantial information source for most citizens, as our review of literature on media effects has shown. However, if personalisation technology improves, and personalised news content becomes people's main information source, problems for our democracy could indeed arise, as our review of empirical studies of media effects has shown.

In the light of the rapidly changing media landscape, many studies become out-dated rapidly. In addition, existing studies mainly cover the US situation with its two-party political system, which means that the studies are only partly relevant for countries with multiparty systems.
One lesson we should have learned from the past is that panic does not lead to sane policies. More evidence is needed on the process and effects of personalisation, so we can shift the basis of policy discussions from fear to insight.
REFERENCES


Council of Europe, Recommendation CM/Rec(2012)3 of the Committee of Ministers to member States on the protection of human rights with regard to search engines, adopted by the Committee of Ministers on 4 April 2012.


Should we worry about filter bubbles?


Should we worry about filter bubbles?


Should we worry about filter bubbles?


