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Diversity by Choice: Applying a Social Cognitive Perspective to the Role of Public Service Media in the Digital Age

CHRISTIAN PIETER HOFFMAN
CHRISTOPH LUTZ
MIRIAM MECKEL
GIULIA RANZINI
University of St. Gallen, Switzerland

Hopes for a new abundance of diverse media content have long been tied to the rise of the Internet. Ensuring diversity remains a fundamental objective of media policy. However, media policy is still largely focused on public service media. In this article, we introduce a new theoretical perspective to inform media policy, focusing on the concept of diversity experience and users' motivation, awareness, and ability to seek diverse content in a transforming media environment. We argue that our understanding of and regulatory approaches to media pluralism must be adapted to technological advances. Based on social cognitive theory, we propose an extension of the diversity debate by considering user cognition. We analyze challenges to users' diversity experiences on a motivational, perceptual, and capability level. Given the (over)abundance of content available online, users must be willing and able to seek out diverse and serendipitous information. We derive a user-centric approach to media pluralism and diversity. Based on this framework, we outline criteria for changing the role of public service media in the digital age to focus on empowering users to actually experience media diversity.

Keywords: public service media, serendipity, social cognitive theory

Christian Pieter Hoffman: christian.hoffmann@unisg.ch
Christoph Lutz: christoph.lutz@unisg.ch
Miriam Meckel: miriam.meckel@unisg.ch
Giulia Ranzini: giulia.ranzini@unisg.ch
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Motivation

The concepts of media pluralism and diversity are well-established ideas within Western Europe's media research and policy, dating back to the 1960s. According to McQuail (2007), diversity is "the most potent concept in communication policy in modern times" (p. 41). Media pluralism and diversity are considered a crucial foundation for both democratic societies and an enlightened public (Jarren & Donges, 2005). The European Commission (2007) explicitly recognized diversity as a policy goal that "embraces a number of aspects, such as diversity of ownership, variety in the sources of information and in the range of contents available" (p. 5). While the terms *pluralism* and *diversity* are frequently used interchangeably—as in this article—the difficulty of distinguishing one from the other also hints at the complexity of the underlying phenomena: media diversity and pluralism can both describe objects as varied as media outlets or platforms, ownership, sources, content, ideas, or forms (Freedman, 2005).

The term *pluralism* is commonly used when describing various media outlets or diverse ownership structures (van Cuilenburg, 1998). *Diversity*, in turn, more frequently describes the variety of content available to or consumed by citizens. The latter is assumed to be an outcome of the former, although this relationship can still be considered contentious in empirical research (Napoli, 1999). Importantly, however, a number of studies have noted that media pluralism and diversity can be viewed from both the supply and the demand side (Hoffmann-Riem, 1996; Klimkiewicz, 2010; Valcke, 2011). From the first perspective, diversity is generated by a plurality of available media or content, and the latter conceptualizes media diversity as a result of user behavior. In this vein, McQuail (1992, p. 157) differentiates "content as sent" from "content as received."

Media policy, particularly in Europe, has mainly aimed at organizing the supply-side of pluralism through various sources that focus on content diversity (Helberger, Klein-von Königslöw, & van der Noll, 2014). The practical implications of this policy have long been associated with public service media. The rise of the Internet has recently triggered a debate on whether and how to incorporate digital media into the prevalent regulatory approaches. At the same time, the expansion of public service media into the digital sphere, exerting competitive pressure on commercial media outlets, has been met with criticism by competitors and user groups. However, media policy still aims to regulate the supply-side, focusing on "content as sent" (McQuail, 1992, p. 157).

In this article, we emphasize the role of users in realizing media diversity in an environment shaped by digitally networked media. We propose that the emergence of the Internet constitutes a significant challenge to established media policies and the role of public service media. New media have minimized the transaction costs of content production and distribution, resulting in an abundant diversity of content (Goodman, 2004; Helberger, 2011). Given the widespread access to the Internet (75% of Europeans were online in 2013; ITU[1]), it can be assumed that this content is widely available and accessible. As a reaction to this new media environment, the notion of exposure diversity is increasingly gaining attention as both a media policy objective and a challenge to the legitimacy of public service media (Helberger, 2011). In brief, if the Internet causes a paradigm shift toward the diversity of user

[1] http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf

experience, regulatory approaches aimed at supplying diversity through license fee-financed public service media will need to adapt or face increasing opposition (Harrison & Wessels, 2005).

The notion of exposure diversity assumes that pluralism is achieved when users actually enjoy a diverse media diet (Hagel & Brown, 2009; van Cuilenburg, 1998). The Internet, in this sense, is presumed to facilitate such a diverse diet. However, as we will note, the Internet offers its own, specific challenges to diversity: fragmented audiences, partisan selectivity, and an increasing homogenization of available information could lead to increased polarization and confrontation in public discourse (Bennett & Iyengar, 2008; Hargittai, 2007; Nie, Miller, Golde, Butler, & Winneg, 2010; Scheufele, Hardy, Brossard, Waismel-Manor, & Nisbet, 2006; Woodly, 2007). Furthermore, the need to filter the overabundance of online information, as well as its increasing personalization, may further contribute to a deterioration of pluralism (Pariser, 2011). Thus, the nature and affordances of digitally networked media entail their own challenges to media diversity and pluralism—and thereby to public service media.

We will argue that, in the digital sphere, mere exposure of consumers to various sources and content is insufficient for ensuring actual experience of media pluralism and diversity. Based on social cognitive theory (SCT), we will develop a multilayered model identifying challenges to consumers' media diversity experiences. By focusing on the consumer experience, we will extend the current debate on the role of public service media in ensuring media pluralism and diversity. Traditionally, regulators have provided financial support to public service media to ensure the provision of content diversity. We argue that in an age of user-driven pluralism, public service media will find new legitimacy in facilitating user experiences of diversity and in creating encounters with surprising and challenging content ("serendipity") (Erdelez, 1999; McCay-Peet & Toms, 2011; Rubin, Burkell, & Quan-Haase, 2011; Zuckerman, 2008).

Diversity Experience on the Internet: A Social Cognitive Approach

Based on SCT, we argue that both supply diversity and exposure diversity are necessary but not sufficient conditions of media pluralism in the digital age. Users need not only be (potentially) exposed to diverse content; they must actually perceive and make sense of it. SCT posits that environmental factors, behavior, and personal factors form a causal model of triadic reciprocity. Within this model, (a) an individual's environment influences personal factors (such as cognitions and affect), which in turn shapes the choice of environment; (b) personal factors influence behavior, which in turn influences these personal factors; and (c) behavior affects the environment, which in turn impacts behavior (Bandura, 1977).

Considering this framework, we find that media policy has primarily focused on environmental factors by regulating and supporting a specific media supply. Based on the assumption that a variety of media outlets will facilitate a variety of content available to consumers, regulation has attempted to facilitate an institutional media environment characterized by a diversity of ownership, outlets, forms, and content (Freedman, 2005; Napoli, 1999). Increasingly, however, the policy debate is now turning to behavioral factors; authors are beginning to question if consumers are actually enjoying a diverse media diet (Helberger, 2011). Yet, mere exposure is not synonymous with actual attention to and perception and experience of diversity (Goodman, 2004).

The SCT framework directs our attention to the importance of personal antecedents of media consumption. In this article, we will focus on cognitive factors, specifically perception and the experience of diversity. We define diversity experience as the cognitive processing of diverse information. This involves paying attention to and actively perceiving information (Fiske & Taylor, 1991; Markus & Zajonc, 1985), as well as processing the perceived information in the vein of sensemaking (Gioia, 1986; McGuire, 1985; Weick, 2001). Diversity experience is related to—but not identical to—cognitive complexity, which is associated with "flexibility, high levels of information search, and tolerance for ambiguity, uncertainty, and a lack of closure" (Suedfeld, 2010, p. 1670). Cognitive complexity can be understood as a personal predisposition that is particularly conducive to diversity experience.

Applying the SCT framework to media diversity, we find that environmental or institutional settings, such as the provision of diverse content, affect user behavior (i.e., actual media diet), which in turn potentially influences the perceptive, affective, and cognitive processing of content diversity. Of course, these relationships are not unidirectional: attitudes also affect the choice of media consumption, leading to the rise or decline of specific content providers. In this article, we will focus on three cognitive drivers of and challenges to diversity experience: users' ability, awareness, and motivation (see Figure 1). Thus, diversity exposure—the encountering of diverse content—results in diversity experience only if users perceive and digest this content according to their motivations, awareness, and capabilities.

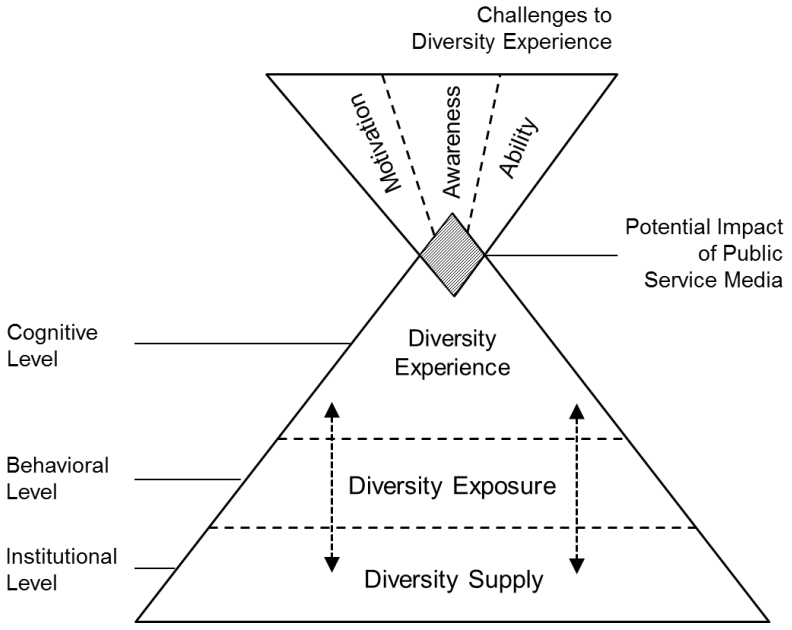

Figure 1. Levels of and Challenges to Diversity.

The social cognitive perspective on media diversity is particularly helpful in the analysis of media diversity in the digital age because it stresses the importance of personal influences as a complement to environmental/institutional (supply) and behavioral (exposure) aspects. A key insight of SCT is that learning experiences drive knowledge and skill development and, thereby, cognitive and affective predispositions (Bandura, 1977, 1986). Previous studies have shown that environmental factors—such as schooling and ICT access—influence user attitudes or cognition, which in turn affect user behavior (Compeau & Higgins, 1995; Wei, Teo, Chan, & Tan, 2011). In other words, a thorough analysis of media diversity in the digital age must consider not only diversity supply and exposure, but the cognitive and affective factors that drive Internet use—and ultimately actual diversity experience.

Helberger (2011) stresses that, in an environment of digital abundance, users must make choices and carefully select their content intake. Herbert Simon (1971) famously noted:

> In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. . . . Hence, a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it. (pp. 40–41)

The following segment will take a closer look at three key drivers of and challenges to diversity experience in the digital age. For each challenge, conclusions for the role of public service media will be derived.

Challenges to Diversity Experiences in the Digital Age

The Internet is a place of information abundance. However, it also provides its own specific challenges to diversity experiences. These challenges can be understood as three barriers that users must overcome to experience media diversity in an online environment:

1. Users may not be motivated to seek out diversity.
2. Users may not be aware of current limits to diversity.
3. Users may not be able to ensure access to diversity.

The Motivation Challenge: Homophily and the Preference for the Known

Research has found that individuals may not seek out a variety of views, no matter how easy it is to access personalized "information repertoires" (Hasebrink & Domeyer, 2012). As Blumler and Gurevitch (2000) have noted, the autonomous choice of preferred content may lead to a growing fragmentation of audiences. Users may be driven by homophily (i.e., a preference for the familiar)—both in terms of peers chosen as friends and in terms of content deemed worthy of attention and time.

The fact that similarity may inform and guide relationships is well-established in both social science (McPherson, Smith-Lovin, & Cook, 2001) and popular wisdom; birds of a feather do, after all, flock together. In effect, online services reflect rather than cause user homophily. However, they may also enforce it due to the personalization of content and the algorithmic-based targeting of specific audiences defined by aligned interests and preferences. Online dating services, for example, employ algorithms to

connect users based on common experiences, geographical vicinity, and similar tastes (Fiore & Donath, 2005). The multiple downsides of homophily in Internet use have primarily been discussed in the context of information seeking.

In fact, the personalization of a Web search, which promotes content that is geographically close as well as socially and conceptually familiar, results in an Internet experience that is useful but also increasingly predictable. For example, seeking a new book on Amazon or a new series on Netflix is a process that is intrinsically constrained to previous choices or to content that has already been read or viewed; consumer preferences and demands are perfectly served. This keeps users within familiar boundaries, feeding their curiosity with more of the same. When they are looking for new content or information, this reinforces existing opinions, gradually removing conflicting views (Baum & Groeling, 2008; Bennett & Iyengar, 2008; Lazarsfeld & Merton, 1954).

From an individual user's perspective, the advantages of receiving suggestions based on homophily appear quite clearly; users can easily locate content that matches their interests and provides satisfactory answers to their questions. At a community level, however, the advantages are blurry and the risks become evident. A possible outcome is the self-segregation of communities of interest (Lawrence, Sides, & Farrell, 2010), which can lead to "cyber ghettos" of opinion (Dahlgren, 2005). In such cases, online discourse degenerates into homogeneous, self-reinforcing monologues (Hargittai, 2007) that can be particularly dangerous; for example, these dangers can occur if users are seeking information on which they will base important decisions, such as for whom to vote (Glance & Adamic, 2005) or whether to ask for medical advice (Scullard, Peacock, & Davies, 2010).

Social media add a new dynamic to this well-established phenomenon by combining two dimensions of homophily: similarity of peers and content. In fact, social network site--based discourse is driven and filtered by the communities with which users choose to associate. Individuals tend to establish bonds with peers they perceive as similar and who share common interests (Lin, 1999; McPherson et al., 2001), causing a potential risk that the information users receive from their networks could be highly mediated. Each piece of content will be filtered through what a person's contacts perceive as important, creating a self-reinforcing mechanism of homogenized information. This can lead to distorted evaluations of the importance and validity of specific views (Eagle & Pentland, 2004), creating an echo-chamber in which interaction with the outside is limited, if not completely absent.

If homophily is a largely subconscious user desire that drives usage behavior, recent approaches, such as designing against homophily, do not appear promising. Some have suggested that online services should automatically expose users to random content rather than filter content based on previous preferences and behavior. However, if users are not motivated to experience random or unfamiliar content, they tend to shy away from it. Instead, stressing the advantages of diversity may actually motivate users to seek content beyond that proposed by default (Ellison, Hancock, & Toma, 2011). Public service media may support users in overcoming homophily and the motivation challenge by better illustrating the benefits of heterogeneous, unfiltered content and facilitating access to diverse or even random content rather than personalized selections.

The Awareness Challenge: Filter Bubbles and Selection Biases

A second challenge to users' diversity experience is driven by the abundance of content available online. The current volume of online content is estimated to be nearly 700 exabytes (700 billion gigabytes); as of spring 2014, there were 14.3 trillion functioning webpages online.[2] However, not all content is equally accessible. (Un)awareness of online content diversity arises in three subsequent steps: production, filtering, and consumption of content. The awareness challenge lies in users' inability or difficulty in experiencing diversity due to a lack of knowledge about the production, filtering, and consumption mechanisms at play.

On the production level, the available online content depends heavily on socioeconomic factors. This is true in terms of the producers and the products. A recent study on geotagging, for example, showed large geographic inequalities on Wikipedia (Graham, Hogan, Straumann, & Medhat, 2014):

> Not only are some parts of the world massively under-represented on Wikipedia, but a lot of the content that does exist tends to be in only a few languages. . . . We see a broad pattern of the Global North being represented in local languages while the South is largely being defined and described by others. (p. 10)

Social network mechanisms, such as preferential attachment (Barabasi & Albert, 1999), aggravate the tendency toward clustering and concentration in content production. Power law distributions and winner-take-all patterns have been demonstrated for online content and connections; from Twitter followers (Kwak, Lee, Park, & Moon, 2010) to in-links in general (Barabasi & Albert, 1999), many metrics on the Web are heavily skewed and exhibit a dominance of the few. We propose that users' awareness of these biases in online content creation is limited. To date, however, there is no empirical data on user awareness and evaluations.

Aside from the production of content, the filtering of content contributes to the awareness challenge. Given the vast amount of information on the Web, filtering has become a necessary prerequisite for an enjoyable Internet experience. The criteria employed by search engines, therefore, heavily influence users' Web experience. More relevant content is shown first, necessarily creating distortions (Introna & Nissenbaum, 2000). As relevance is at least partially determined by previous user behavior and assumed user preference, the access to online content provided by search engines is becoming increasingly selective. Lawrence and Giles (1999) have noted that search engines act as gatekeepers of the digital media system. "Without much exaggeration one could say that to exist is to be indexed by a search engine" (Introna & Nissenbaum, 2000, p. 171). Yet studies estimate that a majority of Web content is not indexed by current search engines, severely restricting access to various sources (He, Patel, Zhang, & Chen-Chuan, 2007).

The limited reach of search engines and the applied filter mechanisms reduce consumer choice, particularly if consumers are not aware of these mechanisms. According to current research, users are ill-equipped to estimate selection and filtering processes. In the context of Facebook privacy settings, for example, user desires and actual privacy settings were shown to diverge significantly (Liu, Gummadi, Krishnamurthy, & Mislove, 2011; Madejski, Johnson, & Bellovin, 2012; Netter, Riesner, Weber, & Pernul, 2013). Of course, awareness is a necessary precondition for users to overcome or circumvent filtering and selection effects.

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[2] http://www.factshunt.com/2014/01/total-number-of-websites-size-of.html

Finally, users' intake (i.e., the consumption of content) is also based on selectivity because attention and time are scarce resources. While early observers stressed the potential of the Web to provide a plethora of niche content (Anderson, 2008), blockbusters still dominate consumption behavior on the Internet (Elberse, 2008). This is partly due to search engine effects because users tend to click on the first few links provided (Elberse, 2008). The "long tail" of potentially relevant and fascinating information is not exploited to its full potential. Long-tail search engines, such as Banana Slug, attempt to counter this development (Rubin et al., 2011), thus far with largely unknown success.

These findings indicate that the awareness of and motivation challenges to diversity experience go hand in hand. Even with full knowledge of the selection biases behind the content found online, users may make informed choices in favor of those blockbusters attracting the most attention. Yet, as of today, we cannot assume that consumers may actually be aware of biases in the production, presentation, and consumption of online content. Even in current research, little is known about biases in content production, the amount and quality of information not accessed by search engines, and user preferences about filter effects. Public service media could play a crucial role in driving the public debate on the advantages and dangers of algorithmic filtering, search engine gatekeeping, and biases in user access to online content.

The Ability Challenge: Digital Literacy and Divides

Users' motivation to seek out diversity, coupled with their awareness of potential limits to diversity access, may still not be enough to ensure actual diversity experience on the Internet. In fact, to consume a diverse content diet, users must master the skills necessary to navigate the Internet to successfully seek and interpret content. The abilities necessary to experience diversity while surfing the Internet have been termed both digital literacy (Bawden, 2001; Bawden & Robinson, 2008; Bundy, 2004; Eshet-Alkalai, 2004; Gilster, 1997) and information literacy (Bawden, 2001; Bruce, 2003; Cochrane, 2006; Farmer & Henri, 2008; Leung, 2009; Martin & Rader, 2003; Shapiro & Hughes, 1996).

It should be noted that there is no fixed set of skills necessary for an Internet user to be considered literate (cf. Gilster, 1997; Street, 2003). Rather, as the medium evolves, users must stay engaged and constantly adapt to its technical and social evolution (Bawden, 2001; Leung, 2009). Predispositions, such as cognitive complexity (Suedfeld, 2010), may play an important role in users' ability to maintain their literacy. Internet literacy, therefore, is not merely a matter of personal effort. Aside from personal predispositions, geographical and socioeconomic variables also play an important role in both access to digital media and use motivation (Agarwal, Liu, Tang, & Yu, 2008; van Dijk, 2005). Researchers have identified gaps in Internet access and use by both gender and age due to environmental influences (Helsper, 2010; Li & Kirkup, 2007; Palfrey & Gasser, 2008; Weiser, 2000).

Studies have demonstrated that users with lower socioeconomic statuses tend to lack the motivation or ability to engage in capital-enhancing and active (i.e., content-producing) forms of Internet use (Correa, 2010; Hargittai, 2007, 2010; Hargittai & Hinnant, 2008; Hargittai & Walejko, 2008; Selwyn, 2004; van Deursen & van Dijk, 2010). Furthermore, in their typology of Internet users, Hargittai and Hsieh (2010) found that having stronger Internet skills as well as being online more frequently increased a user's likelihood of being omnivores in their online content consumption.

SCT stresses that skills can be conceptualized as a subjective concept in that users must know and trust their skill sets. Bandura (1977) defined self-efficacy as "the belief in one's capability to organize and execute the courses of action required to manage prospective situations" (p. 2). Accordingly, Internet self-efficacy has been shown to increase both user ability and performance expectancy (Compeau & Higgins, 1995) as well as increase users' subjective feeling of control when surfing the Internet (Corbitt, Thanasankit, & Yi, 2003; McKnight, Choudhury, & Kacmar, 2002; Shankar, Urban, & Sultan, 2002).

The concept of self-efficacy fittingly illustrates the interdependence of the personal, behavioral, and environmental factors postulated by SCT. Individuals who perceive themselves as more competent feel more comfortable when using the Internet (Eastin & LaRose, 2000; Joo, Bong, & Choi, 2000; Schumacher & Morahan-Martin, 2001). More experienced Internet users with higher levels of self-efficacy also more critically consider their personal privacy and security settings (Bawden, 2001; Bawden & Robinson, 2008; Bundy, 2004; Eshet-Alkalai, 2004; Gilster, 1997; Lankshear & Knobel, 2008). At the same time, environmental influences, such as training and experience, can influence user self-efficacy.

In summary, even given the necessary awareness and motivation, users require a sufficient level of competence and self-efficacy to realize the desired level of diversity experience in a networked media environment. Fostering media literacy is undoubtedly a key task of public education in the digital age. Public service media should strive to contribute to the education and training of consumers to facilitate a self-directed experience of media diversity—irrespective of the source of the content encountered online.

Diversity Experience and Serendipity

As we have observed, "selective exposure" on the Internet (Valentino, Banks, Hutchings, & Davis, 2009), combined with bandwagon effects due to collaborative filtering (Sundar, Oeldorf-Hirsch, & Xu, 2008) and systemic biases powered by network effects (Benkler, 2006), is hypothesized to severely limit consumers' diversity experiences in the digital age. Observers warn of "echo chambers" (Sunstein, 2007) and "filter bubbles" (Pariser, 2011) that limit users' perception of diverse content. Personalized experiences make it more and more difficult to encounter and absorb unfamiliar, surprising, and challenging content—they facilitate a reduction of cognitive complexity. Some authors have proposed a new goalpost for media governance to facilitate diversity experience: Serendipity (i.e., chance encounters with the unknown) is suggested as a fitting description of how diversity experience on the Internet should be characterized (André, Schraefel, Teevan, & Dumais, 2009; Dantonio, 2010).

Despite its lack of a clear definition, the concept of serendipity has attracted attention since well before the Internet (e.g., Andel, 1994; Meyers, 1995; Rosenman, 1988; Rubin et al., 2011). Studies on serendipity have been conducted on pure information seeking (Erdelez, 1995, 1997, 1999, 2004), scholarly research (Foster & Ford, 2003), selection of books and media (Watson, 2008), and jazz music improvisation (McBirnie, 2008). All of these fields have focused on the preconditions and possibilities of encountering something unknown and inspiring.

Research has stressed both motivation and awareness as preconditions of serendipity; individuals must possess the curiosity and ability to value a result found by chance. This "accidental sagacity" (Remer, 1965, p. 6) separates mere intake of information from the actual experience of serendipity. For Erdelez (2004), serendipitous encounters require a specific *forma mentis* to recognize the value of random encounters (cf. Makri & Blandford, 2012). The debate over algorithmic filtering and the associated loss of

serendipity illustrates that users must not only be motivated to seek diversity, but also be aware of the limits and risks of the technologies they use. Such awareness of technological limits and risks facilitates a realistic attitude toward the Internet's mechanisms, such as filtering, concentration, preferential attachment, censorship, privacy, or surveillance. Based on the understanding of the preconditions of or challenges to diversity experience in the digital age developed in the previous sections of this article, the following section focuses on the role that public service media can play in ensuring media diversity—and implications for media policy.

Conclusion

Contributions to Theory

For several decades, media research and policy making have addressed both the need for pluralism and diversity and the regulatory options to safeguard them. We have found that the concept of diversity and the ensuing regulatory choices have changed based on the predominant communication technology. As depicted in Figure 2, the cost of production and the number of media outlets have influenced both media supply and the applied policies. For example, the history of print media has been determined by relatively low production costs compared to broadcast media and a wider variety of content providers. Regulators followed the demand diversity approach, ensuring competitive and accessible print markets. Broadcast media, on the other hand, were—and still largely are—characterized by high initial investments and transaction costs, leading to limited supply diversity. Regulators strove to ensure policy diversity and regulatory bodies to guarantee supply diversity, installing public service broadcasters and mandating the representation of various views and perspectives in programming.

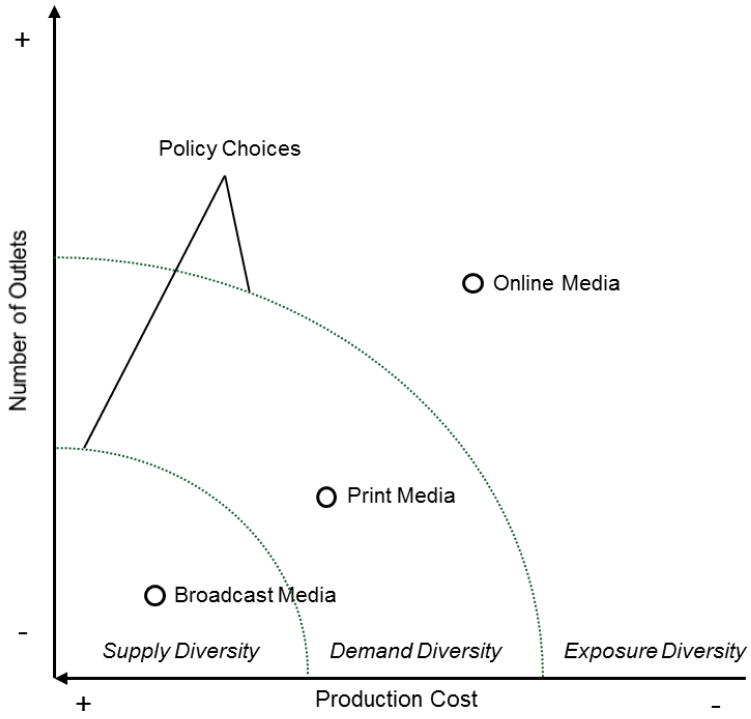

Figure 2. Technological and Regulatory Evolution.

The diffusion of the Internet—and social media in particular—has had a positive effect on supply side diversity, increasing the variety of available content. However, the Internet is also associated with the challenging consequences of the demand for content diversity. Although users may now be (potentially) exposed to a tremendous variety of sources and voices, they must still decide what information and content to use based on their preferences (Valcke, 2011). New obstacles to diversity experience emerge in the form of prioritizing, filtering, and personalization mechanisms applied by service providers to increase user convenience; this convenience helps individuals navigate complex and sometimes overwhelming data and appeals to their desire for homogeneity, but also menaces their ability to encounter unexpected and surprising content.

Based on SCT, we propose that the pluralism debate must employ a user-centric perspective and thereby extend beyond the assumption that supply diversity equals diversity exposure. In an online environment characterized by information abundance, mere exposure to diversity may not be sufficient for users' diversity experiences. SCT shows that environmental factors (such as diversity supply) and behavioral factors (such as diversity exposure) interact in creating personal cognitions and affect (such as diversity experience). Therefore, our analysis focuses on potential challenges and antecedents of online diversity experience. We identify challenges and antecedents on three distinct levels: motivation, awareness, and ability. To experience diversity online, users must strive for diversity, be aware of the preconditions of diversity, and be able to ensure access to diversity.

Implications for Public Service Media

A number of studies investigate public service media in the digital age and develop suggestions for how they can live up to current challenges (Goodman, 2004; Goodman & Chen, 2010; Iosifidis, 2010; Lowe & Bardoel, 2007). However, most of these studies focus on policy implications at the macro level. Fewer insights are available for the individual level and, specifically, opportunities of empowerment for single users by means of public service media. Our analysis instead suggests a user-centric approach to media pluralism and diversity in the digital age. As outlined above, the specific challenges created by network digital media affect user motivation, awareness, and skills.

It is not surprising that these challenges are also being discussed in the context of education and pedagogy. Education scholars now advocate for a student-centered approach, facilitating self-regulated learning and collaboration (Arbaugh, 2000; Duncan, Kenworthy, & McNamara, 2012; Hrastinski, 2008; McBrien, Jones, & Cheng, 2009). Based on such a new approach, students are meant to be endowed with a "literacy of empowerment"—the ability to create, collaborate, and critically participate in new media (Asselin & Moayeri, 2011). We suggest that the new role of public service media in ensuring media diversity should mirror these developments in education. A user-based approach striving for actual diversity experience should address users' motivation; awareness; and ability to discern, perceive, and make sense of the variety of information and opinions potentially available online.

Public service media can redefine their contribution to users' diversity experience through the empowerment of users in their experience of diversity and the autonomous encountering of serendipity on the Internet:

(1) *Motivational challenges*: More effort should be invested in providing contextual information and orientation on why and how users must take a proactive role in managing their information diet. As of today, the convenience of homophily appears to outweigh the benefits of a more varied media experience. Public service media could drive the debate on the advantages of diversity experience and serendipity. In their online offers, they could provide more information on filtering mechanisms, privacy settings, information access, collaborative peer segregation, and so forth. The Web provides ample opportunity to actively promote and explain diverse content, sources, and forms. To date, public service media make little use of these new opportunities—rather, they replicate offline offers on their websites. Goodman (2004) suggests that public service media should strive to cultivate a taste for media diversity.

(2) *Awareness challenges:* Increasingly, policy makers discuss new approaches to ensure citizens' access to diverse content on the Web. In Germany and France, politicians have begun pondering the possibility of a public-service search engine.[3] Similarly, Helberger (2011) suggests that regulators may prescribe design principles that allow users to choose from a wider variety of content, possibly even suggesting alternative, different,

[3] See http://www.faz.net/aktuell/feuilleton/medien/internetsuche-als-oeffentliche-aufgabe-wir-muessen-google-konkurrenz-machen-11874702.html.

or challenging new content. Given our analysis, such services or design principles could be helpful in increasing awareness of diverse content and supporting users in autonomously choosing the desired level of diversity. Public service media should pay close attention to biases in production, filtering, and digestion of online content; raise awareness; and educate citizens about their opportunities.

(3) *Ability challenge:* Finally, public service media should facilitate diversity experience by strengthening user self-efficacy and literacy. Research is increasingly moving from discussions of the "digital divide" to the concept of a "participation divide." Participating in digitally networked media goes beyond fulfilling the desire for information and entertainment; it involves capital-enhancing engagement in content publication, exchange, and collaboration. Although fostering user skills cannot be expected from commercial media on a broader scale, it can be defined as a task of public service media. This could involve significantly extended programs for generating and sharing user-generated content, as well as designing online offers to educate users in a conscious and self-directed exploration of the diversity of available content.

In summary, a user-based approach to pluralism and diversity by public service media clearly shifts the focus from institutional settings and the public financing of content production and dissemination to the empowerment of audiences necessary to ensure an open exchange (including the experience) of rich, diverse content in the digital sphere. Just as public schools play a legitimate role in the education of responsible citizens, public service media should strive to contribute to a public that is willing and able to experience media diversity.

Limitations and Future Research Opportunities

Our study is subject to a number of limitations. First, we employed SCT to frame our analysis. Although it is a broadly applied social theory, SCT centers on individuals' learning experiences and concentrates on the micro level. Therefore, our contribution focuses on the individual and, more specifically, the individual's cognitions. Further insights can be generated from a more extensive consideration of policy-based (regulation) and historical (values) approaches to the topic. Additional systemic/macro perspectives may complement the identified cognitive effects with environmental richness. After all, the environment is one of the three core components of SCT.

In addition, our article is conceptual in nature. Future studies should operationalize the three challenges to diversity experience and relate them to users' actual diversity experiences. Using quantitative surveys, it would be possible to differentiate the challenges in more depth and to identify the most salient drivers of diversity experience. Of course, in some instances, doing so would require the development of valid measures for the concepts discussed in this article. Qualitative approaches and case studies investigating specific aspects of the proposed challenges would be useful in fostering our understanding of how the cognitive, user-centric aspects interrelate on a behavioral and environmental level.

Finally, we only provided limited guidance on how to overcome the challenges to diversity experience. Public service media's role in the digital age is still in flux. To date, it is difficult to conceptualize the future of specific media markets, let alone the specific role that public services should

play in complementing private services. Therefore, the diversity challenges outlined in this article can serve as guidelines, informing future debates on the role and requirements of public service media. Conceivably, private actors will begin developing their own solutions to address some of the concerns raised about limitations to online diversity. Diverse stakeholders should come together to more clearly define their needs and opportunities to derive specific policies and solutions, concepts and prototypes.

In summary, we propose that a focus on diversity experience and the development of a user-centric approach to media pluralism will provide a new and challenging—but potentially fruitful—approach to studying and shaping the new role of public service media in the digital age.

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