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DIVERSITY BY DESIGN

BY NATALI HELBERGER[*]

How do you get citizens/media consumers to voluntarily choose to expose themselves to diverse content? Is there a role for government in helping people make diverse choices? Professor Helberger addresses these questions by suggesting "diversity by design" as an antidote to the ironic fact that broadband media abundance actually makes it more difficult for users to choose diversely. She presents four conceptualizations of diversity policy: marketplace of ideas ("external diversity"); public sphere ("internal diversity"); personal autonomy ("individual choice"); and random exposure ("serendipity"), and suggests concrete design principles to guide regulators in implementing them. However, she notes, in the end it remains for the user to decide.

INTRODUCTION

Hackworth picked up a large sheet of blank paper. "The usual," he said, and then the paper was no longer blank; now it was the front page of the *Times*.

Hackworth got all the news that was appropriate to his station in life, plus a few optional services… A gentleman of higher rank and more far-reaching responsibilities would probably get different information written in a different way." [1]

In many respects, we are living in an information paradise. Information flows in abundance, users find a rich choice of media and formats, and all of them are ubiquitous. The days when the prime concern of media policy was the management of scarcity and supplying the audience with a diverse choice of content from different sources seem to be gone. And yet, where there is paradise, trouble cannot be far away. With today's digital abundance, users are not able to consume and carefully weigh all the media content that is thrown at them. Users have to make choices. Will they choose diversely? The realization of media diversity as a policy goal depends more than ever on the choices

[1] Neal Stephenson, *The Diamond Age* (New York: Bantam Books, 1995), 36.

users make, and it is increasingly obvious that media law and policy can no longer ignore matters of "exposure diversity."[2] Any form of government involvement with audience perspectives on media diversity, however, is treading on sensitive ground. Users cannot be forced to choose diversely, and governments must refrain from censorship (which is prohibited in modern democracies) or otherwise unconstitutional interference with the fundamental freedoms of users and media outlets. Hackworth's newspaper would be out of question to the extent that it was government that decided what information fit his position and responsibilities. Could there be, however, a possible role for government in assisting people at least indirectly in making diverse choices? And if so, how? These are the questions that this article will explore.

More specifically, this article will study whether there is a possible role for "diversity by design" in future media law and policy. Diversity by design is the idea that it is possible to create an architecture or service that helps people to make diverse choices. Successful examples of "choice by design" can already be found; for example, in the area of data protection, default settings and technical solutions trigger sensitive privacy choices. Is there also a way to factor aspects of exposure diversity into the way users choose media content? When making their choices from media content, users increasingly rely on external assistance from "choice intermediaries." Hackworth's personalized newspaper is but one example of a service or application that specializes in helping people find and choose content that is relevant to them. Search engines, Electronic Programme Guides (EPGs), social apps, and other referencing and recommendation services or applications exercise considerable influence over people's exposure to diverse media content.[3]

The potential contribution of search engines and other choice intermediaries to media diversity has been acknowledged for some time already. As Goodman observed, the "power of media consumption today lies as much with those who guide individuals to content through such tools as search engines, online indices, and recommendations as it does with the producers themselves."[4] Schulz, Held, and Kops describe portals and search engines as the new "information hubs."[5] And in its most recent draft recommendation on the protection of human rights with regard to search engines, the Council of Europe acknowledges the role that search engines more generally play for the realization of the fundamental right of freedom of expression, for which media diversity is an important element.[6]

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[2] Philip M. Napoli, "Deconstructing the Diversity Principle," *Journal of Communication* 4 (1999): 7-34; Denis McQuail, *Media Performance, Mass Communication and the Public Interest* (London: Sage Publications, 1992).

[3] James G. Webster, "User Information Regimes: How Social Media Shape Patterns of Consumption," *Northwestern University Law Review* 104 (2010): 593-612; Birgit Stark, "Digitale Programmnavigation," *Media Perspektiven* 5 (2009): 233-245; Eszter Hargittai, "Open Portals or Closed Gates? Channeling Content on the World Wide Web," *Poetics* 27 (2000): 233-253.

[4] Ellen P. Goodman, "Public Media 2.0," draft, Aug. 1, 2008, accessed Aug. 24, 2011, http://ssrn.com/abstract=1299685, 20.

[5] Wolfgang Schulz, Thorsten Held, and Manfred Kops, *Perspektiven der Gewährleistung freier öffentlicher Kommunikation* (Baden-Baden: Nomos, 2002), 61.

[6] Council of Europe, Draft Recommendation on the Protection of Human Rights with Regard to Search Engines, Strasbourg, 11 March 2010.

More surprising is that at least in Europe the possible contribution of choice intermediaries to the realization of media diversity (and here particularly the exposure to diverse media content) is still a topic that has hardly been discussed seriously in media law and policy. This can be partly explained by the uncertainty of policymakers about the permissibility of interference in an area that is as politically and legally sensitive as is individual information consumption. This uncertainty, moreover, has stood in the way of a more fundamental debate about the possible contribution of choice intermediaries to the realization of media diversity policies. To have such a debate would require tackling a number of difficult and yet open questions. First, what are "diverse choices" and for what reasons would it be a concern for media law and policy that people choose diversely? This question is closely related to another open question. Namely, how can we conceptualize exposure diversity as a possible policy goal? What is the possible role of choice intermediaries in promoting exposure diversity, and what is the role of the government, if any? The goal of this article is to provide a starting point for this long overdue debate. It will moreover develop first suggestions for diversity by design as a potential new tool in media diversity policies.

This article is organized into four parts. The first examines the question of whether exposure diversity and diversity by design can be legitimate public policy objectives at all, or whether the obligation of the regulator to refrain from interference outweighs the importance of exposure diversity for the realization of media diversity policies. The second part looks more specifically at the conception of exposure diversity as a policy goal. Why do we want people to choose diversely, and what must their choices look like before we can speak of "diverse exposure" in the normative sense? The third part of the article is dedicated to the development of suggestions for possible design principles for choice intermediaries, and more specifically for so-called Electronic Programme Guides (EPGs). EPGs can be described as search engines for audiovisual content. The reason why the EPG example was chosen is because, unlike search engines, EPGs specialize in helping people to not only find but also choose media content. Moreover, media diversity policies have traditionally played a particularly influential role in the regulation of audiovisual markets. Finally, EPGs are one of the few examples of choice intermediaries that have actually been regulated in Europe. Having said that, many of the reflections in this article could also be discussed in the context of other choice intermediaries such as search engines, online guides, and maybe even social search apps. The article concludes with reflections on possible lessons to be learned for future government involvement with EPGs and "diversity by design."

EXPOSURE DIVERSITY AS A POLICY GOAL

The effective exposure of users to diverse content is a crucial constituent of the realization of media diversity as a policy goal.[7] Technological, social, and market developments that more directly target the user through interactivity, assisted search, and personalized services further underline the

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[7] Napoli, "Deconstructing the Diversity Principle;" McQuail; Richard van der Wurff, "Program Choices of Multichannel Broadcasters and Diversity of Program Supply in the Netherlands," *Journal of Broadcasting & Electronic Media* 48 (2004): 135-150.

importance of also taking into account the consumption dimension of media diversity. Despite the obvious importance of exposure diversity as an additional dimension to media diversity, there has been so far considerable ambiguity in addressing this issue in policy debates and lawmaking. Regulating what happens in people's homes and forcing the audience to watch certain programs, even the "valuable" ones, is not just impossible; it is also potentially in conflict with individual freedoms, including the rights to freedom of expression, privacy, and personal autonomy.[8] This might explain in part why exposure diversity, and more generally the user perspective on media regulation, has had a shadow existence in law and policymaking so far.

The Permissibility of Government Involvement with Matters of Exposure Diversity

It would, however, be wrong to assume that matters of exposure diversity are per definition removed from the responsibilities of media law and policy, at least in Europe. The freedom to receive and impart information without interference from government, as protected by Article 10 of the European Convention of Human Rights (ECHR), as well as other fundamental freedoms, does not prevent governments from creating the conditions for users to benefit from and exercise these freedoms.[9] As a matter of fact, under the ECHR governments are even committed to interfere if necessary to make the exercise of rights under the Convention possible. The European Court of Human Rights has made it clear that the "[g]enuine effective exercise of this freedom [freedom of expression] does not depend merely on the state's duty not to interfere, but may require positive measures of protection;" and as the Court further said, "even in the sphere of relations between individuals."[10]

Therefore, under European constitutional law there can be a positive obligation for governments to come into action if initiatives are needed to create the conditions under which people can effectively exercise freedom of expression, part of which is the ability to benefit from media diversity. Following this line of thought, in a situation in which information overload and the difficulty of finding relevant content places a new obstacle before the media user, this could be an argument to justify some kind of government involvement to promote effective exposure to diverse media content. Of course, when doing so governments would need to respect the fundamental freedoms of users, content providers, and choice intermediaries, including the right to freedom of expression and the right to privacy.

Traditional diversity policies have proven to be of only limited effectiveness in triggering exposure diversity. Academics have warned for some time now of the discrepancy between "diversity as sent" and "diversity as received" (also known as "exposure diversity").[11] To be effective, diversity policies

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[8] Peggy Valcke, *Digitale Diversiteit – Convergentie van Media-, Telecommunicatie- en Medidingingsrecht* (Brussel: Larcier, 2004); Philip M. Napoli, "Rethinking Program Diversity Assessment: An Audience Centered Approach," *Journal of Media Economics* 10 (1997): 59-74.

[9] Valcke.

[10] European Court of Human Rights, Özgür Gündem v. Turkey, Strasbourg, Mar. 16, 2000, No. 23144/93, ¶ 43.

[11] James G. Webster, "Beneath the Veneer of Fragmentation: Television Audience Polarization in a Multi-Channel World," *Journal of Communication* 55 (2005): 366-382; James G. Webster, "Diversity of Exposure," in *Media Diversity and Localism: Meaning and Metrics*, ed. Philip M. Napoli (Mahwah, NJ: Lawrence Erlbaum Associates, 2006), 309-326; Roger

need to focus not (only) on generating diverse media offerings, but also on stimulating diverse choices – an idea that is slowly taking hold in the academic and policy debate. For the United States, Goodman for example argues that a new role for public information policy, and more specifically public media, should be to "guid[e] attention to content that satisfies the needs of citizenship."[12] Similar ideas resonate in Europe. The Council of Europe encourages member states, the private sector, and civil society to develop "common standards and strategies to promote transparency and the provision of information, guidance and assistance to the individual users."[13] And Schulz, Held, and Kops emphasize the importance of exposure to new insights, which, in their view, is essential to preserve the openness of the communication process against path dependencies.[14]

Arguments that emphasize the importance of not only *supply of*, but also *exposure to* diverse media content go two ways. Not only does digital abundance make it more difficult for users to exercise choice and to choose more diversely; for media content providers the difficulty of being located by users makes it more challenging to find an audience. The chances of being heard and seen were obviously far better in times when the audience could almost not avoid a program because of the limited choices available. Things are different today and the wealth of choice can prevent content from finding its way to interested users. Arguably, this problem can be more pronounced for smaller, less familiar, or less popular "brands" such as programs for minority groups, newcomers, or commercially less attractive players and other offers in the "long tail."[15] Napoli and Sybblis conclude that there is a need for a greater emphasis of speakers' access to the audience in media law and policy[16] – another possible argument in favor of government intervention with the goal of promoting exposure diversity. This argument gains additional weight if one considers that the present abundance of information and the resulting difficulties of users in choosing diversely could not only be abused by dominant market actors, but also by governments themselves to draw attention away from the existence of uncomfortable critical voices or minority views.[17]

Diversity by Design as a Possible Subject of Government Involvement to Promote Exposure Diversity

Once it has been established that there are valid reasons to support public intervention with matters of exposure diversity, the next question involves what form such intervention could take. One

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Cooper and Tang Tang, "Predicting Audience Exposure to Television in Today's Media Environment: An Empirical Integration of Active-Audience and Structural Theories," *Journal of Broadcasting & Electronic Media* 3 (2009): 400-418; Klaus Schönbach, "'The Own in the Foreign': Reliable Surprise – An Important Function of the Media?" *Media, Culture & Society* 29 (2007): 344-353; Napoli, "Deconstructing the Diversity Principle"; Van der Wurff.

[12] Goodman, "Public Media 2.0." See also Jan van Cuilenburg, "The Media Diversity Concept and European Perspectives," paper presented at the *Media Economics, Content and Diversity* Seminar, Finnish Academy of Sciences. Helsinki, Dec. 16, 2002.

[13] Council of Europe, Declaration of the Committee of Ministers on Protecting the Role of the Media in Democracy in the Context of Media Concentration, 31 January 2007.

[14] Schulz, Held, and Kops.

[15] Anita Elberse and Felix Oberholzer-Gee, "Superstars and Underdogs: An Examination of the Long Tail Phenomenon in Video Sales," Harvard Business School Working Paper No. 07-015, 2007.

[16] Philip M. Napoli and Sheea T. Sybblis, "Access to Audiences as a First Amendment Right," *Virginia Journal of Law and Technology* 12 (2007): 1-31.

[17] The author is grateful to one of the anonymous peer reviewers for making this point.

phenomenon in this context, that is central to this article, are the tools that help people navigate the digital abundance and assist them in identifying and composing their media diet. Considering the impact that search and program guidance have on the exposure of users to media content, it is evident that electronic choice intermediaries such as EPGs, search engines, or social media could play a pivotal role in increasing the diversity of content people are exposed to. There are already a number of studies indicating that EPGs tend to support exposure to a more enriched and diversified program diet.[18] Having said that, in the context of these studies "diverse" is primarily understood in the sense of "varied." What is still missing is a conceptualization of exposure diversity as a policy goal, and how this could be translated into professional guidelines or principles for the design of a diverse EPG (see below).

Choice intermediaries already have received some, albeit modest, attention in diversity policymaking. In its most recent draft recommendation on the protection of human rights with regard to search engines, the Council of Europe emphasizes the need to "protect and promote the values of access, diversity, security and transparency in the context of search engines," without however providing much guidance on how search engines could contribute to the realization of exposure diversity as a policy goal.[19] The importance of the presentational aspects of EPG design for effective exposure to diverse media content has also been acknowledged at the European level.[20] This has resulted in a number of national attempts to promote exposure to diverse programming, or exposure to programs that are particularly committed to the principles of media diversity (such as public broadcasting services).[21] Yet these initiatives are more the result of sector-specific competition policy rather than of media diversity policies.[22] Accordingly, they emphasize platform openness and the need to ensure fair, reasonable, and non-discriminatory access for program providers to EPGs, rather than the possible role of EPGs in guiding viewers to a diverse media offering, or even proactively stimulating diverse exposure.

As explained above, direct government involvement with searching, in the form of dictating the search results, is in all likelihood very unconstitutional. Similarly, it is probably not for governments to make the ultimate decision of what is a sufficiently diverse media offering. This task was

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[18] Myung-Hyun Kang, "Interactivity in Television: Use and Impact of an Interactive Program Guide," *Journal of Broadcasting & Electronic Media* 46 (2002): 330-345; Birgit Stark, "Programmauswahl in digitalen Fernsehwelten," *Medien & Kommunikation* 55 (2007): 223- 244; Joost de Wit, *Evaluating Recommender Systems. An Evaluation Framework to Predict User Satisfaction for Recommender Systems in an Electronic Program Guide Context*, Master's thesis, Delft, 2008.

[19] The only suggestion made concerns transparency about the criteria for selection, ranking, and prioritization of search results, and whether certain search results have been removed. Council of Europe, Draft Recommendation on the Protection of Human Rights with Regard to Search Engines, recital 6.

[20] European Parliament and Council of the European Union, Directive 2002/19/EC of 7 March 2002 on Access to, and Interconnection of, Electronic Communications Networks and Associated Facilities (Access Directive), OJ L 108/7 (24.04.2002); Council of Europe, Recommendation No. R(99)1 of the Committee of Ministers to Member States on Measures to Promote Media Pluralism. 19 January 1999.

[21] For the United Kingdom, see section 310 of the UK Communications Act and Sections 3 and 4 of the OFCOM Code of Conduct for EPGs. For Germany, see Artikel 53 of the Interstate Broadcasting Treaty (Staatsvertrag für Rundfunk und Telemedien – RfStV), in the version of Apr. 1, 2010, in combination with Article 15 of the Satzung über die Zugangsfreiheit zu digitalen Diensten und zur Platformregulierung.

[22] The Access Directive is part of the European telecommunications framework, which is characterized by its orientation as sector-specific competition law, and neutrality towards more content-related questions such as media diversity.

traditionally reserved for journalists and the professional media, but, as this article argues, there might also be a role for choice intermediaries to play here. This does not take away the option of a more proactive policy approach to choice intermediaries, one that is inspired by considerations of how to promote diversity of exposure, as long as governments respect the fundamental freedoms of users, content providers, and choice intermediaries. For example, governments could stipulate that EPGs must promote exposure to a diverse choice of media content (leaving it to the EPGs to determine of what a diverse choice is), similar to existing obligations for program providers to take diversity considerations into account in their programming decisions.[23] Having said this, it may not even be necessary to commit all EPG providers to a diverse offering, but only certain EPGs that are assigned with a public interest mission comparable to the situation of public broadcasting or so-called Universal Service Providers.[24] Alternatively, it is conceivable that regulators could define a new task for public broadcasters. In addition to their existing mission, namely to provide the audience with a diverse program offering, a new task for public broadcasters could also be to promote diverse exposure – for example through diversity by design. Issuing binding regulations, of course, is only one form of intervention out of many. It may be equally worth considering a more facilitating role for government. Considering the novelty and lack of experience with the issue of diversity by design, stimulating research, providing guidance, and creating incentives for diversity by design may be the more appropriate and useful route for governments, at least for the time being. In addition, governments could provide the sector with information and guidance on possible design principles.

CONCEPTUALIZING EXPOSURE DIVERSITY AS A POLICY GOAL

Any form of policy intervention with the goal of promoting diversity by design, and ultimately exposure diversity, requires some clear idea of how to conceptualize exposure diversity and what the possible role of diversity by design could be in that context. More specifically, what are the goals that diversity policies want to promote by exposing the public to diverse content? Because little experience exists so far, such conceptualizations of exposure diversity as a policy goal are still missing.

For the time being, the notion of exposure diversity is being approached primarily from an empirical perspective. McQuail described exposure diversity, or as he calls it *content as received*, as "the content that the audience actually selects." Though this is "a different universe of content than that sent" it

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[23] See for example Amendment 214 of the amended Proposal for a Directive of the European Parliament and of the Council amending Council Directive 89/552/EEC on the Coordination of Certain Provisions Laid Down by Law, Regulation or Administrative Action in Member States Concerning the Pursuit of Television Broadcasting Activities ("Audiovisual Media Services Without Frontiers"), /* COM/2007/0170 final - COD 2005/0260 */.

[24] Universal Service in telecommunications law and policy refers to a predefined set of services that are provided to all end-users at a certain quality and affordable price. Typically, these are services that are considered of such importance for the public and for end-users (such as access to the fixed telephony network or emergency numbers) that no one should be excluded from access to such a service, irrespective of geographical location, financial capacities, etc. Usually, not all providers of telecommunications services are required to provide universal access, but only the specifically designated, so-called "Universal Service Providers."

can, according to McQuail, be analyzed by the same methods as *content as sent*.[25] And indeed, recent years have seen growing activity in measuring the different sources and types of content people are exposed to, as well as research into people's program choices. [26] Interestingly, the Dutch broadcasting authority recently declared its intention to use the number of news sources consumers actually consult as an additional indicator of media diversity.[27] From the public policy perspective, the difficulty with such an empirical approach is of course the question of deciding how much exposure to how many different contents and sources is sufficient. To complicate matters, use and processing of media content can differ from person to person, and is subject to a host of internal and external variables.[28] Most importantly, however, from a public policy point of view a sufficient level of exposure also depends on the objective that is pursued with media diversity policies. Identifying such an objective is rendered even more difficult by the vagueness of the notion of media diversity itself, and the lack of any guidance on the values and goals it serves.[29]

Generally, one can argue that one task of media policy is to give the notion of "exposure diversity" a meaning, also taking into account the larger social, cultural, and democratic contexts and objectives behind media diversity policies. In the remainder of this section, therefore, a number of possible conceptions of exposure diversity will be developed that could guide media policy in general, and "diversity by design" in particular. The analysis builds on existing theories of media diversity or media pluralism and their interpretation in the academic discourse. Of course, the question of the goals behind exposure diversity as a policy goal cannot be viewed separately from the broader question of the role that the media plays in a democratic society, as well as the valuation of freedom of expression as a guiding principle in media law and policy.

The starting point of the analysis is the assumption that media diversity as a normative concept has a mission. Of course, it is conceivable that diversity is valued as an end in itself, and as such deserves our recognition and arguably even protection – for the sake of variety, because it is part of our

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[25] McQuail.

[26] Douglas A. Ferguson and Elizabeth M. Perse, "Media and Audience Influences on Channel Repertoire," *Journal of Broadcasting & Electronic Media* 37 (1993): 31-47; McQuail; Napoli, "Rethinking Program Diversity Assessment;" van der Wurff; Cooper and Tang; Webster, "Beneath the Veneer of Fragmentation;" Webster, "Diversity of Exposure."

[27] Miriam van der Burg, Edmund Lauf, and Rini Negenborn, *Mediamonitor: The Dutch Media in 2010* (Hilversum: Commisssariaat voor de Media, 2010). According to the Authority, about five percent of the Dutch population does not use news titles; however, those surveyed used, on average, five different news titles a day, provided by three different suppliers. Ibid., 91. For the United States see Philip M. Napoli and Nancy Gillis, "Media Ownership and the Diversity Index: Outlining a Social Science Research Agenda," McGannon Center Working Paper Series, Paper 5, 2008, accessed Aug. 24, 2011, http://fordham.bepress.com/cgi/viewcontent.cgi?article=1012&context=mcgannon_working_papers.

[28] Jae Woong Shim and Paul Bryant, "Effects of Personality Types on the Use of Television Genre," *Journal of Broadcasting & Electronic Media* 51 (2007): 287-304; Bernhard Engel and Ute Schlinker, "Programbewertung und Erlebnisqualität beim Fernsehen," *Media Perspektiven* 11 (2009): 603-613; James G. Webster and Jacob J. Wakshlag, "A Theory of Television Program Choice," *Communications Research* 10 (1983): 430-446; Thomas B. Ksiazek and James G. Webster, "Cultural Proximity and Audience Behavior: The Role of Language in Patterns of Polarization and Multicultural Fluency," *Journal of Broadcasting & Electronic Media* 52 (2008): 485-503; Cooper and Tang; van der Wurff; Kang; Hargittai, 13.

[29] Kari Karppinen, *Rethinking Media Pluralism: A Critique of Theories and Policy Discourses* (Dissertation: University of Helsinki, Department of Social Research, 2010), 16.

society and culture, and because it is an element of individual self-fulfillment.[30] Seen in this light, digital technologies, the democratization of the publishing process, and the availability of countless forms of human expression are nothing but the impressive result of the heterogeneity of individual views, beliefs, and skills. For diversity by design this would mean that any external design principles are potentially suspect or even critical, as they may threaten to overthrow or manipulate this powerful ecosystem of human mind activity. Diversity is designing itself. Following this same line of reasoning, exposure to diversity must remain solely a matter of individual autonomy.

In information law and policy however, media diversity is commonly discussed not as a value in itself, but because it is considered to be a vehicle and catalyst for other values that are vital in our society. Here media diversity is a normative concept that is not seen in isolation, but in context with a variety of policy objectives that media law and policy are supposed to serve. In this perception, the variety of media content to which people are exposed is not valuable in itself, but because exposure can add to the realization of the goals for which media diversity policies stand. In such situations, there may be room for arguments in favor of a more "guided" form of media consumption. Diversity by design could play an important role in this context.

In the following discussion, four different conceptualizations of exposure diversity as a policy goal are developed: discovering the difference, exposure to diverse media outlets, promoting personal autonomy, and encouraging serendipitous encounters.

Discovering the Difference

Exposure to diverse media content can help people to discover "the difference." A diverse media diet must help people to not only discover divergent views, cultures, and opinions, but also to relate them to their personal situation, democratic insight, and set of values and beliefs. Karpinnen alerts us to the fact that, at least from a liberal perspective, "pluralism, variety and conflict between differing views are commonly seen as fruitful and as being a necessary condition for human progress."[31] Seen in this light, diverse exposure is instrumental in fostering awareness of divergent opinions and ideas, and in promoting discovery and appreciation of, or at least respect for, the difference.

This is basically the idea behind the popular "marketplace of ideas" conception of media diversity. The central element of the marketplace of ideas concept is that of a discovery procedure,[32] in which different ideas and opinions are free to compete for the attention of users. Ultimately, only the best prevail in what Schauer described as an "adversary process."[33] The role of exposure diversity in this context is to sharpen our wits and our ability to critically evaluate possible alternatives to our

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[30] For an excellent overview of these arguments, see Frederick Schauer, *Free Speech: A Philosophical Enquiry* (Cambridge: Cambridge University Press, 1982).

[31] Karpinnen, 45. See also John Rawls, *Political Liberalism* (New York: Columbia University Press, 1991).

[32] For an overview, see Philip M. Napoli, "The Marketplace of Ideas Metaphor in Communications Regulation," *Journal of Communication* 49, no. 4 (1999): 151-169.

[33] Schauer, 14. For a powerful critique see also C. Edwin Baker, "Giving the Audience What it Wants," *Ohio State Law Journal* 58 (1997): 316-417.

established wisdoms. In order to do so in the rhetoric of the market, users ideally need perfect or near-perfect information. Or as Meiklejohn has put it in the context of voting, "The voters, therefore, must be made as wise as possible. The welfare of the community requires that those who decide issues shall understand them… This in turn requires that so far as time allows, all facts and interests relevant to the problem shall be fully and fairly presented… Both facts and interests must be given in such a way that all the alternative lines of action can be wisely measured in relation to one another."[34] This quote aptly illustrates that the kind of exposure people need in order to make decisions, and which the marketplace of ideas is expected to bring them, is not only a diversity of information, but maybe even more importantly exposure to "contextual information," in the sense of a presentation of different ideas and views that are relevant in the context of a particular topic.

Exposure to "Diverse" Media Outlets

Another conception of (exposure) diversity would look not so much or not only at truth, wise decision-making, or respect for different cultures as benchmarks for "valuable" exposure; but also, and maybe even primarily, at how such exposure contributes to the dynamics of the social and democratic process. Exposure diversity as a policy goal would then entail the promotion of exposure to such types or categories of content that are particularly stimulating or otherwise favorable to active participation and democratic deliberation. This argument leans in part on deliberative theories to explain the value of media diversity. These theories stress the participative character of democracy and the importance of citizens who actively engage in informed debates with others about matters of public concern.[35] The media play an important role as a public forum and catalyst of the public debate through the creation of a "democratic and participatory public sphere."[36]

A benchmark for the value of that participatory public sphere is, among others, its openness to different speakers and ideas – in other words, its diversity. A diverse forum reflects the heterogeneous ideas and viewpoints in society, and thereby allows broadening the scope of the public debate. Insofar, the deliberative concept of diversity is closely linked to what is commonly referred to as internal diversity, in the sense of the guaranteed availability of a few outlets that are particularly dedicated to reflecting the diversity within our society."[37] To the contrary, the marketplace of ideas concept is usually more readily associated with the concept of external diversity.

It is commonly acknowledged that some media are more dedicated to internal diversity than others.[38] One medium that has always held a particularly prominent role in this context, at least in Europe, is public broadcasting. The legally-prescribed mission of public broadcasting is commonly seen as a guarantee that all segments of the public, including minority groups, can find themselves a

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[34] Alexander Meiklejohn, *Free Speech and Its Relation to Self-Government* (New York: Harper, 1948).
[35] Karpinnen; Schauer.
[36] Council of Europe, Declaration of the Committee of Ministers on Protecting the Role of the Media in Democracy in the Context of Media Concentration, 31 January 2007.
[37] Council of Europe, Recommendation Rec(2007)2 of the Committee of Ministers to Member States on Media Pluralism and Diversity of Media Content, 31 January 2007.
[38] Ibid.

mix of content from different sources and genres (information, education, culture, and entertainment).[39] Apart from its task to function as a diverse forum of public debate, the role of public broadcasting is often also associated with an educational element, to foster citizens' appetite for diverse contributions.[40] Insofar, one could argue that one possible aim of exposure diversity as a policy goal (and ultimately of diversity by design) would be to stimulate prominent exposure to the programs of public broadcasting or comparable internally diverse outlets.

Having said that, it is equally conceivable that in a media environment that is as diverse as the digital realm, public broadcasting will lose its role as a public forum, and other media will step in. There are indications that at least for certain parts of the population, the essentially passive model of public participation (i.e. the majority of the population participates by watching the programs of the public broadcaster) makes way for more decentralized and arguably more active modes of engagement with the media.[41] Social and citizen media have been recognized for having an increasingly important influence on agenda setting and exposure to diverse media content. Insofar, one potential policy goal to promote diversity of exposure (and of diversity by design) could be to promote more active forms of involvement with diverse media content.[42] Public broadcasting could have a role to play here, too. For example Goodman, who makes a strong argument for maintaining a prominent position for public media, suggests that public broadcasting should enlist interactive tools, such as social networking elements, in order to "promote and draw consumers to content that furthered media policy goals, particularly solidarity."[43] If you cannot beat the enemy, copy him!

Alternatively, one could also ask whether the goal of exposure diversity and diversity by design as a policy should be to expose people to media outlets that are not necessarily diverse in themselves, but that are traditionally underrepresented in people's media diet. Enhanced exposure to such content would then almost automatically result in a more diverse media diet. In an abundant media environment perhaps it is not the programs of well-established brands such as public broadcasting that are likely to be forgotten. The threat of fading into digital oblivion is particularly acute for the content created by or for minority groups, underprivileged social groups, young or new political forces, and cultural groups. Arguably, it is these groups that can be particularly valuable in adding to a dynamic democratic sphere and a healthy process of challenging established power structures, and that should therefore receive special attention when designing tools that guide people choices.

This later conceptualization of exposure diversity as a policy of exposure to underrepresented forces in society corresponds to theories of "radical pluralism" advanced most recently by Karpinnen as an alternative to established theories of media pluralism. Central to the idea of radical pluralism is the

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[39] Council of Europe, Recommendation No. R(99)1 of the Committee of Ministers to Member States on Measures to Promote Media Pluralism. 19 January 1999.

[40] Bernie Grummell, "The Educational Character of Public Service Broadcasting: From Cultural Enrichment to Knowledge Society," *European Journal of Communication* 24 (2009): 267-282.

[41] Lize-Marie Smuts, *Social Networking Sites as a New Public Sphere: Facebook and its Potential to Facilitate Public Opinion as the Function of Public Discourse – A Case Study of the 2008 Obama Campaign* (Doctoral Thesis, Stellenbosch University, 2010).

[42] Webster, "User Information Regimes."

[43] Ellen P. Goodman, "Media Policy Out of the Box: Content Abundance, Attention Scarcity, and the Failures of Digital Markets," *Berkeley Technology Law Journal* 19 (2004): 1468.

role of the media and media diversity policies to contest established structures of power, and to create an "agnostic public space" with the possibility for dissent and confrontation.[44] According to Karpinnen, "the key task for media policy from the radical pluralist perspective is to support and enlarge the opportunities for structurally underprivileged actors and to create space for the critical voices and social perspectives excluded from the systematic structures of the market or state bureaucracy."[45] Promoting exposure to underprivileged actors and critical voices could be one way to add to the dynamics of democratic discourse, and to address concerns about unequal opportunities of access to the audience.

Promoting Personal Autonomy

The previous two conceptualizations of exposure diversity as a policy goal give prominence to public interest considerations. An alternative approach would put the individual and her autonomy at the center. This does not prevent the individual from acting as a member of society for reasons beyond the fulfillment of purely self-centered needs (in other words: acting as a citizen, not as a consumer). Still, it should be up to the individual to choose. The only benchmark for assessing one's choices should be whether her choice adequately reflects her personal preferences. In other words, there are no "wrong" choices unless these choices are forced on her, or are otherwise the result of manipulation or the inability to make a truly personal choice. In this regard, (exposure) diversity translates first and foremost as allowing autonomous choices for the user. The task of diversity by design would then be to assist with truly autonomous choices as far as possible.

At the center of this autonomous conception of exposure diversity is respect for personal autonomy and individual choice, which again flows from the acknowledgement of personal dignity and equality.[46] No one other than the individual herself should be entitled to determine whether exposure to which kind of information, content, or media is right or wrong, valuable or worthless. As Scanlon explains, part of the individual's autonomy is also the right to choose her own benchmarks for assessing the quality and usefulness of information, thereby explicitly pointing to the social context of choice.[47] Scanlon's idea of friends filtering information exposure obviously gains a whole new meaning in the light of social networks. Social media, collaborative filtering, user-created content – their tasks are no longer reduced to platforms of (semi-)private communication. Instead they are part of how people manage exposure to publicly available content.

Approaching exposure diversity from the point of view of autonomy raises concern, if not outright panic, in the hearts of all those who believe that media diversity must serve a higher democratic goal. Media law has a long tradition of unease with the power of the individual to choose her own media diet – viewing the user as a passive and rather self-centered "media consumer."[48] Sunstein expresses

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[44] Karpinnen.
[45] Ibid., 88. See also Napoli and Sybbilis.
[46] Schauer, 1982; Thomas Scanlon, "A Theory of Freedom of Expression," *Philosophy and Public Affairs* 1 (1972): 204-226.
[47] Scanlon.
[48] For a good overview, see Margaret Scammel, "Citizen Consumers: Towards a New Marketing of Politics?" in *Media and the Restyling of Politics: Consumerism, Celebrity and Cynicism*, ed. John Corner and Dick Pels, 117-137 (London: Sage Publishing, 2003).

the concerns of many when claiming that "if people are deprived of access to competing views on public issues, and if as a result they lack a taste for those views, they lack freedom, whatever the nature of their preferences and choices… This is so even if people are voluntarily choosing the limited fare."[49] On the other hand, one could also accuse the proponents of this more paternalistic stance of a certain amount of hypocrisy. At one moment, the "consumer" cannot be trusted to make the best viewing decisions when left to herself; however, at the next election she is expected to act as a responsible citizen. Respecting an autonomous role for users in realizing exposure diversity arguably requires respecting the user in all her imperfections, contradictions, and bounded rationality.[50]

It is true that having free and autonomous choices implies that an individual first of all knows what her choices are, and that there is a choice. Otherwise, she is caught in a web of personal preferences. To correct for this, one important contribution of diversity by design could be to protect viewers from involuntary path dependencies. Having said that, it is equally important to acknowledge that choosing deliberately from limited fare touches upon another freedom – namely the freedom not to choose and not to be informed.[51] It would seem that in an age of acute information overload, the freedom not to choose or to limit one's media fare exceedingly deserves our attention.

Encouraging Serendipitous Discovery

A fourth and perhaps most thought-provoking conception of exposure diversity as a policy goal is exposure diversity as a means of promoting surprising or serendipitous encounters. Much of the existing discussion about media diversity is framed in terms of "organized diversity." The much-quoted agenda setting function of the (traditional) media is an example, as is the licensing system, must-carry rules, or the carefully composed internal diversity of the programs of the public broadcaster. This system of "organized diversity" is at odds with today's situation in which the media and media policies steadily lose control over the way people learn about new issues, weigh arguments, and become exposed to "right," "relevant," or "valuable" content. In light of these considerations, maybe a more realistic account of exposure diversity today would acknowledge that "organized diversity" is one, but not necessarily the only, route to creating better-informed citizens. Insight and democratic participation can also be a matter of serendipitous encounters with media content.

Entirely unpredictable random stimuli can spark interest in investigating the matter further or can trigger a synaptic connection between two items of information that allow users to arrive at new insights.[52] Serendipity can also promote media diversity by breaking established routines and the

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[49] Cass Sunstein, *Republic.com 2.0* (Princeton: Princeton University Press, 2007), 122.
[50] Scanlon.
[51] Jorg Fenchel, *Negative Informationsfreiheit. Zugleich ein Beitrag zur negativen Grundrechtsfreiheit* (Berlin: Duncker & Humblot, 1997).
[52] Elaine G. Toms, "Serendipitous Information Retrieval," in *Proceedings of DELOS Workshop: Information Seeking, Searching and Querying in Digital Libraries* 2000, 2002; Pek van Andel, "Anatomy of the Unsought Finding. Serendipity: Origin, History, Domains, Traditions, Appearances, Patterns and Programmability," *The British Journal for the Philosophy of Science* 4 (1994): 631-648; see also the thought-provoking blog of Ethan Zuckerman, "The Architecture of Serendipity," Sept. 6,

power of popular titles. Unexpected or "serendipitous" encounters, however, are also pivotal for advancing broader societal goals. There is some acknowledgement that serendipity plays a prominent role in the advancement of scientific research and discovery – and also art, culture, and citizenship.[53] Though related to the conception of exposure diversity as a discovery procedure (see above) the focus of exposure diversity as a means of promoting serendipitous discoveries is on "purposeful randomness" rather than contextual balancing. Accordingly, diversity by design could create the incentives for reflective curiosity rather than providing the ingredients for well-informed decision-making.[54]

Serendipity could provide an answer when marketplace of ideas models fail. A fundamental problem with the marketplace of ideas conception of diversity is the fact that the amount of information to consider and (rationally) evaluate has grown far beyond what any individual can manage, reasonable or not. It seems thus somewhat outdated to believe that simply through competing in the marketplace of ideas, true ideas will be singled out and proven to be true. Serendipitous encounters might alleviate some concerns about restrictive coping strategies and a tendency in users to hide in their "information cocoons." For similar reasons, serendipitous encounters could provide an alternative view on the function of exposure diversity as a means of stimulating engagement in public debate. Even Sunstein concedes that unexpected exposures may help to "promote understanding" and open-mindedness, and thereby also advance democratic goals.[55]

Some Concluding Remarks on Exposure Diversity as a Policy Goal

This section of the article has presented four different possible conceptions of exposure diversity as a policy objective. The different conceptions are not necessarily mutually exclusive; they can complement each other. For example, the greater the number of media options that are available, the more probable the chance that exposure to "different" content includes a certain element of serendipity. Exposure to certain valuable outlets (particularly from a democratic point of view) might more readily fuel the discovery of differences in political views and cultural attitudes. Social media elements could play a facilitating role in all conceptions of exposure diversity as a policy goal.

The different conceptualizations of exposure diversity could be roughly distinguished between "principled" exposure and "unprincipled" exposure. With principled exposure, there is a strong element of guidance and the idea that some types of media content, or combinations of media content, are more valuable than others to advance the public interest. The goal for media law and policy would then be to expose users to a balanced and contextual array of information, respectively to "valuable media" that are particularly important for a vibrant public sphere. The alternative

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2008, accessed Nov. 25, 2011, http://www.ethanzuckerman.com/blog/2008/06/09/the-architecture-of-serendipity/, and his subsequent work on that matter.

[53] Jose Campos and A. Dias de Figueirdo, "Programming for Serendipity," AAI Technical Report, FS 02-01: 48, *Proceedings of the 2002 AAAI Fall Symposium on Chance Discovery – the Discovery and Management of Chance Events*, 2002. See also van Andel; Schauer.

[54] As Schönbach explains convincingly, exposing users to the "joy of unexpected and new information" can be an important function of the media.

[55] Sunstein, 27-28.

approach – unprincipled exposure – is rather neutral regarding the content, and prefers the user herself or chance in determining exposure.

The different possible conceptions of exposure diversity as a policy goal also influence the principles that should guide the configuration of choice intermediaries and diversity by design. In the case of principled exposure diversity, the design of choice intermediaries will be characterized by forms of "guided choice" and a more active role for government or choice intermediaries themselves to determine what content users should be exposed to. In the case of autonomous or even serendipitous exposure to content as a policy goal, the media have a more passive, facilitating role – placing the user and her media experience in the center.

When weighing the different possible conceptions of exposure diversity as a policy goal, it must be noted that concepts of principled diversity are in danger of being at odds with the realities of digital content markets. These markets are characterized by abundance, lack of control, decentralization, globalization, and a more prominent role for autonomous user decisions. In such a situation, policymakers have two possible options. One option is to call for stronger prominence for so-called general interest intermediaries in setting the digital consumption agenda, hoping that the audience will follow suit and consume what is supposed to be good for it and society. The other option is to accept that media policy and its closest ally, public broadcasting, will find it increasingly difficult to steer exposure and uphold fixed ideas of what the audience needs to watch in order to turn into good citizens. What kind of media content the audience watches today is to a large extent the choice of the audience, its social networks, and last but not least, chance. Here the focus is no longer on organizing diversity, but on increasing the chance of diverse encounters, trusting that the unexpected or unplanned can be at times similarly useful, as long as it is different from what users generally consume. Maybe this latter option offers a more favorable account of what exposure diversity policies should achieve nowadays: to make sure that the audience is not caught in the trodden paths of a limited program diet simply because it is convenient or that the audience has forgotten how to seek exposure to more diversified fare. A core objective of future exposure diversity policies could be to stimulate open-mindedness, an appetite for exploration and the "different," as well as making sure that valuable content is never far away.

DIVERSITY BY DESIGN

The goal of this section is to suggest concrete design principles that could guide regulators and designers when trying to conceive of choice intermediaries that promote diverse exposure (in a normative sense). Seeing the novelty of the issue, the suggestions made are necessarily somewhat speculative. Also, it would go beyond the scope of this article (and the expertise of the author) to give a complete and state-of-the-art account of the technological requirements of the matter. Instead, this section will bring anecdotal references to existing tools or research in that field.

In order to illustrate the arguments made in this section, the example of Electronic Programme Guides (EPGs), or more recently Interactive Programme Guides (IPGs), will be used. These are navigation tools that help users choose between an increasing number of channels or content that are broadcasted or offered on-demand.[56] The popularity and proliferation of EPGs is rising steadily, correlating with the rollout of digital technologies.[57] Modern EPGs no longer concentrate on offline television offers only. With the arrival of "connected TV" or "smart TV," EPGs increasingly help users to not only navigate the broadcasting channels but also the web. For example, Google recently launched Google TV, a service that allows people to search via their television sets for content both in broadcast channels and online.[58] Known as "TV meets Web,"[59] the service is also an example of the convergence of search and recommendations from the broadcasting and the online domain.

The core functions of EPGs are navigation, program overview and information and, more and more, program recommendation.[60] The typical EPG provides the user with a more or less complete overview of the alternatives to choose from,[61] and enables her to choose the program that corresponds best with her interests and needs through the provision of detailed program information. Most EPGs also show now-next information (another difference from search engines), allowing users to plan their media exposure. Once a user has chosen a particular program the EPG will navigate (or link) the user to the respective program. Increasingly, EPGs also integrate search functions, similar to online search engines, leading to the so-called Interactive Programme Guides (IPGs).[62]

EPGs do not only help users to make autonomous choices, however, they also proactively guide users through program recommendations. Program recommendations can be the result of editorial choices, comparable to program ratings and recommendations in television journals, or of personalization strategies that give prominence to the viewer's personal preferences. A growing variety of apps offers social recommendation and searches, personalized searches, and incentive

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[56] In the following, the terms of *EPG* and *IPG* are used synonymously because most existing EPGs incorporate interactive elements.

[57] Goldmedia predicts that by 2014, almost three-quarters of all TV households in Western Europe will have access to EPGs. Goldmedia, "Content Overload will Increase the Importance of Electronic Programme Guides," Feb. 23, 2010, accessed Apr. 17, 2011, http://www.goldmedia.com/en/news/info/article/content-overload-will-increase-the-importance-of-electronic-programme-guides.html.

[58] BBC, "Google Launches Smart TV Service," May 20, 2010, accessed Aug. 24, 2011, http://www.bbc.co.uk/news/10132877.

[59] See http://www.google.com/tv/.

[60] This section leans on Uwe Hasebrink and H.D. Schröder "Der Markt für Navigatoren und Elektronische Programführer," in *Elektronische Programführung im digitalen Fernsehen*, ed. Uwe Hasebrink, H.D. Schröder, and Birgit Stark (Berlin: Schriftenreihe der Landesmedienanstalten, Vistas, 2008), Ch. 1. See also Barry Smyth and Paul Cotter, "Case-Studies on the Evolution of the Personalized Electronic Program Guide," in *Personalized Digital Television*, ed. Liliana Ardissono, Alfred Kobsa, and Mark T. Maybury, 53-68 (Den Haag: Kluwer International, 2004); Pablo Cesar and Konstantinos Chorianopoplous, *The Evolution of TV Systems, Content, and Users Toward Interactivity* (Hannover: Now Publishers, 2009).

[61] This is, of course, less true for EPGs that only present the offerings of one particular provider or group.

[62] For an example of a more sophisticated, search-enabling EPG, see http://www.tvgenius.net/products/genius-search/.

systems to engage with particular programs,[63] including rewards for watching particular programs.[64] The emergence of "smart TVs" or the so-called "content-aware TVs" further improves the possibilities for targeted recommendations. Smart TVs are able to recognize what users are watching, and can use that knowledge to provide them with contextual information or recommendations in relation to the particular programs they are watching.[65]

Designing EPGs That Support Diverse Exposure

Based on the different conceptions of exposure diversity that have been elaborated in this article, this section will make a number of suggestions for possible design principles for EPGs to support diverse exposure (in the normative sense).

Discovering the Difference: In line with what has been said earlier, EPGs that help users discover the difference would need to offer two complementary functions: exposing viewers to "different" content, and allowing for comparison or at least placing information in its larger context. Following Hoffman-Riem's distinction among four dimensions of diversity,[66] "different" can relate to different formats or categories (education, information, sport, entertainment, etc.), sources, or geographical coverage.

How could an EPG help users discover what different groups in society have to say about a particular topic and how these opinions differ? Such an EPG would need to present viewers, together with a particular topic, with alternative or complementary content from different sources, ideally with different political or cultural backgrounds. The same could be probably said for geographical coverage. The EPG would need to recognize the topic the user is choosing (e.g. Islam, diet, child education) as well as be able to choose and suggest contributions that deal with the same topic, but from a different source and/or perspective. As recent developments in context sensitive TV and so-called second screen applications demonstrate, the idea of providing a user with contextual information in addition to the content she is already watching is far from futuristic. In combination with some sort of referencing system that informs the EPG which channels, programs, or groups it would need to check, it could present alternative views to the user. One could think of defining a "dynamic pool" of relevant players/cultures in society that the system can consult, perhaps like comparison sites for the booking of flight tickets that check the offers of a set of

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[63] See for example GetGlue: http://getglue.com/; Miso ("we are changing the way people watch TV"): http://gomiso.com/; Watchpoints ("enables rich, second screen engagement by identifying what viewers are watching and syncing it, in real-time, with relevant, compelling and interactive experiences on your mobile phone or tablet"): http://www.watchpoints.tv/audiothumbprinting.html; or Tunerfish ("social discovery engine for TV"): http://www.tunerfish.com/about.

[64] See for example Loyalize ("Our solution combines the proven tactics of promotional rewards with real-time 'gamification' to motivate the audience behaviors that you choose."): http://loyalize.com/overview.html.

[65] For example, Apple recently filed for a patent on content-aware on-screen widgets; see Geek.com, "Apple Files for Patents on Content-Aware TV Widgets," June 24, 2011, accessed Nov. 25, 2011, http://www.geek.com/articles/apple/apple-files-for-patents-on-content-aware-tv-widgets-20110624/.

[66] Wolfgang Hoffmann-Riem, "National Identity and Cultural Values: Broadcasting Safeguards," *Journal of Broadcasting* 31 (1987): 57-72.

different airlines.[67] Another possibility might be to restrict the search to commentaries that comment on a particular contribution. For example, the search engines of certain academic journals display, together with the article, links to other articles that discuss the first article. Linking to commentary or discussion is another way to enable users to contextualize and compare information, or to confront users with additional, possibly alternative or contradictory views.

Traditionally, presenting different viewpoints in relation to a particular subject matter has been a task for news editors, broadcasters, and journalists. EPGs, too, can operate on the basis of editorial program recommendation. It is worth considering whether the provision of balanced and diverse program recommendations or referencing to a diverse system of links, and cross-references to related but different sources, could be a logical extension of this traditional role of the media. Arguably, in a situation in which content is abundant, the task of the professional media must shift from the exclusive production of content to (also) making existing content findable and valuable. Using program recommendations and links to outside sources as a way to help users place a topic in a broader context could be a particularly valuable exercise in that regard, and one in which the professional training and experience of the traditional media might be of considerable value.

A somewhat different approach might be needed to present users with "different" categories of content. Categories have traditionally been one of the common parameters that EPGs employ to guide users. Insofar, most existing EPGs already provide an overview of the different categories users can choose from. Another question is to what extent EPGs can or should have a role in incentivizing users to explore and compare other categories beyond what they usually consume. For example, if a user's media consumption is 80% sports, could a sensible tool suggest alternative program categories, thereby nudging her gently to diversify her consumption behavior? Through monitoring users' choices or otherwise learning her preferences (e.g. through program rating), various EPGs already recommend to users categories of media content they are likely to find interesting. From here it would probably be only a small step to designing systems that suggest categories that "you most likely would not have chosen yourself, but that you still might find interesting."[68] There already are examples of systems that experiment with ways to more purposefully recommend novel but unsearched-for content. Personalized search solutions are able to filter out items that are too similar to the content a user has consumed earlier.[69] Another interesting example is Library Thing's "Unsuggester,"[70] which requires a user to analyze what books

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[67] An interesting example from the realm of online searching is the search portal Hakia (http://www.hakia.com). When presented with the key word "Geert Wilders," a right-wing Dutch politician who is controversial (among other reasons) because of his radical ideas about Islam, the portal presents the reader with a clear, well-structured list of results from different sources, positive as well as critical about Wilders. The results include categories in different media: web, news, blogs, Twitter, images, and video. This way, a user can get a relatively comprehensive overview of the different facets of the topic.

[68] Another question, which however goes beyond the scope of this article, is how such a recommendation system would relate to users' privacy, as it would require monitoring of users' search behavior.

[69] Leo Iaquinta, Marco de Gemmis, et al., "Introducing Serendipity in a Content-based Recommender System," paper presented at the Eighth International Conference on Hybrid Intelligent Systems, Barcelona, Spain, 2008; with a reference to DailyLearner.

[70] See http://www.librarything.com/unsuggester.

other members own or have read. On the basis of this information it will make recommendations on books least likely to share a library with the book a user suggested.

The success of such an "alternative recommender" system will depend on its potential to trigger engagement with content in which users are not primarily interested. Attractive design of the user experience and presentational aspects are probably crucial in this context, although further research would be needed to confirm this point. "Gamification" and appealing to people's sense of curiosity and play could be fruitful components in this context, as is the power of the social media.[71] Friends and family seem to have considerable influence on media exposure and selection decisions.[72] "Social content discovery"[73] approaches such as collaborative filtering, folksonomy, or user ratings are commonly used as a system to discover content that is likely to interest users.[74] The interesting question is whether the power of the masses could also move users to make more diversified program choices. For example, Kiddphunk has developed an application that encourages people to share not the most popular, but the most unpopular links as a means of finding "like-minded" users who are also interested in this minority link.[75] Another possible example is the German public broadcaster ZDF, who invites users at its Facebook page to submit their "link of the week" in entertainment, information, or education, with the most interesting links presented in a "Wochen-Web-Rückblick" ("Weekly Web Overview").[76] Here, it is the task of the audience to draw attention to interesting and ideally diverse content.

Exposure to "Diverse" Media Outlets: Diversity by design could provide the architecture that guides users to particular programs, exposure to which is considered particularly valuable or necessary. Presentational aspects can have an important role to play in this context. By presenting the programs of public broadcasters most prominently, for example, EPGs could draw extra attention for their offers (which is also the reason why some European countries have chosen to regulate this aspect of media diversity).[77] Alternatively, EPGs could also be programmed to give particular prominence to the programs of minority groups, new political parties, or political discussion groups. It is equally conceivable that diverse EPGs do not give due prominence to particular providers, but to particular types of content, for example the so called "important events" that each European member state can list.[78]

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[71] One could think for example of a competition for pointing friends to content that they are not likely to choose themselves but that might be relevant to them, or to a particular topic. Or, users could earn points or credits for watching a particularly diverse selection of content.

[72] TV Genius, European Content Discovery Market Research, 2010. Compare with Webster, "User Information Regimes."

[73] See http://www.stumbleupon.com/technology/.

[74] Webster, "User Information Regimes."

[75] See http://www.mandalabrot.net/delicious/intro.html.

[76] See http://wochenjournal.zdf.de/ZDFde/inhalt/25/0,1872,8117113,00.html.

[77] See the subsection *Diversity by Design as a Possible Subject of Government Involvement to Promote Exposure Diversity* earlier in this article.

[78] According to the Audiovisual Media Service Directive, member states may draw up lists of events that are considered of such interest to the public that they may not be presented exclusively in pay-TV; see Art. 14 (1) of the Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the Coordination of Certain Provisions Laid Down by Law, Regulation or Administrative Action in Member States Concerning the Provision of

Another increasingly less utopian function of EPGs is the integration of existing or new diverse public forums or communities into the process of media exposure and consumption. As mentioned earlier, social networks can provide both a forum for speakers as well as an opportunity for the audience to access speakers (possibly through recommendation), to get even closer to them than they ever could in traditional media (e.g. by becoming a "friend"), and to debate with like-minded as well as differently-minded people. The social component of searching has been subjected to a growing body of analysis and experimentation.[79] Tools have been developed to stimulate and manage public debate in social media, including group applications, thematic pages, and the organization of real-life events.[80] It is interesting to see that some traditional (public) media are already using these online tools to stimulate a participative discourse.[81] Conversely, integration of social networking elements is already a feature in an increasing number of EPGs. Examples include the Dutch TV guide iFanzy, the result of a collaboration between Stoneroos and the Eindhoven University of Technology, which includes social media functions to let users know what other users liked and found useful based on systems of user ratings. While often still restricted to the exchange of program "tips," the integration of social network elements can also add an entirely new, direct, and potentially valuable public discourse layer to information exposure, maybe similar to the way that people currently use Twitter during public events, or in the context of so-called second screen applications.

Having said that, in order to prevent users from engaging primarily with the like-minded, and to reduce bias and social lock-ins, additional attention needs to be paid to the composition of such social network elements. Rather than encouraging conversation among the like-minded, EPGs could strive to integrate diverse panels, or maybe even try to match people with different backgrounds and profiles, perhaps in the fashion of a dating site for the politically or culturally interested. A challenge and possible area for further research are parameters for the composition of such a diverse discussion group. While its members should not be too similar in education, background, interests, political preferences, etc., large differences could stand in the way of meaningful dialogue.

Promoting Personal Autonomy: Many of the existing EPGs and search tools are indeed focused on helping users find the content *they* are interested in, and optimizing the search for that content. An increasingly important element in this context is personalization of the search results and viewing

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Audiovisual Media Services (Audiovisual Media Services Directive), OJ L 95/1 (15.04.2010). For a critical analysis, see Natali Helberger, "Brot und Spiele – Die Umsetzung der Listenregelung des Art. 3 a der Fernsehrichtlinie," *Archiv für Presserecht (AfP)* 4 (2002): 292-298.

[79] Chris Harrison, Brian Amento, and Larry Stead, "iEPG: An Ego-Centric Electronic Program Guide and Recommendation Interface," in *Proceedings of the 1st International Conference on Designing Interactive User Experiences for TV and Video* (UXTV '08), ACM, New York, NY, 2008, 23-26; Junzo Kamahara, Tomofumi Asakawa, Shinji Shimojo, and Hideo Miyahara, "A Community-based Recommendation System to Reveal Unexpected Interests," in *Proceedings for the 11th International Multimedia Modeling Conference* (MMM'05), 2005; Yu-Cheng Chen, Hsien-Chan Huang, and Yueh-Min Huang, "Community-Based Program Recommendation for the Next Generation Electronic Program Guide," *IEEE Transactions on Consumer Electronics* 55 (2009): 707-712.

[80] Smuts.

[81] See for example the social media aspects of various BBC America websites:
http://www.facebook.com/BBCAmerica#!/ZDFheute; http://www.facebook.com/BBCAmerica#!/cnninternational; http://www.facebook.com/BBCAmerica#!/nbc; http://www.facebook.com/BBCAmerica#!/PublicTelevision.

recommendations.[82] The personalization of EPGs has been the subject of extensive research and experimentation in recent past years.[83] Various personalized EPGs provide viewers with an offering of media content for a specific person, based on personal interests or profiles. For example, the aforementioned iFanzy EPG requests users to register and complete a profile, which will then be used as a point of departure for programming recommendations.[84] The TV Genius recommendations engine monitors the usage of TV and EPG services and aggregates them into a so-called relevancy map that can be used for contextual or personalized recommendations.[85] Somewhat different is the approach of Tivo's Guru Guides, in which users can choose different profiles or "gurus" (like the Los Angeles Times Critics Picks, "I Am a News Junkie," or "I Am a Pop Culture Nerd") and receive program information accordingly.[86]

The question is, of course, to what extent the personalized results that are ultimately presented to the user are the result of the users' personal preferences, or of other, mostly commercial considerations.[87] In the case of the latter, it is questionable if it is still possible to speak of autonomous diverse choices. Obviously, personalization creates possibilities for manipulating user decisions.[88] Consequently, transparency and the creation of trust should be important elements in designing personalized search solutions. This is perhaps also a reason for the growing popularity of social search tools whose recommendations are derived from collaborative filtering. They represent the wisdom of friends rather than the skills of advertisers.[89]

Another relevant issue to take into account in this context is the potential path dependencies that result from personalization strategies. Arguably, the process of personalization itself is the result of active choice and a common strategy in people's use of the media. "Structural" or "embedded" personalization, however, could actually reduce exposure diversity by restricting information exposure to the same old "beaten tracks" even if users were open for something new in principle. A

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[82] According to Mathias Birkel of Goldmedia, author of a recent report on EPG development and deployment in Europe, "the EPG is becoming much more than a digital programme guide: it is evolving into an interactive, personalized and integrated entertainment guide."

[83] Jeongyeon Lim, Sanggil Kang, and Munchurl Kim, "Automatic User Preference Learning for Personalized Electronic Program Guide Applications," *Journal of the American Society for Information Science and Technology* 58 (2007): 1346-1356; Cesar and Chorianopoplous; Smyth and Cotter.

[84] Compare with Pieter Bellekens, Geert van Kerckhove, and Annalies Kaptein, "iFanzy – A Ubiquitous Approach Towards a Personalized EPG," online paper, 2009. Accessed Aug. 23, 2011, http://soc.kuleuven.be/com/mediac/euroitv2009/docs/adjunct_proceedings/demos/BELLEKENS,%20PIETER%20et%20al.%20-%20demo.pdf.

[85] See http://www.tvgenius.net/resources/recommendations-engine/.

[86] See http://www3.tivo.com/tivo-tco/mix/index.do.

[87] A TV Genius white paper points out that "TV search is open to all of the monetisation opportunities that are available in web search environments: paid for search, contextual advertising, and paid for recommendations. TV search products should support paid for promotions of individual TV shows, an entire series, a particular channel and related products." See Ian R. Kerr, "Bots, Babes and the Californication of Commerce," online paper, 2004, accessed Aug. 24, 2011, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=705002; Daniel Chamberlain, "Television Interfaces," *Journal of Popular Film and Television* 38 (2010): 87.

[88] Kerr; Chamberlain.

[89] See for example the service StumbleUpon, http://www.stumbleupon.com/aboutus/. ("StumbleUpon combines collaborative human opinions with machine learning of personal preference to create virtual communities of like-minded websurfers.")

frequent complaint of users of EPGs or IPGs, for example, is that personalized program lists are not sufficiently updated once new programs enter the market. As a result, users of personalized program guides would not, or would only by accident, learn of the existence of new channels, particularly if those are niche channels.[90] In order to prevent users from becoming unwillingly locked into previously-voiced preferences, the EPG would regularly need to draw attention to new sources or content, and give users the opportunity to reconsider their choices. Another possible answer could be to include elements of serendipity.

Encouraging Serendipitous Encounters: When speaking about search, or tools to assist users in search, what is meant is usually that search is directed at finding the one particular piece of information that is best suited to respond to a user's query. This type of targeted search is, however, only one of several ways to find and retrieve information. Toms distinguishes among three types of information retrieval: seeking information about a well-defined object; seeking information about an object that cannot be fully described but will be recognized on sight; and acquiring information in an accidental, incidental, or serendipitous way.[91] While much of the discussion regarding exposure diversity, and the role of search in realizing diversity, is centered on the first two categories, serendipity as a design principle is generating increasing interest.

An important question in the context of serendipity as a possible design principle is the question of whether it is actually possible to design or organize serendipitous information encounters. If serendipity could be equated with chance, there are of course possibilities for programming for chance, for example through a random information node generator.[92] Indeed, there are already examples of EPGs that include elements of chance encounters. The aforementioned iFanzy EPG, for example, features a "verras me" ["surprise me"] function that presents users with random references to programs. A search engine that uses Serendipity Search (a Google engine) has been specifically designed to present users with surprising, random search results.[93]

There is some agreement, however, that there is more to serendipitous encounters than just chance. Schönbach explains that in order to be useful for people, surprises need to be reliable, that is "embedded in the familiar."[94] Otherwise the result is simply overwhelming and users have little incentive to investigate further. In order to be able to make sense out of chance information exposure, the information must resonate with some prior knowledge, interest, or experience for the user.[95]

On the basis of these insights, Campos and de Figueirdo for example designed "Max," a software agent that gets to know the user and learns about her interests and preferences, before it uses this information randomly to browse the web and generate suggestions for unexpected material that the

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[90] This is known as the "cold start" problem. See Stark, "Digitale Programmnavigation."

[91] Toms.

[92] Ibid.

[93] In the site's words, it "delivers nice surprises." See http://www.serendipitysearch.co.uk/about.html.

[94] Schönbach.

[95] Campos and de Figueiredo; Toms, 3; van Andel, 635 (citing Pasteur: "Chance favours only the prepared mind").

user might find stimulating.[96] Serendipity also plays a role in TVgids.nl, a Dutch online EPG that has been developed in cooperation with academic researchers at the TNO research organization.[97] Other experiments use community-based models to learn more about users' preferences,[98] or operate with keywords and synonyms or other associative links to certain keywords.[99] Keywords need not be provided by the search engine itself, but can also be user-generated. Auray argues that one important benefit of folksonomy (as a user-generated reference system) is that it induces random exploration of content.[100]

As André et al. demonstrate, however, most existing systems that try to program for serendipity tend to concentrate on the question of how to create an environment in which users are exposed to chance encounters. A question that, according to the authors, has received too little attention thus far is how to help users extract meaning from information that has been retrieved serendipitously, and use it to generate new insights and discoveries.[101] They point to the value of enhanced domain expertise, gamification, and mechanisms for sharing and collaboration as possible avenues to encourage people to utilize serendipitous information.[102] This observation is, of course, particularly important for the given context. In the normative conceptions of exposure diversity presented here, exposure to diverse information is not a goal in itself, but a mission with a meaning. Accordingly, a "diverse EPG" that makes use of elements of serendipity would need to include ways to provide users with contextual information or other means to engage with content meaningfully.

Some Concluding Remarks on Designing EPGs that Support Diverse Exposure

This section of the article has developed a number of principles that could inform the design of "diverse" EPGs that offer users not only a varied choice but also a diverse choice (in the normative sense). Depending on the underlying conception of exposure diversity, the suggestions for diversity by design highlight different aspects of technology design. If the goal of exposure diversity is to help users discover the difference, a diverse EPG could present them with a diversity of references to external sources with regard to one topic; or it could make, based on profiling or content analysis, recommendations for categories or media content that users would otherwise possibly not have chosen, thereby "nudging" people towards more valuable and diverse choices.

When the goal is selective exposure to particularly "diverse" outlets, EPGs can and already are used to draw the attention of the audience to the programs of public broadcasting or media content of a particular educational, social, regional, cultural, or democratic value. Moreover, through the integration of elements of social interaction, EPGs can create the basis for new "participatory

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[96] Campos and de Figueiredo.

[97] See http://www.tvgids.nl/pagina/perstvgids_uitleg/.

[98] Kamahara, Asakawa, Shimojo, and Miyahara.

[99] Wataru Sunayama and Masahiko Yachida, "An Aiding System for Internet Surfing by Associations: Get One Through Chances," paper presented at the KES2000 Fourth International Conference on Knowledge-Based Intelligent Engineering Systems and Allied Technologies Proceedings, IEEE, 2000.

[100] Nicolas Auray, "Folksonomy: The New Way to Serendipity," *Communications & Strategies* 65 (2006): 67-89.

[101] Paul André, M.C. Schraefel, Jaime Teevan, and Susan T. Dumais, "Discovery is Never by Chance: Designing for (Un)Serendipity," *Proceedings of the ACM Conference on Creativity & Cognition* (2009), 7.

[102] Ibid.

spaces." A point of particular attention in this context is the composition of diverse groups, and matching people according to their differing preferences and backgrounds.

Promoting autonomous choice and the optimal match with the preferences of users has been the traditional focus of EPG design. In the interests of transparency it is important to avoid manipulation, which would be counterproductive to truly autonomous choices. Also, mechanisms of avoiding path dependencies and lock-ins to previously selected preferences are necessary, as are procedures to protect the privacy of users. Finally, an increasing body of research is dedicated to the question of how program searching could stimulate open-mindedness, new insights, and creativity by confronting users with new, serendipitous information in a way that is actually useful to them.

CONCLUSIONS

This article has suggested four different conceptions of exposure diversity as a policy goal that could help frame future diversity policies and inform the design of "diverse" Electronic Programme Guides or search engines: Discovering the Difference, Exposure to Diverse Media Outlets, Promoting Personal Autonomy, and Encouraging Serendipitous Discoveries. It then identified a number of corresponding principles or characteristics in navigation tools that could help people make diverse program choices ("Diversity by Design").

Due to the complexities of the ways people gather, process, and use information, diversity by design can never be more than an aid to promote diverse choices. Still, diversified search and recommendation tools could be an important means for promoting the policy objectives behind the different conceptions of exposure diversity. Through user experience design, EPGs could have considerable influence in nudging people towards more valuable and diverse choices, and could stimulate open-mindedness and new insights by confronting users with new and unexpected material.

Any design of a diverse EPG would need to be informed by empirical studies in the categories, types, and sources of information that users need to live up to the various expectations that are attached to media diversity as a policy goal. Achieving diversity by design is a multidisciplinary project that combines policy research with technical, social, cultural, and communications sciences. The ideas presented in this article are meant as first suggestions for approaches that may deserve further exploration.

Another question concerns the likelihood of providers of search and recommendation tools embracing diversity by design. Much will depend upon their own commercial interests, as well as on user demand for diverse recommendations. Seeing that some of the suggestions made here include routines to recommend content that users would rather not see, it is easy to see the difficulty in finding a good business case for diversified tools. Even if people were in principle interested in diverse fare, the demand for more "agreeable" tools could be overpowering. Also, it needs to be kept in mind that many of the existing EPGs and search tools are proprietary in nature, and are

designed first and foremost to promote the interests of their operators. Insofar, additional stimuli from the government might be necessary, for example by making the diversity of search results a legal requirement, or by creating financial incentives like additional funding. Governments can also contribute to preparing the minds of the audience through education and media literacy initiatives, to make diverse encounters actually useful and enticing for the audience.

In the end it remains up to users to decide which content to consume and which to ignore. If consumers decide to walk in the same old trodden paths and stick to a limited choice of the familiar and comfortable, there is little that even the most sophisticated media diversity policies can do. Consuming diverse media fare is not always comfortable and certainly not familiar. Having said that, diversity by design, if properly implemented, could be a tool to stimulate users' appetite in diverse encounters – which in itself would be reason for optimism.

Bibliography

André, Paul, M.C. Schraefel, Jaime Teevan, and Susan T. Dumais. "Discovery is Never by Chance: Designing for (Un)Serendipity." *Proceedings of the ACM Conference on Creativity & Cognition*, 2009.

Auray, Nicolas. "Folksonomy: The New Way to Serendipity." *Communications & Strategies* 65 (2006): 67-89.

Baker, C. Edwin. "Giving the Audience What It Wants." *Ohio State Law Journal* 58 (1997): 316-417.

BBC. "Google Launches Smart TV Service," May 20, 2010. Accessed Aug. 24, 2011, http://www.bbc.co.uk/news/10132877.

Bellekens, Pieter, Geert van Kerckhove, and Annalies Kaptein. "iFanzy – A Ubiquitous Approach Towards a Personalized EPG." Online paper, 2009. Accessed Aug. 23, 2011, http://soc.kuleuven.be/com/mediac/euroitv2009/docs/adjunct_proceedings/demos/BELLE KENS,%20PIETER%20et%20al.%20-%20demo.pdf.

Campos, Jose and A. Dias de Figueirdo. "Programming for Serendipity." AAI Technical Report, FS 02-01: 48, *Proceedings of the 2002 AAAI Fall Symposium on Chance Discovery – the Discovery and Management of Chance Events*, 2002.

Cesar, Pablo and Konstantinos Chorianopoplous. *The Evolution of TV Systems, Content, and Users Toward Interactivity*. Hannover: Now Publishers, 2009.

Chamberlain, Daniel. "Television Interfaces." *Journal of Popular Film and Television* 38 (2010): 84-88.

Chen, Yu-Cheng, Hsien-Chan Huang, and Yueh-Min Huang. "Community-Based Program Recommendation for the Next Generation Electronic Program Guide." *IEEE Transactions on Consumer Electronics* 55 (2009): 707-712.

Cooper, Roger and Tang Tang. "Predicting Audience Exposure to Television in Today's Media Environment: An Empirical Integration of Active-Audience and Structural Theories." *Journal of Broadcasting & Electronic Media* 53, no. 3 (2009): 400-418.

Council of Europe. Declaration of the Committee of Ministers on Protecting the Role of the Media in Democracy in the Context of Media Concentration, 31 January 2007.

———. Draft Recommendation on the Protection of Human Rights with Regard to Search Engines, Strasbourg, 11 March 2010.

———. Recommendation No. R(99)1 of the Committee of Ministers to Member States on Measures to Promote Media Pluralism. 19 January 1999.

———. Recommendation Rec(2007)2 of the Committee of Ministers to Member States on Media Pluralism and Diversity of Media Content, 31 January 2007.

de Wit, Joost. Evaluating Recommender Systems. *An Evaluation Framework to Predict User Satisfaction for Recommender Systems in an Electronic Program Guide Context*. Master's thesis, Delft, 2008.

Elberse, Anita and Felix Oberholzer-Gee. "Superstars and Underdogs: An Examination of the Long Tail Phenomenon in Video Sales." Harvard Business School Working Paper No. 07-015, 2007.

Engel, Bernhard and Ute Schlinker. "Programbewertung und Erlebnisqualität beim Fernsehen." *Media Perspektiven* 11 (2009): 603-613.

European Parliament and Council of the European Union. Directive 2002/19/EC of 7 March 2002 on Access to, and Interconnection of, Electronic Communications Networks and Associated Facilities (Access Directive), O.J. L 108/7 (24.04.2002).

———. Directive 2010/13/EU of the European Parliament and of the Council of 10 March 2010 on the Coordination of Certain Provisions Laid Down by Law, Regulation or Administrative Action in Member States Concerning the Provision of Audiovisual Media Services (Audiovisual Media Services Directive) (codified version), O.J. [2010] L95/1 (15.04.2010).

———. Proposal for a Directive Amending Council Directive 89/552/EEC on the Coordination of Certain Provisions Laid Down by Law, Regulation or Administrative Action in Member States Concerning the Pursuit of Television Broadcasting Activities ("Audiovisual Media Services Without Frontiers"), /* COM/2007/0170 final - COD 2005/0260 */.

Fenchel, Jorg. *Negative Informationsfreiheit. Zugleich ein Beitrag zur negativen Grundrechtsfreiheit.* Berlin: Duncker & Humblot, 1997.

Ferguson, Douglas A. and Elizabeth M. Perse. "Media and Audience Influences on Channel Repertoire." *Journal of Broadcasting & Electronic Media* 37 (1993): 31-47.

Geek.com. "Apple Files for Patents on Content-Aware TV Widgets," June 24, 2011. Accessed Nov. 25, 2011, http://www.geek.com/articles/apple/apple-files-for-patents-on-content-aware-tv-widgets-20110624/.

Goldmedia. "Content Overload will Increase the Importance of Electronic Programme Guides," Feb. 23, 2010. Accessed Apr. 17, 2011, http://www.goldmedia.com/en/news/info/article/content-overload-will-increase-the-importance-of-electronic-programme-guides.html.

Goodman, Ellen P. "Media Policy Out of the Box: Content Abundance, Attention Scarcity, and the Failures of Digital Markets." *Berkeley Technology Law Journal* 19 (2004): 1389-1472.

———. "Public Media 2.0," draft, Aug. 1, 2008. Accessed Aug. 24, 2011, http://ssrn.com/abstract=1299685.

Grummell, Bernie. "The Educational Character of Public Service Broadcasting: From Cultural Enrichment to Knowledge Society." *European Journal of Communication* 24 (2009): 267-282.

Hargittai, Eszter. "Open Portals or Closed Gates? Channeling Content on the World Wide Web." *Poetics* 27 (2000): 233-253.

Harrison, Chris, Brian Amento, and Larry Stead. "iEPG: An Ego-Centric Electronic Program Guide and Recommendation Interface." In Proceedings of the 1st International Conference on Designing Interactive User Experiences for TV and Video (UXTV '08), ACM, New York, NY, 2008.

Hasebrink, Uwe and H.D. Schröder. "Der Markt für Navigatoren und Elektronische Programmführer." In *Elektronische Programführung im digitalen Fernsehen*, edited by Uwe Hasebrink, H.D. Schröder, and Birgit Stark, Ch. 1. Berlin: Schriftenreihe der Landesmedienanstalten, Vistas, 2008.

Helberger, Natali. "Brot und Spiele – Die Umsetzung der Listenregelung des Art. 3 a der Fernsehrichtlinie." *Archiv für Presserecht (AfP)* 4 (2002): 292-298.

Hoffmann-Riem, Wolfgang. "National Identity and Cultural Values: Broadcasting Safeguards." *Journal of Broadcasting* 31 (1987): 57-72.

Iaquinta, Leo, Marco de Gemmis, et al. "Introducing Serendipity in a Content-based Recommender System." Paper presented at the Eighth International Conference on Hybrid Intelligent Systems, Barcelona, Spain, 2008.

Kamahara, Junzo, Tomofumi Asakawa, Shinji Shimojo, and Hideo Miyahara. "A Community-based Recommendation System to Reveal Unexpected Interests." In *Proceedings for the 11th International Multimedia Modeling Conference* (MMM'05), 2005

Kang, Myung-Hyun. "Interactivity in Television: Use and Impact of an Interactive Program Guide." *Journal of Broadcasting & Electronic Media* 46 (2002): 330-345.

Karppinen, Kari. *Rethinking Media Pluralism: A Critique of Theories and Policy Discourses.* Dissertation: University of Helsinki, Department of Social Research, 2010.

Kerr, Ian R. "Bots, Babes and the Californication of Commerce." Online paper, 2004. Accessed Aug. 24, 2011, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=705002.

Ksiazek, Thomas B. and James G. Webster. "Cultural Proximity and Audience Behavior: The Role of Language in Patterns of Polarization and Multicultural Fluency." *Journal of Broadcasting & Electronic Media* 52 (2008): 485-503.

Lim, Jeongyeon, Sanggil Kang, and Munchurl Kim. "Automatic User Preference Learning for Personalized Electronic Program Guide Applications." *Journal of the American Society for Information Science and Technology* 58 (2007): 1346-1356.

McQuail, Denis. *Media Performance, Mass Communication and the Public Interest.* London: Sage Publications, 1992.

Meiklejohn, Alexander. *Free Speech and Its Relation to Self-Government.* New York: Harper, 1948.

Napoli, Philip M. "Deconstructing the Diversity Principle." *Journal of Communication* 4 (1999): 7-34.

———. "The Marketplace of Ideas Metaphor in Communications Regulation." *Journal of Communication* 49, no. 4 (1999): 151-169.

———. "Rethinking Program Diversity Assessment: An Audience Centered Approach." *Journal of Media Economics* 10 (1997): 59-74.

Napoli, Philip M. and Nancy Gillis. "Media Ownership and the Diversity Index: Outlining a Social Science Research Agenda." McGannon Center Working Paper Series, Paper 5, 2008. Accessed Aug. 24, 2011, http://fordham.bepress.com/cgi/viewcontent.cgi?article=1012&context=mcgannon_working_papers.

Napoli, Philip M. and Sheea T. Sybblis. "Access to Audiences as a First Amendment Right." *Virginia Journal of Law and Technology* 12 (2007): 1-31.

Rawls, John. *Political Liberalism.* New York: Columbia University Press, 1991.

Scammel, Margaret. "Citizen Consumers: Towards a New Marketing of Politics?" In *Media and the Restyling of Politics: Consumerism, Celebrity and Cynicism*, edited by John Corner and Dick Pels, 117-137. London: SAGE Publishing, 2003.

Scanlon, Thomas. "A Theory of Freedom of Expression." *Philosophy and Public Affairs* 1 (1972): 204-226.

Schauer, Frederick. *Free Speech: A Philosophical Enquiry.* Cambridge: Cambridge University Press, 1982.

Schönbach, Klaus. "The Own in the Foreign: Reliable Surprise – An Important Function of the Media?" *Media, Culture & Society* 29 (2007): 344-353.

Schulz, Wolfgang. Thorsten Held, and Manfred Kops. *Perspektiven der Gewährleistung freier öffentlicher Kommunikation.* Baden-Baden: Nomos, 2002.

Shim, Jae Woong and Paul Bryant. "Effects of Personality Types on the Use of Television Genre." *Journal of Broadcasting & Electronic Media* 51 (2007): 287-304.

Smuts, Lize-Marie. *Social Networking Sites as a New Public Sphere: Facebook and its Potential to Facilitate Public Opinion as the Function of Public Discourse – A Case Study of the 2008 Obama Campaign.* Doctoral thesis, Stellenbosch University, 2010.

Smyth, Barry and Paul Cotter. "Case-Studies on the Evolution of the Personalized Electronic Program Guide." In *Personalized Digital Television*, edited by Liliana Ardissono, Alfred Kobsa, and Mark T. Maybury, 53-68. Den Haag: Kluwer International, 2004.

Stark, Birgit. "Digitale Programmnavigation." *Media Perspektiven* 5 (2009): 233-245.

———. "Programmauswahl in digitalen Fernsehwelten." *Medien & Kommunikation* 55 (2007): 223-244.

Stephenson, Neal. *The Diamond Age.* New York: Bantam Books, 1995.

Sunayama, Wataru and Masahiko Yachida. "An Aiding System for Internet Surfing by Associations: Get One Through Chances." Paper presented at the KES2000 Fourth International Conference on Knowledge-Based Intelligent Engineering Systems and Allied Technologies Proceedings, IEEE, 2000.

Sunstein, Cass. *Republic.com 2.0*. Princeton: Princeton University Press, 2007.

Toms, Elaine G. "Serendipitous Information Retrieval." In *Proceedings of DELOS Workshop: Information Seeking, Searching and Querying in Digital Libraries* 2000, 2002.

TV Genius. European Content Discovery Market Research, 2010.

Valcke, Peggy. *Digitale Diversiteit – Convergentie van Media-, Telecommunicatie- en Medidingingsrecht*. Brussel: Larcier, 2004.

van Andel, Pek. "Anatomy of the Unsought Finding. Serendipity: Origin, History, Domains, Traditions, Appearances, Patterns and Programmability." *The British Journal for the Philosophy of Science* 4 (1994): 631-648.

van Cuilenburg, Jan. "The Media Diversity Concept and European Perspectives." Paper presented at the Media Economics, Content and Diversity Seminar, Finnish Academy of Sciences. Helsinki, Dec. 16, 2002.

van der Burg, Miriam, Edmund Lauf, and Rini Negenborn. *Mediamonitor: The Dutch Media in 2010*. Hilversum: Commisssariaat voor de Media, 2010.

van der Wurff, Richard. "Program Choices of Multichannel Broadcasters and Diversity of Program Supply in the Netherlands." *Journal of Broadcasting & Electronic Media* 48 (2004): 135-150.

Webster, James G. "Beneath the Veneer of Fragmentation: Television Audience Polarization in a Multi-Channel World." *Journal of Communication* 55 (2005): 366-382.

———. "Diversity of Exposure." In *Media Diversity and Localism: Meaning and Metrics*, edited by Philip M. Napoli, 309-326. Mahwah, NJ: Lawrence Erlbaum Associates, 2006.

———. "User Information Regimes: How Social Media Shape Patterns of Consumption." *Northwestern University Law Review* 104 (2010): 593-612.

Webster, James G. and Jacob J. Wakshlag. "A Theory of Television Program Choice." *Communications Research* 10 (1983): 430-446.

Zuckerman, Ethan. "The Architecture of Serendipity," Sept. 6, 2008. Accessed Nov. 25, 2011, http://www.ethanzuckerman.com/blog/2008/06/09/the-architecture-of-serendipity/