

## ORIGINAL ARTICLE

## The Dynamics of Audience Fragmentation: Public Attention in an Age of Digital Media

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*Audience fragmentation is often taken as evidence of social polarization. Yet the tools we use to study fragmentation provide limited information about how people allocate their attention across digital media. We offer a theoretical framework for understanding fragmentation and advocate for more audience-centric studies. This approach is operationalized by applying network analysis metrics to Nielsen data on television and Internet use. We find extremely high levels of audience duplication across 236 media outlets, suggesting overlapping patterns of public attention rather than isolated groups of audience loyalists.*

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One of the most widely observed consequences of the growth in digital media is audience fragmentation. As more offerings are delivered on broadband networks and more choices are available “on-demand,” patterns of consumption become more widely distributed. Although some celebrate these changes as signaling a more responsive marketplace and robust public sphere (e.g., Anderson, 2006; Benkler, 2006), others see cause for concern. To them, fragmentation spells the end of a common cultural forum, or worse, the birth of media enclaves and “sphericules” that scarcely interact (Gitlin, 1998; Katz, 1996; Sunstein, 2007). Although there is little doubt that broadcasters and mainstream outlets have seen their audiences erode in favor of newer alternatives, the tools we use to track fragmentation tell us surprisingly little about audience loyalties and how public attention moves across digital media. This article reviews what we know of audience fragmentation, offers new methods for understanding the phenomenon, and speculates on the future of media consumption.

We begin by outlining a theoretical framework that identifies the factors that promote or mitigate fragmentation. We review three different ways of studying fragmentation. The first is a *media-centric* approach that tallies total attendance across outlets or products. This mode of analysis is typified by trend lines, long tails, and power

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law distributions. The second is a *user-centric* approach that focuses on the media repertoires of individual consumers. We then describe an alternative *audience-centric* approach. We demonstrate this third approach by applying network analysis metrics to data from Nielsen's TV/Internet Convergence Panel, which tracked television and Internet use across the same sample. Finally, we offer an assessment of where audience fragmentation is headed. We find very little evidence that audiences are composed of devoted loyalists. Rather, they show high levels of overlap across outlets, drawing into question assertions that audience fragmentation is indicative of social polarization.

### **The factors that shape fragmentation**

Fragmentation results from the interaction of media and audiences. It is best understood with a theory that lets us move easily between the macrolevel effects of structure and the microlevel actions of users. The "theory of structuration," developed by sociologist Anthony Giddens (1984), provides such a framework and has been adapted to describe the operation of the media environment (Webster, 2008, 2011). In a nutshell, we see media as providing resources (media providers) that agents (media users) appropriate to accomplish their purposes. To do this effectively, both parties rely heavily on information regimes (media measures) to monitor consumption. This is a recursive process in which users both reproduce and alter the structural features of the environment. In other words, the media environment is jointly constructed from the interaction of structures and agents—something Giddens called a "duality." Below, we identify the principle components of the model, highlighting those factors that shape fragmentation.

#### **Media providers**

The most obvious cause of fragmentation is a steady growth in the number of media outlets and products competing for public attention. This happens when established media, such as television, expand or when newer media, such as the Internet, enter the competition. These are sometimes categorized as intra- and intermedia fragmentation, respectively (Napoli, 2003), though, as digital technologies make it easier for both content and users to move across platforms, such distinctions seem less important. Whatever their means of delivery, media providers work to attract the attention of users. Attention has traditionally been monetized in a "dual-product" marketplace, where media providers sell content to consumers and "eyeballs" to advertisers (Napoli, 2003).

Adding to the choices and claiming their own share of attention are new offerings loosely referred to as "social media." These include social networks such as Facebook, purveyors of user-generated content such as YouTube, and an assortment of content aggregators such as Netflix, iTunes, Google, and Digg (Webster, 2010). The motivations of these providers are not always as uniform or transparent as those of traditional media, but many seek fame or fortune. To achieve that, they too compete for an audience.

Unfortunately, the supply of public attention is limited and, given the endless number of claimants, scarce. This has led many writers to characterize the information age as an “attention economy” in which attracting an audience is a prerequisite for achieving economic, social, or political objectives (e.g., Davenport & Beck, 2001; Goldhaber, 1997; Lanham, 2006; Webster, 2010). That is certainly the logic that governs the media marketplace, and it is a recipe for audience fragmentation.

### **Media users**

What media users do with all those resources is another matter. Most theorists expect them to choose the media products they prefer. Those preferences might reflect user needs, moods, attitudes, or tastes, but their actions are “rational” in the sense that they serve those psychological predispositions. Whether people use the growing abundance to consume a steady diet of their preferred genre or to sample a diverse range of materials is an open question. Many observers, noting people’s penchant for *selective exposure*, fear the former, particularly as it applies to news (Hollander, 2008; Iyengar & Hahn, 2009; Ksiazek, Malthouse, & Webster, 2010; Prior, 2007; Stroud, 2008; Van den Bulck, 2006). In the extreme, selective exposure could produce highly focused audiences who have been variously characterized as “enclaves” (Sunstein, 2007), “gated communities” (Turow, 1997), and “sphericules” (Gitlin, 1998).

Social scientists typically expect users to know a good deal about the environment in which they operate. Economic models of program choice, for example, assume a perfect awareness of the alternatives that are available at any point in time (e.g., Owen & Wildman, 1992). In reality, rational choice is “bounded” in two ways. First, the sheer abundance of the digital marketplace makes perfect awareness impossible. Second, media products are “experience goods” characterized by “infinite variety” (Caves, 2000, 2005). Users cannot be sure that even familiar outlets or brands will deliver the desired gratifications until they have consumed the offering.

Users cope with these difficulties in a variety of ways. They often have “media repertoires” that effectively limit their choices and minimize their search costs. We will have more to say about these in the section that follows. They also rely on recommendations. The power of social networks to affect our media choices has been evident for some time (Katz & Lazarsfeld, 1955), but the emergence of social media has introduced new forces that shape attendance.

### **Media measures**

For media providers to function effectively, they must be able to see what the users are doing. Media measures allow them to verify that they have an audience, adjust their strategies for managing attendance, and monetize the results. Academics have referred to these types of measures as “market information regimes” (Anand & Peterson, 2000; Andrews & Napoli, 2006). They provide “. . . the prime source by which producers in competitive fields make sense of their actions and those of consumers, rivals, and suppliers that make up the field” (Anand & Peterson, 2000,

p. 271). In the United States and much of the world, media measures are offered by third-party providers, such as the Nielsen Company and Arbitron.

Media users have become increasingly dependent on their own media measures. For them to find a Web site that serves their needs, a news item that informs their opinions, or a video that appeals to their preferences, they rely on search and recommendation systems. Collectively, these have been called “user information regimes” (Webster, 2010). Most social media seem to offer some sort of measures that alert users to what their fellow consumers have done or said, often guiding subsequent choices (Cho & Roy, 2004; Salganik, Dodds, & Watts, 2006).

All media measures are the result of gathering and reducing data. As in any research enterprise, the output reflects decisions about what variables to measure, what methods to use, and what information to report. They inevitably portray the media environment in ways that highlight some features and not others (Napoli, 2011; Webster, 2010). Nevertheless, media measures exercise a powerful influence on what users ultimately consume and how providers adapt to and manage those shifting patterns of attendance. Indeed, information regimes can themselves promote or mitigate processes of audience fragmentation (e.g., Anand & Peterson, 2000; Barnes & Thomson, 1994; Napoli, 2011).

### **Studies on audience fragmentation**

The audience fragmentation that emerges from this mix of providers, users, and measures is generally conceptualized and reported in one of two ways. We have categorized these as media- and user-centric studies. Each approach operates at a different level of analysis and reflects the priorities and analytical resources of the researchers. Media-centric studies are, by far, the more common of the two. After discussing each, we offer an audience-centric approach, which has features of the first two but contributes to a more complete picture of how the public allocates its attention across the media environment.

#### **Media-centric fragmentation**

Research on media-centric fragmentation uses discrete media outlets (e.g., channels and Web sites) or products (e.g., movies and music) as the unit of analysis. These are sometimes aggregated into larger groups or brands. The total size of the unit’s audience is reported at a point in time (e.g., Tewksbury, 2005) or in a series of cross-sectional “snapshots” over time (e.g., Webster, 2005). The latter is typically used to illustrate long-term trends in fragmentation and is a staple of many industry reports and forecasts.

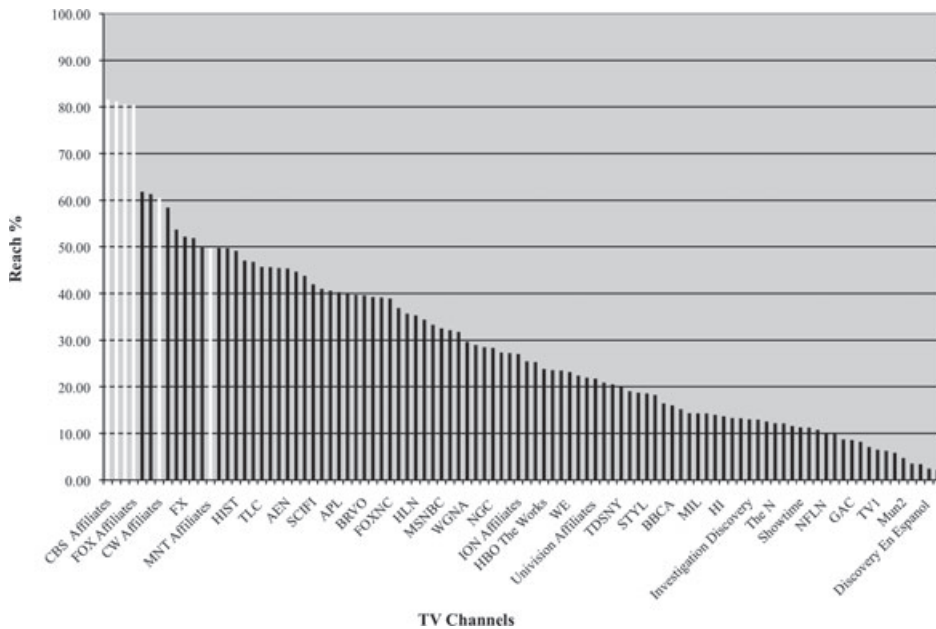
An increasingly popular way to represent media-centric data is to show them in the form of a *long tail* (Anderson, 2006). Here, units are arranged from most popular to least with the total audience for each (e.g., monthly reach, unique visitors, and total sales) depicted vertically above the unit. Long tail distributions are akin to a larger family of data reduction techniques, including Lorenz curves, Pareto

distributions, and power laws. All are useful in depicting lopsided patterns of use in which a few units dominate attendance. These distributions are characteristic of “winner-take-all” markets (Frank & Cook, 1995).

Figures 1 and 2 are based on Nielsen’s TV/Internet Convergence Panel data from March 2009 and are long tail distributions of the U.S. television channels and Internet brands, respectively. The data are described in more detail in the following section.

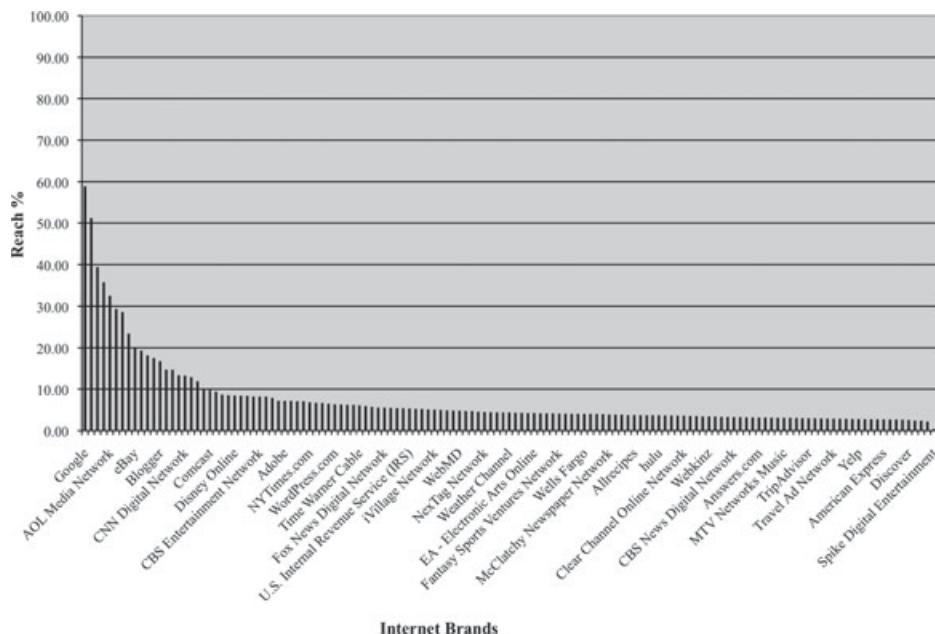
Figure 1 indicates that, in the United States, the major broadcast networks (indicated with white bars) reach a greater percent of the population (i.e., monthly cumulative rating) than the cable networks with which they compete. The dominance of a few market leaders is a routine observation in media markets (DeVany, 2004; Hindman, 2009; Webster, 2005) and signals market concentration. Concentration can be summarized with any one of several statistics, including Herfindahl–Hirschman indices (HHIs) and Gini coefficients (see Hindman, 2009; Yim, 2003). In Figure 1, the drop-off in cable network attendance is not precipitous, producing an HHI of 144.17, which suggests a modest level of overall concentration.

Figure 2 shows the long tail distribution of Internet brands, ordered by their monthly reach (i.e., unique visitors as a percent of the total audience). Here, the market leader is Google (58.92%), followed by Yahoo! (51.19%), MSN/Windows



**Figure 1** Distribution of TV viewing across channels (Nielsen TV/Internet Convergence Panel, March 2009;  $n = 98$ ).

*Note:* Major broadcast networks (ABC, CBS, CW, Fox, MyNetworkTV, and NBC) shaded white.



**Figure 2** Distribution of Internet use across brands (Nielsen TV/Internet Convergence Panel, March 2009;  $n = 138$ ).

Live (39.40%), YouTube (35.77%), AOL Media Network (32.51%), and Facebook (29.35%). In these data, however, we see a relatively sharp drop in attendance as we move down the tail. This example includes *only* the top 138 brands. One can imagine how long and skinny the tail would be if we were to include all Internet outlets. So concentration and fragmentation coexist in long tail distributions, although the balance seems to vary by medium.

For example, the HHI for Figure 2 is 173.14, indicating that the use of Internet brands is more concentrated than the use of television channels. Typically, audiences in less abundant media, such as radio and television, are more evenly distributed across outlets (i.e., fragmented) than in media with many choices such as the Internet (Hindman, 2009; Yim, 2003). So the sheer number of providers in competition does not determine the extent of audience fragmentation. These sorts of long tail distributions, and their accompanying statistics, summarize the level of fragmentation in a given market at a point in time. They typically describe the state of a single medium, rather than combining different media products or platforms. This happens because media measures are generally medium specific and mixing measures would produce an “apples to oranges” comparison (ratings vs. downloads vs. box office). A second, more fundamental, problem with media-centric studies is rooted in the unit of analysis. With long tails, we can see what is popular and what is not, but we have no idea how consumers move across these options. It could be that fans of niche media consume only those specialized genres and little else, producing

polarized audiences. It could also be that people consume a variety of genres across multiple platforms. These behaviors have implications for how media providers build audiences and how users organize themselves into communities or networks, but they remain “beneath the veneer” (Webster, 2005) of media-centric studies. One way to understand what individuals are doing is to adopt a user-centric approach to study media consumption.

### **User-centric fragmentation**

Just as audiences can be spread across media outlets, each individual’s use of media can be widely distributed across providers or highly concentrated on a particular class of products or outlets. This is fragmentation at the microlevel. Most of the literature on selective exposure would suggest that people will become specialized in their patterns of consumption. Although user-centric averages are not hard to come by (e.g., time spent viewing and page views), research on variation across users in anything other than broad a priori categories (e.g., age and gender) is not common. The most relevant exceptions are studies on people’s “media repertoires.”

Repertoires are subsets of available media that individuals use on a day-to-day basis. They are one of several “coping strategies” people have for finding preferred content in an increasingly complex media environment. The majority of this research has been confined to television exposure and “channel repertoires” (e.g., Ferguson & Perse, 1993; Heeter & Greenberg, 1985; Neuendorf, Atkin, & Jeffres, 2001; Yuan & Webster, 2006), although recent efforts have begun to incorporate multiple media (e.g., Ksiazek, 2010; van Rees & van Eijck, 2003). Most studies focus on explaining the absolute size of repertoires, but often say little about their composition.

Nonetheless, a user-centric approach has the potential to tell us what a typical user encounters over some period of time. For example, we know that viewers in many countries use only 10 to 15 TV channels a week even when hundreds are available or that the composition of media repertoires is related to the demographic characteristics of consumers (e.g., van Rees & van Eijck, 2003; Yuan & Webster, 2006). But user-centric studies are generally designed to describe typical users or identify types of users. They rarely “scale-up” to the larger issues of how the public allocates its attention across media.

### **Audience-centric fragmentation**

A useful complement to the media- and user-centric approaches described above would be an “audience-centric” approach. As we conceive it, this is a macrolevel way of seeing audiences, which characterizes them by the other media they use. This hybrid approach is media-centric in the sense that it describes the audience for particular media outlets. It is user-centric in that it reflects the varied repertoires of audience members, which are aggregated into measures that summarize each audience. By doing so, we highlight the extent to which public attention is dispersed across the media environment.

There is a long tradition in audience analysis, rooted primarily in marketing research, that measures the extent to which audiences for multiple media products (e.g., TV programs, networks, and magazines) overlap or are “duplicated.” That is, of the people who use one media product, how many also use another. Some of these studies concentrate on “pairwise” comparisons to assess channel loyalty or audience flow (e.g., Goodhardt, Ehrenberg, & Collins, 1987; Webster, 2006). Others have applied multivariate techniques to search for “viewer-defined program types” (e.g., Kirsch & Banks, 1962; Rust, Kamakura, & Alpert, 1992). Webster (2005) used an analysis of TV network duplication to report that, rather than living in gated communities, viewers of specialized networks seemed to “spend a good deal of time out and about” (p. 380). But most research using such techniques does not address questions of audience fragmentation. In the section that follows, we will describe a new metric, drawn from network analysis, that is built on measures of audience duplication across media outlets. It is illustrative of an audience-centric approach to study fragmentation.

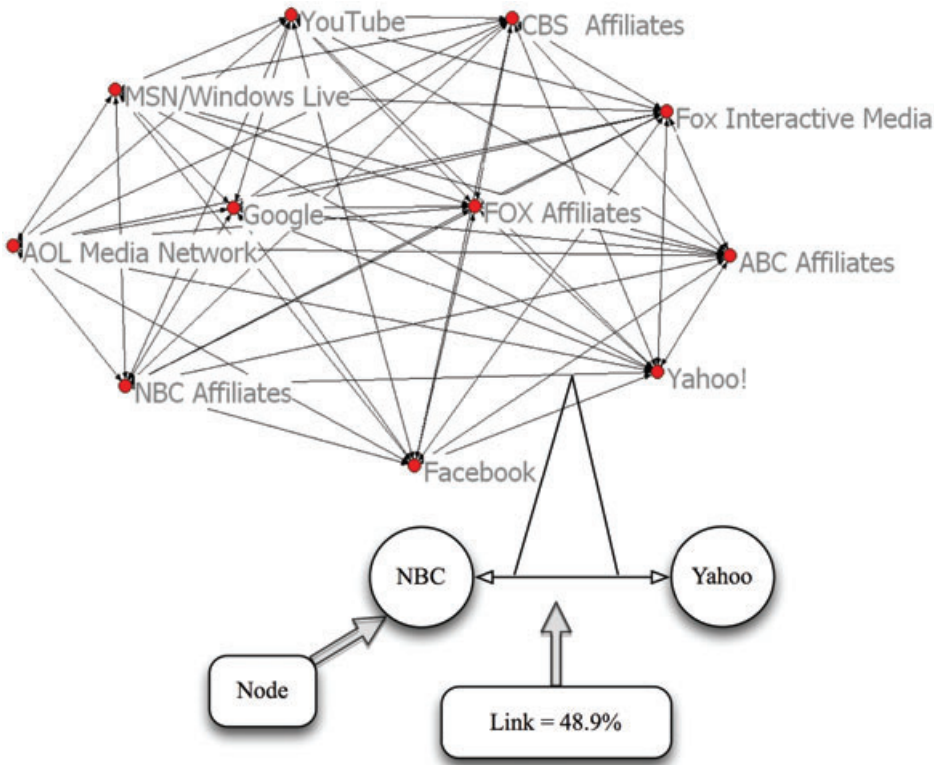
### **A network analytic approach to fragmentation**

Network analysis is used by social scientists to assess the relationships or links among a set of entities. Our application of these techniques to audiences conceives of media outlets or products as nodes in a network and audience duplication as indicative of a link between nodes. Figure 3 illustrates a network of television channels and Internet brands. The enlarged portion shows the link (i.e., the level of duplication) between a pair of nodes, NBC Affiliates and the Yahoo! brand, where 48.9% of the audience watched NBC and also visited a Yahoo! Web site during March 2009. In this study, we examined a total of 236 media outlets.

To summarize such pairwise duplications across all outlets, we needed a parsimonious way to report the number of links for each outlet. *Degree* is a standard network metric that indicates how many links a node exhibits. In this study, our goal was to compute a degree score for each media outlet. That is, we count the number of outlets that were linked to the outlet of interest. The degree score requires binary distinctions, link or no link, to begin the count. With the existence of a link determined by the level of audience duplication between outlets, the question was how much duplication should be required to declare a link.

As there will always be some level of audience duplication just “by chance,” we wanted a conservative standard. Our approach was to compare the observed duplication between two outlets to the “expected duplication” due to chance alone. Expected duplication was determined by multiplying the reach of each outlet. So, for example, if outlet A had a reach of 30% and outlet B a reach of 20%, then 6% of the total audience would be expected to have used each just by chance.<sup>1</sup> If the observed duplication exceeded the expected duplication, a link between two outlets was declared present (1); if not, it was absent (0) (see Ksiazek, 2011, for a detailed treatment of this operationalization).





**Figure 3** Sample media network across TV channels and Internet brands (Nielsen TV/Internet Convergence Panel, March 2009).

For each outlet, the number of links is totaled to provide a degree score. For ease of interpretation, we converted these totals to percentages. So, for example, if an outlet had links to all the other 235 outlets, its degree score was 100%. If it had links to 188 outlets, its degree score was 80%.

To provide a summary measure across the entire network of outlets, we computed a network centralization score.<sup>2</sup> This score summarizes the variability or inequality in the degree scores of all nodes in a given network (Monge & Contractor, 2003) and is roughly analogous to the HHI (see Hindman, 2009; Yim, 2003) that measures concentration in media-centric research. Network centralization scores range from 0% to 100%. In this application, a high score indicates that audiences tend to gravitate to a few outlets (concentration), whereas a low score indicates that audiences spread their attention widely across outlets (fragmentation).

**Data**

The data for this study come from the TV/Internet Convergence Panel, administered by the Nielsen Company.<sup>3</sup> The Convergence Panel provided “single-source,”

respondent-level media exposure data across TV and the Internet by tracking each individual's activity across these platforms. The data for this study were collected throughout March 2009 and came from a panel of 1,020 homes, consisting of 2,771 participants of age 2 years and older. The sample was generally representative of the U.S. population across a number of demographic categories, including: age, gender, geographic location, income, presence of children in the home, and cable/satellite access.

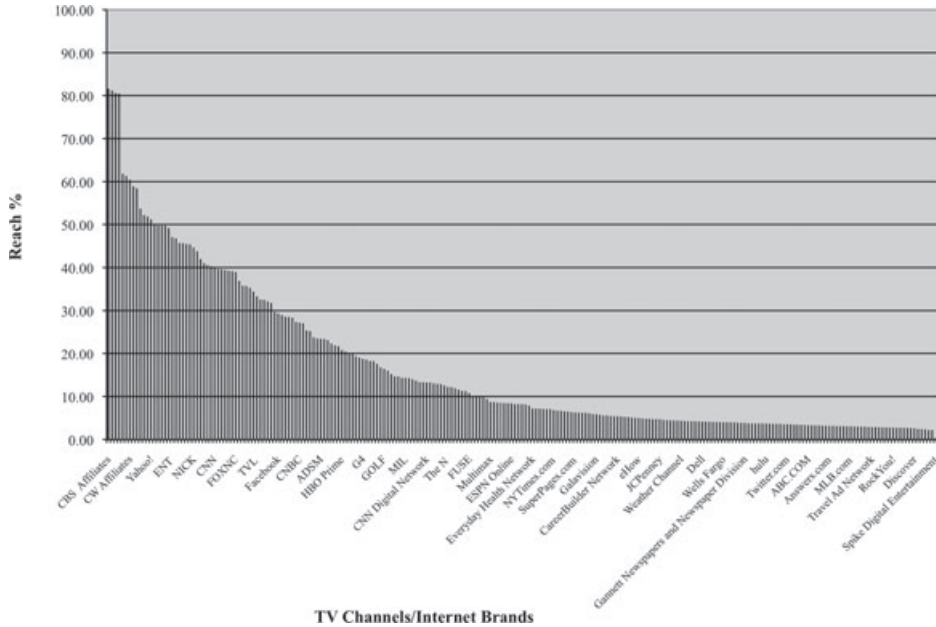
Nielsen tracked the panelists' media use through two devices. A People Meter was installed in each participant's home on all television sets. The television viewing data ("Live + 7 Days") consisted of both live and time-shifted viewing within the subsequent 7 days, where 1 or more minutes constituted exposure. Such metered data are widely considered more accurate than techniques that depend on respondent recall (e.g., Prior, 2009). For Internet measurement, Nielsen installed the NetSight Meter, behavioral tracking software developed by Nielsen Online, on the panelists' primary personal computer and as many additional computers as they agreed to have measured.<sup>4</sup> When tracking Web browsing, the software only recorded the actions for the window/tab in use. For example, it would not record usage for a minimized Web page. The threshold for counting use of a particular Web site was 1 or more seconds.

For the analysis, we used custom data files consisting of duplication data for all broadcast and cable TV channels ( $n = 98$ ), as well as all Internet brands ( $n = 138$ ) with a reach of 3% or more (the "media outlets"), during March 2009. The result was a set of 236 media outlets. It was necessary to set parameters for the inclusion of Internet brands because the number of panelists was relatively low (2,771) and the total number of brands is relatively high. This effectively limited the inclusion of an obscure Web site that may have been visited by only a few panelists.

## Results

An audience-centric approach to fragmentation offers a much different picture of diversity in media use. To illustrate, Figures 4 and 5 show a media- and audience-centric distribution, respectively. Figure 4 is a conventional long tail distribution of TV channels and Internet brands combined. This is similar to Figures 1 and 2, but includes both platforms to facilitate comparison to Figure 5. The head of the tail consists mostly of broadcast TV channels, online portals and search engines (e.g., Google), and the most popular cable TV channels (e.g., ESPN), whereas the tail includes many specialized Internet brands and cable TV channels. What this distribution does not tell us is the degree to which audiences move across these outlets.

For that, we can look at the distribution of degree scores in Figure 5. This includes the same 236 media outlets organized from highest to lowest degree score. The most popular outlets, as seen in Figure 4, are not necessarily those with the highest degree scores, although there is very little variation in the latter. The distribution shows that almost all 236 outlets have high levels of audience duplication with all other outlets



**Figure 4** Distribution of cross-platform media use (Nielsen TV/Internet Convergence Panel, March 2009;  $n = 236$ ).

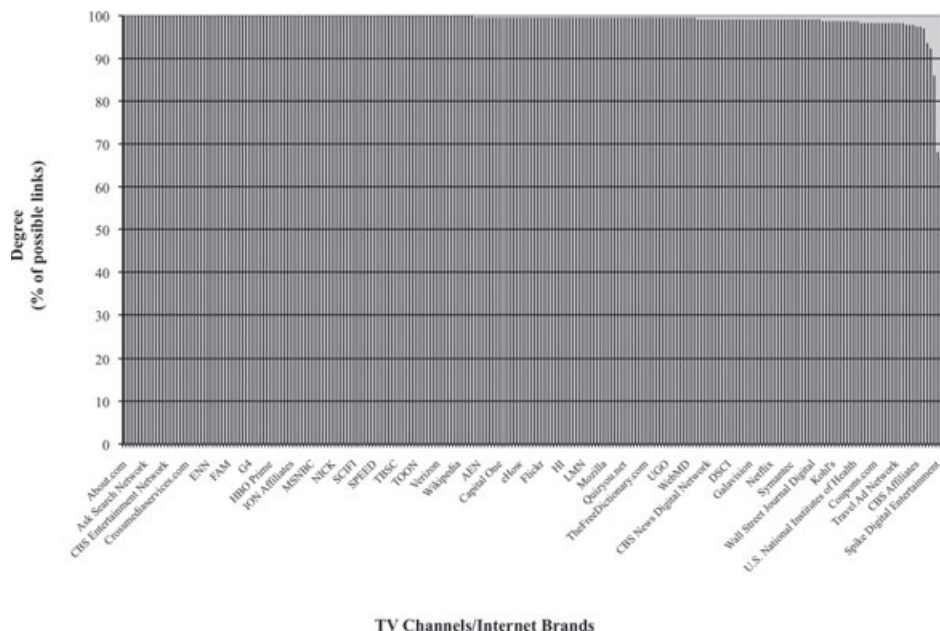
(i.e., degree scores close to 100%). Furthermore, the network centralization score is 0.86%. This suggests a high level of equality in degree scores and thus evidence that the audience of any given outlet, popular or not, will overlap with other outlets at a similar level.

Even those few outlets with lower degree scores duplicate audiences with a majority of outlets. For instance, the Internet brand Spike Digital Entertainment reaches only 0.36%<sup>5</sup> of the population, but its audience overlaps with close to 70% of the other outlets. Although we do not have data on individual media repertoires, these results suggest that repertoires, though quite varied, have many elements in common. The way users move across the media environment does not seem to produce highly polarized audiences.

## The future of audience fragmentation

### The myth of enclaves

One type of audience behavior that is often implied in commentaries on fragmentation is the inclination of users to hunker down in “enclaves” of agreeable, like-minded media (e.g., Sunstein, 2007). Writers have labeled these audience formations gated communities, sphericules, echo-chambers, cyberbalkans, red media–blue media, or, less judgmentally, niches and microcultures (Anderson, 2006; Gitlin, 1998; Iyengar & Hahn, 2009; Sunstein, 2007; Turow, 1997, 2006; Van Alstyne



**Figure 5** Distribution of cross-platform degree scores (Nielsen TV/Internet Convergence Panel, March 2009;  $n = 236$ ).

& Brynjolfsson, 2005). All suggest highly segmented markets with little in common. One problem with the media-centric studies on fragmentation that buttress many of these commentaries is that they provide no direct evidence of the more relevant user- or audience-centric behaviors in question. This leaves analysts free to speculate about the relationship between niche media and audience loyalties.

Anderson's (2006, p. 183) reading of media-centric data illustrates the temptation: "Long Tail forces and technologies that are leading to an explosion of variety and abundant choice in the content we consume are also tending to lead us into tribal eddies. When mass culture breaks apart it doesn't re-form into a different mass. Instead, it turns into millions of microcultures." Others make a similar leap, assuming that fragmentation across highly specialized outlets must mean the existence of highly specialized audiences (e.g., Tewksbury, 2005). The picture that emerges is one of powerful audience loyalties that bind users to their preferred niches. If that were so, we would indeed be confronting a segregated world of media enclaves and microcultures. But that does not appear to be the case.

Our results indicate that, at least across the 236 outlets we examined, there are very high levels of audience overlap. The people who use any given TV channel or Web site are disproportionately represented in the audience for most other outlets. This result is consistent with recent research that finds little evidence of ideological segmentation in media use (e.g., Garrett, 2009; Gentzkow & Shapiro, 2010). For

example, Gentzkow and Shapiro reported that visitors to a white supremacist Web site were far more likely than the general population to visit nytimes.com. Similarly, Elberse (2008) found that even consumers of obscure niche media devoted most of their attention to more broadly appealing fare. These studies, along with the results presented here, suggest that users have rather varied media repertoires. All-in-all, there is very little evidence that the typical user spends long periods of time in niches or enclaves of like-minded speech. Alternatively, there is also little evidence that the typical user only consumes hits. Rather, most range widely across the media landscape, a pattern confirmed by the low network centralization score. They may appear in the audience of specialized outlets, but they do not stay long.

What is harder to know, at this point, is just what people are after as they move from outlet to outlet. Our measures of exposure to TV channels and Internet brands were quite broad. Far more “granularity”—and a larger sample—is needed to understand exactly what is being consumed. For example, do visitors to a Nazi Web site go to the *New York Times* for information on politics or fashion? Moreover, measures of exposure, no matter how precise, cannot tell us how content affects people. It may be that even modest periods of exposure to hate speech or otherwise obscure media have powerful effects on those who seek it out. In which case, the processes of “group polarization” that Sunstein (2009) fears could still be operating.

That said, neither media-centric nor audience-centric studies on fragmentation provide much evidence of a radical dismembering of society. Although Anderson (2006, p. 182) can look at long tails and foresee “the rise of massively parallel culture,” we doubt that interpretation. That suggests a profusion of media environments that never intersect. It is more likely that we will have a massively overlapping culture. We think this for two reasons. First, there is growing evidence that despite an abundance of choice, media content tends to be replicated across platforms (e.g., Boczkowski, 2010; Jenkins, 2006; Pew, 2010). Second, while no two people will have identical media repertoires, the chances are they will have much in common. Those points of intersection will be the most popular cultural products, assuming, of course, that popular offerings persist.

### **The persistence of popularity**

Perhaps the most fundamental question about media-centric fragmentation is just how far the process can go. Will future audiences distribute themselves evenly across all media choices or will popular offerings continue to dominate the marketplace? Anderson (2006, p. 181) expects that in a world of infinite choice, “hit-driven culture” will give way to “ultimate fragmentation.” Others believe that “winner-take-all” markets will continue to characterize cultural consumption (e.g., Elberse, 2008; Frank & Cook, 1995). We are inclined to agree with the latter and offer three arguments why audiences are likely to remain concentrated in the digital media marketplace; these involve the differential quality of media products, the social desirability of media selections, and the media measures that inform user choices.

The quality of media products is not uniformly distributed. If prices are not prohibitive, attendance will gravitate to higher quality choices. Both media providers and media users seem to have an affinity for “A-list” talent when they can afford it (Caves, 2000). Digital media make it easier for users to consume quality products in two ways. First, the pure “public good” nature of digital media makes them easy to reproduce, and often “free” (Anderson, 2009). As Frank and Cook (1995, p. 33) noted, “If the best performers’ efforts can be cloned at low marginal cost, there is less room in the market for lower ranked talents.” Second, the increased availability of “on-demand” media promotes this phenomenon. The move to digital video recorders and downloaded or streamed content makes it simple to avoid the less desirable offerings that were often bundled in linear delivery systems. Consuming a diet of only the best the market has to offer is easier than ever before. This effectively reduces the number of choices and concentrates attention on those options.

The social nature of media consumption also tends to concentrate attendance for reasons of social desirability. Media have long served as a “coin-of-exchange” in social situations (Levy & Windahl, 1984). A few programs, sporting events, or clips on YouTube are the stuff of water-cooler conversations, which encourages those who want to join the discussion to see what everyone else is talking about. The advent of social media, such as Facebook and Twitter, may well extend these conversations to virtual spaces and focus the attention of those networks on what they find noteworthy. Often this will be popular, event-driven programming. Recent studies on simultaneous media use during the 2010 Super Bowl and opening ceremonies of the Winter Olympics suggest that individuals use social media to discuss these events as they watch TV (NielsenWire, 2010, February 12; 2010, February 19).

The pursuit of quality and the social aspects of media come together in a third factor that concentrates audiences—media measures. Because digital media are abundant and the products involved are experience goods, users depend on recommendation systems to guide their consumption. Although search and recommendation algorithms vary, most direct attention to popular products or outlets (Webster, 2010). This creates an environment where slight leads accumulate advantage, sometimes with the speed of a contagion. Salganik et al. (2006) have demonstrated that music downloads are powerfully affected by information on what other users have chosen. The more salient that user information, the more markets are inclined to produce winner-take-all results, although the actual winners are impossible to predict before the process begins. Under such circumstances, the “wisdom of crowds” (Surowiecki, 2004) may not be a reliable measure of quality, but it concentrates public attention nonetheless.

The persistence of popularity, and the inclination of providers to imitate what is popular, suggests that audiences will not spin off in all directions. Although the ongoing production of media by professionals and amateurs alike will grow the long tail ever longer, that does not mean endless fragmentation. Most niche media will be doomed to obscurity and the few who pay a visit will spend little time there. Rather, users will range widely across media outlets, devoting much of their attention to the

most salient offerings. Those objects of public attention will undoubtedly be more varied than in the past. They will often, though not always, be the best of their kind. They will be the media people talk about with friends and share via social networks. Their visibility and meaning may vary across the culture, but they will constitute the stuff of a common, twenty-first-century cultural forum.

## Acknowledgments

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## Notes

- 1 This approach to analyze audience duplication data is drawn from the “duplication of viewing law,” initially developed in the 1960s (e.g., Goodhardt et al., 1987; Webster, 2006). Predicting duplication was done by calculating the expected duplication and adjusting it up or down by applying an empirically determined mathematical weight.
- 2 We calculated network centralization scores with the UCINET statistical package for network analysis (Borgatti, Everett, & Freeman, 2009). See Freeman (1979) for a detailed explanation of the computation of this statistic.
- 3 Disclosure: Access to this otherwise proprietary data is the result of a data use agreement with the Nielsen Company. The agreement gives full intellectual property rights to the authors, although Nielsen reviews the written work to ensure that their panel and collection procedures are accurately represented. The findings are unhindered by this process.
- 4 The Convergence Panel did not track Internet use on the panelists’ work computers. Additionally, the tracking software was only available for PC users. “Primary computer” was defined as the PC that is used most in the household.
- 5 This falls below 3% because the initial screening threshold did not consider “intab” status. Subsequent reach calculations used in the analysis did, resulting in a few lower reach estimates.

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## 오디언스 단편화의 역동성: 디지털 미디어 시대에서의 공적인 주목

James G. Webster  
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### 요약

오디언스 파편화는 사회적 분극화의 증거로서 종종 거론되어 진다. 그러나 파편화를 연구하기 위해 사용하는 도구들은 어떻게 사람들이 그들의 주목을 디지털 미디어에 걸쳐 할당하는지에 대해 제한된 정보만을 제공한다. 우리는 파편화를 이해하기 위한 이론적 틀을 제공하고 더욱 오디언스 중심적인 연구들을 지지하고자 하였다. 본 접근은 네트워크 분석 매트릭스를 텔레비전과 인터넷 사용에서의 닐슨 데이터에 적용하는 것에 의해 단행되었다. 우리는 235 개 미디어에 걸쳐서 매우 높은 정도의 오디언스 중복을 발견하였는데, 이는 오디언스 충성도의 단절화된 집단화대신 대중적 주목의 중첩적인 형태를 보여주는 것이라고 할 수 있다.

La dynamique de la fragmentation de l'auditoire : l'attention du public à l'ère des médias numériques

James G. Webster & Thomas B. Ksiazek

La fragmentation des auditoires est souvent considérée comme une preuve de la polarisation sociale. Pourtant, les outils que nous employons pour étudier la fragmentation n'offrent qu'une information limitée sur les manières par lesquelles les gens accordent leur attention aux divers médias numériques. Nous proposons un cadre théorique pour comprendre la fragmentation et recommandons plus d'études centrées sur l'auditoire. Cette approche est opérationnalisée par l'application de mesures d'analyse de réseaux à des données Nielsen portant sur l'utilisation de la télévision et de l'Internet. Nous détectons des degrés extrêmement élevés de chevauchement d'auditoires à travers 236 médias, ce qui suggère une distribution superposée de l'attention du public plutôt que des groupes isolés d'auditoires loyalistes.

Mots clés : fragmentation de l'auditoire, polarisation, attention du public, longue traîne, chevauchement des auditoires, analyse de réseaux

## Die Dynamiken der Publikumsfragmentierung: Öffentliche Aufmerksamkeit im Zeitalter digitaler Medien

Publikumsfragmentierung wird oft als ein Hinweis auf soziale Polarisierung gedeutet. Allerdings bieten die Methoden, mit denen wir Fragmentierung bislang untersucht haben nur begrenzte Informationen darüber, wie Menschen ihre Aufmerksamkeit über verschiedene digitale Medien aufteilen. Wir bieten einen theoretischen Rahmen, um Fragmentierung zu verstehen und propagieren stärker publikumszentrierte Studien. Der unserem Ansatz dient die Metrik der Netzwerkanalyse in ihrer Anwendung auf Nielsen-Daten zu Fernseh- und Internetnutzung die Basis für die Operationalisierung. Wir finden ein extrem ausgeprägten Grad an Publikumsduplizierung über die 236 Medienoutlets, was eher auf überlappende Muster von öffentlicher Aufmerksamkeit hindeutet eher als auf isolierte Gruppen von Publikumsloyalisten.

Schlüsselbegriffe: Publikumsfragmentierung, Polarisierung, Öffentliche Aufmerksamkeit, Long Tail, Publikumsverdopplung, Netzwerkanalyse