

See also: Decision-making Systems: Personal and Collective; Game Theory; Game Theory and its Relation to Bayesian Theory

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Audience Measurement

Audience measurement, as the term is commonly used, refers to regular assessments of the size and composition of media audiences. It is based on survey research wherein individual attributes (e.g., age, gender, etc.) are quantified to produce statistical summaries of various audience aggregates. These numbers, which include broadcast audience ratings, are sold in the form of syndicated reports that are indispensable to advertiser-supported media.

1. Uses of Audience Measurement

The major impetus for audience measurement is advertising. By the late nineteenth century most newspapers and mass circulation magazines had begun to sell space to advertisers. The value of space was determined largely by the number of readers who would see each publication, and by extension each ad. Paid circulation served as a reasonable surrogate for the size of the readership. Many publishers, however, made inflated claims about their circulation, undermining the confidence of advertisers. To make print media credible, in 1914 the industry created the Audit Bureau of Circulations, an independent organization that verified circulation (Beniger 1986). To this day, such audits continue in the USA and many other countries around the world.

The growth of radio in the 1920s presented new problems for those who would use it as an advertising medium. Unlike print, there were few traces of the radio audience save for fan mail or the sheer number of receivers being sold. For all intents and purposes,

the radio audience was invisible. To provide reliable estimates of the number of people listening to specific programs, the industry sponsored audience surveys. By the 1930s independent research firms had begun to produce what were called 'ratings' (i.e., percentages of the population tuned to a particular program or station). These made the audience visible and allowed advertisers to buy spot announcements in radio with a degree of certainty. When television and other forms of electronic media emerged in the latter half of the century, similar mechanisms for measuring the size and composition of audiences were quickly put in place (Beville 1988).

Today, advertising is a multi-billion dollar business. Audiences are bought and sold like commodities. Advertising expenditures are typically guided by audience measurement and the cost of reaching various audience segments. In a business world increasingly interested in target marketing, research firms have been called upon to produce ever finer demographic distinctions, as well as data on lifestyles and product purchases. Curiously, all published audience measurements describe something that has already happened, while all advertising expenditures are made in anticipation of audiences that have yet to materialize. This odd system works because, in the aggregate, media audiences are quite predictable. For example, advertisers and networks know the total number of people who are likely to watch television at any time during the year, and negotiate ad prices on that basis. The stability of audience behavior has also allowed researchers to identify various 'law-like' features of the mass audience (Comstock and Scharrer 1999, Goodhardt et al. 1987, Webster and Phalen 1997).

The fact that advertising is the major source of revenue for several forms of media (including broadcasting, newspapers, and magazines) has embedded audience measurement in the operation of these industries. Obviously, the system places a premium on audiences that will be attractive to advertisers, either by virtue of their sheer size or desirable composition. Content, therefore, is evaluated with an eye toward its audience-making potential. Moreover, broadcasters pay careful attention to how audiences 'flow' across an entire schedule of programming, relying on established patterns of media use to deliver people to their program offerings. In all of these endeavors, audience measurement is crucial. In fact, a good case can be made that audience measurement is a necessary condition for the emergence of any form of advertiser-supported media (Ettema and Whitney 1994).

Even in social systems not fully committed to advertising, audience measurement can become a fixture. Public service broadcasting around the world must often justify its existence by demonstrating that it has an audience (Ang 1991). Here the techniques of audience measurement are similar to those in commercial systems, though they may involve the use of more 'qualitative' measures, such as the appeal or

usefulness of media materials (Beville 1988, Lindlof 1995). Similarly, government officials concerned with good or bad media effects often relate these to the audience and the magnitude of exposure to good or bad content (Webster and Phalen 1997).

2. Methods of Audience Measurement

As a type of survey research, audience measurement confronts issues common in sampling and statistical inference. Its distinctiveness comes from the methods it uses to measure the behavior of audience members. One of three techniques is typically employed: interviews, diaries, and meters.

The first regular surveys of radio audiences were conducted using telephones. Respondents were called at home and asked either what they were currently listening to (i.e., telephone coincidental method) or what they had listened to in the recent past (i.e., telephone recall method). Both techniques are used today. In fact, telephone coincidentals are generally regarded as the most accurate way to measure broadcast audiences and are, therefore, the standard against which other methods are judged (Beville 1988).

The advent of radio audience measurement forced print media to go beyond circulation as the sole indication of readership. Since a single copy of a magazine or paper might well be read by more than one person, circulation alone seemed to understate the audience for print. The industry eventually adopted survey research to better estimate readership. Personal interviews were conducted in which respondents were shown stripped down copies of various magazines and asked if they recalled reading them (i.e., through-the-book method). Alternatively, to economize on time and increase the number of publications that could be assessed, respondents were asked to sort through cards containing magazine logos and indicate which of these were read (i.e., recent reading method). Today, the recent reading method remains the standard of magazine audience measurement (Bogart 1996). Between the 1940s and 1970s local radio audiences were also measured using personal interview techniques. Respondents were presented with a list of radio stations and asked which they listened to (i.e., the roster recall method). Eventually the roster recall technique gave way to the use of diaries (Beville 1988).

Diaries are small booklets in which respondents keep a log of their radio or television usage throughout the day. Typically, diaries are kept for a week, though time periods of different durations are possible. Diaries are a relatively inexpensive data collection technique and, properly filled out, contain a wealth of information. However, many people are reluctant to accept a diary, or are unwilling or unable to make accurate entries. In a world of push-button radios, multi-channel television, and remote control devices, completing a diary can be a burdensome task. Nonetheless,

diaries are a common measurement technique for producing local radio and television audience reports (Webster and Wakshlag 1985).

Many of the problems associated with diaries can be solved by the use of meters. These devices attach to a receiver and automatically record the source to which the set is tuned. By the early 1940s Arthur Nielsen had developed such a device and had placed it in a panel of American households to produce national radio network ratings. Household meters were eventually adapted to the new medium of television. While household meters eliminate various problems of response, they are expensive and offer no information about who is actually using the set. With advertisers increasingly concerned about demographics, the latter is a serious shortcoming. To address it, meters were adapted so that people could identify themselves by pressing a button. This so-called 'peoplemeter' is the technique now used to produce network television ratings in the United States and several countries around the world (Webster et al. 2000).

The fact that respondents need to actively signal their presence before the set by pressing a button reintroduced response errors. Children, for example, are not particularly diligent button pushers. From the industry's point of view, the ideal measurement device would be a passive peoplemeter, one that would somehow register who was watching the set without requiring any action on the part of viewers. Experiments have been conducted using infrared sensing and image recognition technology, but at the time of writing no such system has been put into commercial operation. Pilot studies have also been conducted on wireless devices that sense an inaudible code placed in a radio or television signal. In one manifestation, a pager-like device worn by a respondent picks up and identifies all radio programming within earshot of the listener.

The rapid growth of the Internet in the 1990s and the prospect of using the World Wide Web as an advertising medium motivated a number of companies to measure Internet use. While individual web sites could track people who visited their pages, what was needed was a 'user-centric' form of measurement to track people from site to site. Firms providing this type of measurement typically create a panel of computer users who agree to have monitoring software loaded on their machines. These programs record the various web pages the user visits. Data are then aggregated to produce web site ratings not unlike television ratings (Webster et al. 2000).

3. Sources of Error in Audience Measurement

There are four sources of error in audience measurement: sampling, nonresponse, response, and pro-

cessing. The first three are, again, problems commonly associated with survey research. The last includes a variety of issues that have to do with bringing a saleable research product to market.

Most syndicated audience measurement is based on some form of probability sampling. Compounding considerations of sampling error is the tension between sample size and the growing complexity of the media environment. Virtually all forms of mass media are becoming more diversified: there are dozens of television networks available on broadband distribution systems, there are hundreds of special interest magazines, and there are an untold number of web sites. This, in combination with the need to estimate ever narrower audience segments, constantly presses sample sizes to the limit. In fact, samples for estimating magazine readership and Internet use already number in the tens of thousands. Unfortunately, the high cost of some measurement devices (e.g., meters) and the diminishing marginal returns associated with increases in sample size have forced difficult compromises on sample size and allowable levels of sampling error. Moreover, individual subscribers who manipulate databases to suit themselves are under no restrictions as to how they 'crunch the numbers' or the sampling error attendant to the estimates they produce.

There are also potential problems of response. Written forms of feedback (e.g., self-administered questionnaires, diaries, etc.) often suffer from low rates of response. Further, as people become increasingly leery of telemarketers, telephone survey completion rates are threatened. All these lead to concerns about non-response (i.e., the people being studied are systematically different from those who don't respond). Even among those who agree to cooperate, there may be problems with the quality of their responses (e.g., response error). There is anecdotal evidence that people, increasingly aware of the impact of audience ratings, can deliberately misrepresent their behaviors (Beville 1988). More likely, the flood of modern media simply overwhelms the reporting capabilities of even the most conscientious respondent.

The information collected by interviews, diaries and meters can be thought of as raw material that must be processed into a saleable product. Data must be coded and checked for obvious errors. Missing values are occasionally imputed using a process called ascertainment. New information, like program schedules, must be added. Responses from under-represented or over-represented groups are sometimes assigned a mathematical weight in a process called sample balancing. Responses generated by one method may be adjusted to parameters set by another method in a controversial process called calibration. Finally, data must be aggregated and projected to form the population estimates in published reports. In all of these matters, errors of fact or judgment may creep into the process (Bogart 1996, Webster et al. 2000).

4. Institutional Aspects of Audience Measurement

In most developed countries, audience measurement is a business that sells research reports or data to multiple subscribers. Rarely do more than two firms compete for any given market. Sometimes only one firm provides the measurements for an entire medium. As such, their reports take on the air of quasi-public, official documents. Though various errors in the data mean the numbers are not nearly as 'hard' as they appear, the organizations that use them have little alternative but to treat them as such. And an enormous amount rides on those numbers. The process of allocating billions of dollars in advertising and programming resources is informed, some would say tyrannized, by audience measurement (Ang 1991, Bogart 1995).

The institutional significance of audience measurement has not gone unnoticed. In the 1960s the United States Congress held hearings into the quality and consequences of the American broadcast ratings industry. Public scrutiny induced the industry to create an ongoing council to audit and accredit ratings research methods, as well as sponsor industry-wide methodological research (Beville 1988). For these reasons, and because audience measurements are used by powerful institutions with competing interests, it is probably the case that no research firm can drift too far from truthful reporting without sowing the seeds of its own destruction.

Even so, much about audience measurement is negotiable and left to industry consensus. Like any self-interested business, research firms try to adapt their products to client needs. This has led to charges that traditional audience measurement fails to address factors that others find important (i.e., people's attentiveness, preferences, needs, or understandings). It has also given rise to a more cynical view that research companies simply adopt whatever methods and produce whatever results serve dominant institutional interests (Meehan 1990).

The matter of turning the audience into a commodity has also drawn critics. Audience measurement essentially lumps people into categories, with one person being the functional equivalent of all others in the group. These groups are then sold to advertisers at some 'cost-per-thousand.' At best, the business is dehumanizing. At worst, it has been argued, the entire enterprise serves to colonize, manipulate, and ultimately victimize audiences (Ang 1991).

Alternatively, audience measurement can be seen as exercising a democratizing influence on popular culture. Material that is successful in the marketplace proliferates, while content that is unpopular fades away. While this notion of cultural democracy is oversimplified, a case can be made that measurement empowers audiences by casting them in a form to which institutions can and do respond (Webster and Phalen 1997). One way or another, it can certainly be

said that audience measurement helps shape mass culture.

See also: Advertising: Effects; Advertising: General; Audiences; Broadcasting: General; Entertainment; Market Research; Mass Media, Political Economy of; Media Effects; Media, Uses of; Radio as Medium; Television: Industry

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Audiences

The notion of audience in social research has been largely derived from the image media producers have of the actual, or the intended, people or groups of people that they imagine as the main recipients of their products. Media products—newspapers, television shows, films, radio broadcasts—are for the most part