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Estimating Relative Audience Loyalty Among Radio Stations Using Standard Arbitron Ratings

Steven J. Dick and Walter McDowell

This article provides a practical means for estimating the relative degree of listener loyalty among radio stations using standard Arbitron ratings information. Although not a direct measure of audience behavior, the combined indexes of a station's overall performance (a) exclusive cume, (b) cume duplication, (c) turnover ratio, and (d) listening location does offer persuasive circumstantial evidence of loyalty that can be applied to media buying strategies.

Radio stations offer programming in an increasingly competitive environment. Audience size (and thus advertising revenue) can be based on either a total cume audience or an average quarter hour. However, both measures miss an important mark—listener loyalty. To date, there is no direct standardized measure of listener loyalty but there are ways to acquire sufficient circumstantial evidence to make some reasonable conclusions about a station's audience retention and stability over time. The purpose of this article is to propose a practical means of estimating the relative degree of loyalty as measured through station switching behavior. The goal was to use data already available to most radio managers—Arbitron ratings. Researchers chose specific ratings components that tend to be sensitive to station switching; including indexed measures of *exclusive cume*, *cume duplication*, *turnover ratio*, and *listening location*. After presenting the conceptual and statistical rationales for this measuring instrument, we offer a hypothetical example of how an advertiser or radio account executive can introduce this measure into pricing negotiations. A person should be able to calculate the loyalty index in less than an hour using common spreadsheet software such as Microsoft Excel.

Steven J. Dick (Ph.D., Michigan State, 1993) is an assistant professor of Radio of Radio-Television at Southern Illinois University Carbondale. His research interests include new media policy and management.

Walter McDowell (Ph.D., University of Florida, 1998) is an assistant professor of Mass Communication at the University of Miami in Coral Gables, Florida. His research interests include media brand management and audience research.

A secondary but related purpose of this study was to see if there is a significant relationship between the popularity of a station (expressed through ratings) and the relative degree of station loyalty. That is, does high loyalty correlate with high ratings? Obviously, if this statement were true, there would be no urgent need to introduce this proposed instrument. However, as demonstrated later in this study, there appears to be no obvious relationship between audience size and loyalty.

Arbitron Ratings

Arbitron quarter-hour ratings provide an estimate of the size and demographic composition of radio station audiences. Although listening behavior is expressed in average quarter-hour (AQH) units, obtaining AQH credit requires that a respondent listen to a particular station for only 5 minutes out of 15 (Arbitron, 2001). The average quarter hour (AQH) estimate is the best possible guess of audience size at any one time. However, radio stations (and their advertisers) are most interested in the audience exposed to the advertisement. Another methodological sore point is the diary-based recording technique where it seems unlikely that a respondent would be so conscientious as to disclose in writing every single listening episode, no matter how brief. Again, within the designated quarter-hour period, there may be *unrecorded* station switching. With an audience willing to zap commercials, advertisers may be billed for a larger audience than they are truly getting. The magnitude of the exposure to programming may be larger than the magnitude of the exposure to commercials.

This study addresses a limitation in Arbitron's methodology. The problem centers on the five-minute listening threshold necessary for giving a station quarter-hour listening credit in an Arbitron report. Please note that these requisite 5-minutes are not necessarily *continuous* minutes. Instead, individual listening episodes within the 15-minute time span are *summed* to yield a single figure. Arbitron's measure of Time Spent Listening (TSL) is calculated in the same manner and therefore inherently misleading. For example, although a person may tune in and out of a particular station a dozen times over the course of a long daypart, Arbitron merely takes the *sum* of all these listening episodes to report TSL. A person who turns on a station and stays with it must be more loyal than the person who switches away and comes back.

LITERATURE REVIEW

Why do people change programs? In most medium-to-large-sized radio markets, several radio stations compete for the same target audience. Listeners find that, in terms of program content, one station can be substituted easily for another (Newton, 2003). Typically, audiences tune back and forth among an array of acceptable stations. Television researchers refer to this predetermined

set of media choices as a person's *channel repertoire*, but this notion is also applicable to radio. The assumption here is that the audience member is aware of acceptable alternatives and may abandon one media outlet for another (Ferguson & Perse, 1993). Looking exclusively at radio listener behavior, McDowell and Dick (2003) found that respondents reported to have switched stations a median of 3.5 times within a typical quarter-hour time span. These findings substantiate the results found in an earlier study by Abernathy (1991) who discovered considerable station switching among his respondents. The results support the contention that people do perceive alternatives in the radio marketplace. Logically (and from practical experience), we may also assume that the perception of alternatives is not uniform across radio stations and formats.

In both a theoretical and a practical sense, this switching behavior illustrates a branding problem. Keller (1998) professed some of the fundamental principles of consumer-based brand equity theory applicable to the study. That is, the ultimate goal for the station operator is to maximize brand equity among audiences by cultivating favorable, strong, and unique brand associations to persuade listeners that a particular station has no equivalent brand substitutes on the radio dial. Branding therefore discourages the perception of alternatives. In an effort to cultivate brand equity, radio professionals have introduced a wealth of programming and promotion tactics designed to attract and hold listeners. (Buchman, 2002; Dickey, 1994). These techniques include the use of contests, long runs of music, and specialty programming (Arbitron, 2003).

The Relationship Between Switching and Zapping

Nonswitching behavior is even more important when we consider prior research. A major reason to create loyal listeners is to persuade them to stay through commercial breaks. Stations maximize reported audience by strategically placing the breaks. Radio programmers commonly avoid scheduling commercials within five minutes of each quarter hour. The goal is to attract at least five minutes of listening to earn credit for the entire quarter hour. The obvious result is a manipulation of Nielsen's and Arbitron's operationalized variable for audience size—average quarter hour.

Previous studies have shown that commercial avoidance, more than just programming, is a major reason to switch stations. For example, Eastman, Newton, Riggs and Neal-Lunsford (1997) analyzed ways the major television networks enhanced audience flow by positioning commercial breaks away from the natural transitions between programs. Using an elaborate tape-recording methodology, Abernathy (1991) found that radio listeners had an obvious tendency to abandon a commercial break after the first commercial in a pod. Furthermore, fewer than half of the scheduled commercials in the study actually reached listeners. Abernathy went on to comment, "Although switching behavior could be done for reasons other than radio commercial avoidance . . . these

results strongly suggest that the subjects switched radio stations in their cars in order to avoid advertising" (p.39). In 1999, the Arbitron Company, in conjunction with Edison Media Research, found that young people (ages 12 to 24) were more likely to switch stations due to commercial avoidance than older listeners (Arbitron, 1999). A more recent study by McDowell and Dick (2003), using a self-report survey methodology, found that among their respondents the most salient motivating factor for switching radio stations by a substantial margin was commercial avoidance. A pivotal assumption for this study was that *people switch stations primarily to avoid commercials*.

How likely is a listener to endure advertising rather than switch away for more interesting programming? The deliberate avoidance or "zapping" of broadcast commercials has become an important concern among advertisers and media buyers in recent years. As the number of media choices available to audiences continues to escalate, so does the degree of temptation to abandon programming that no longer provides immediate gratification. Today, broadcasters face the daunting dual challenges of (a) attracting audiences through program content and (b) retaining these audiences during commercial interruptions. Arbitron (2003) discussed this problem as balancing average quarter hour versus time spent listening. This problem appears to be more acute for radio than for television in that most radio program formats lack long-form continuity or storylines that can hold an audience over time. An intriguing question for both the buyers and sellers of commercial time is do some stations experience commercial zapping more than others?

A common complaint among advertisers and media buyers in recent years has been a disturbing increase in commercial *clutter*; a situation of message overload where commercials allegedly lose much of their intended effectiveness on audiences. A logical consequence of excessive clutter is zapping, whereby audiences not only ignore the messages but also abandon the break entirely by switching to another station or channel (AAAA, 2002; Elliott & Speck, 1998). A positive outcome of building strong audience-based brand equity is that listeners will be more likely to tolerate commercial breaks and refrain from switching to a competitor.

Today, many home stereos have remote controls. In the car, it is easy to switch stations with selector buttons always in easy reach. The term "zapping," the television term referring to the use of the remote control to switch stations during commercials, can easily be applied to radio. The findings of the above studies suggest that zapping may certainly occur in radio. This zapping behavior may be considered the antithesis of loyalty and of most concern to advertisers.

Given certain limitations, the investigators for this paper maintain that Arbitron ratings can be used to obtain a rough estimate of a station's switching vulnerability and consequently its relative degree of commercial zapping. Developing this estimate with standardized ratings means that it can be immediately applied to both current and historical ratings data.

CREATING THE INSTRUMENT

Although the authors maintain that AQH has a validity problem, other measures (taken at the same time) are free of this problem. The goal of this project was to select a group of variables that would tend to be sensitive to audience loyalty. Ultimately, the group of measures should strive for parsimony and avoid multicollinearity. The goal here was to use data available in the common Arbitron report—Radio Market Report (RMR). Although the RMR is large—100 to 400 pages depending on the market—much of the data were not useable in this type of study. The RMR goes into great detail as to geographic, demographic, and time-slot breakdowns. Given this restriction, only nine types of measures were reported.

- Average quarter hour—ratings, share, and absolute numbers
- Cume—in hundreds for the books used
- Trend data—AQH and Cume for five books
- Listening location—At home, in car, at work, other
- Time spent listening—Trend data over five books
- Cume duplication—single book
- Exclusive listening
- Market level data—e.g., DMA size, location and station data

Clearly, the biggest block of data excluded from this study were geographic, demographic, and time-slot data. Although it would be interesting to further test loyalty across these measures, one would first have to accept the premise of a loyalty index. Also excluded were trend data. These additional data points would broaden the data set but trend data were not available for some other variables of interest (i.e., exclusive cume, cume duplication, and listener location). Finally, an important difference between stations might be format (available in market level data section). The researchers acknowledge that different formats may have different levels of loyalty. However, like demographic data, one would have to accept the idea of a loyalty index before further investigation.

Variables Included

Exclusive cume, turnover, cume duplication, and listening location were selected as plausible indicators of station switching. Additionally, AQH share and total cume represented mere audience size. Arbitron ratings data were obtained from the Spring 2000 sweep report of the Miami, Florida, radio market consisting of 35 participating stations. In most cases, Monday through Sunday 6 A.M. to midnight time daypart, and persons ages 12 plus were used.¹

Audience size

AQH share and Total cume were introduced into the overall study to determine if mere audience size (i.e., popularity) could be a reliable predictor of the other

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set of variables. In other words, if high audience shares or come closely affiliated with high or low station loyalty, then there would be no point to going through the trouble of assembling the set of four other variables. A media planner would merely assume that stations attracting large audiences tend to exhibit more loyalty. But what if this was not the case? What if there was little or nothing in common between audience size and loyalty? Then the introduction of this multidimensional instrument would be welcome.

Exclusive come

There are radio listeners who listen exclusively to one station. For this minority of exceptionally loyal audiences, station switching is not an option, and therefore we could assume that these people were exposed to most commercials. For the purposes of our measuring tool, we posit a logical relationship between a station's exclusive come and the degree of audience loyalty. Percent exclusive comes were used instead of raw audience data.

Audience turnover

Audience turnover, although not reported directly in the RMR, is a common measure of audience loyalty used in the radio industry. The statistic obtained by dividing a station's come audience by its AQH audience offers some measure of audience retention or loyalty by examining the amount of audience "churn" over a specified daypart (Webster, Phalen, & Lichty, 2000). For the purposes of our measuring tool, we posit a direct positive relationship between turnover and station loyalty, the logic being that high turnover implies dissatisfaction with station content. For this study, come persons (00) divided by AQH persons (00) equaled the turnover ratio.

Cume duplication

The cume duplication section of a standard Arbitron report addresses shared or duplicated audiences between stations in the market. The Arbitron report itemizes each station with the percent of audience it shares (or duplicates) with each of the competing stations in the market. One would assume that the more listeners perceive equivalent substitutes, the more switching would occur. For the purposes of our measuring tool, we posit a logical direct positive relationship between the degree of duplicated audience and the relative degree of loyalty. By drawing from this table a measure of "important competition," we avoid collinearity problems by developing a unique variable.

Listening location

At different listening locations, audience members are more or less apt to change the channel. A recent Arbitron study reports 37% of those surveyed said they changed stations "frequently" in the car compared to 7% at home and 6% at work (Arbitron, 2003). The Arbitron study supports prior research (Abernathy,

1991; McDowell & Dick, 2003) indicating a great deal of in-car switching. In addition, reviewing any Arbitron report will reveal that location of listening can vary greatly depending on a station's programming and AM/FM signal assignment. For the purposes of our loyalty-measuring tool, we posit a logical direct positive relationship between the percent time allocated to listening to the radio in the car and the degree of commercial zapping.

As stated above, there were two goals to this study. The first was to investigate the relationship between audience size and loyalty and the second was to develop a loyalty index. Loyalty variables should work logically together while preventing multicollinearity (two variables explaining essentially the same effect). This leads to two research questions:

RQ1: *What is the relationship between the loyalty measure and measures of audience size?*

RQ2: *Is there sufficient support for a loyalty measure from the four variables exclusive come, audience turnover, come duplication, and listener location?*

Methodology

Because there is no direct measure of station switching, circumstantial evidence needs to be acquired from available data. When attempting to measure something that is slightly "out of reach," it is usually a good idea to use more than one measure, assuming each measure captures a relatively unique aspect of the item in question. The first step was a purely conceptual perspective. Does the measure have construct validity where the mere logic underlying the definitions of some ratings terminology would suggest that it could capture audience loyalty? A second procedure takes a statistical perspective whereby these dimensions are analyzed as to how well they "fit" with one another.

This process, known often as *item analysis*, was a way to test the internal validity (or internal consistency) of an instrument that has several questions or measures. The goal was to have each dimension contribute something meaningful to the overall composite measure. This means that the researcher must strike a balance wherein the individual dimensions are *different* yet *similar* enough to capture relevant aspects of the core concept under study. As with the spokes of a wheel, each is unique, yet each shares a common origination.

A combination of factor analyses and Cronbach's Alpha tests were used to evaluate the interrelationships. Factor analysis was a procedure used to reveal the underlying structure of a set of measured variables. That is, the analysis determines the extent to which the variables have a shared variance and therefore a shared common identity. Through a combination of correlation and regression analysis techniques, the factor analysis arrives at the most parsimonious collection of factors that can explain the greatest amount of variance. Cronbach's Alpha also looks at the relationship of variables by analyzing the

correlation between a single dimension and the combined correlation of all dimensions (Gujarati, 1988). An overall low alpha score indicates that the set of variables perform poorly in capturing a singular construct. Conversely, a high score indicates that the variables work well together (Mertler & Vannatta, 2001).

Data Manipulations

For the convenience of the professional using this instrument and the needs of the statistical test, the researchers recommend a standardized unit of measure for all dimensions. A standard *indexing* formula was introduced where an individual station score on a dimension was divided by the market average. This type of indexing provides a measure of a station's relative performance compared to the overall market.

Using a common spreadsheet program such as Excel, an index can be expressed as a decimal proportion or as a percentage. Therefore, a station achieving the identical performance of the market average would reveal an index of 100. A station outperforming the market average would reveal an index exceeding 100 and visa versa. The user of this instrument should remember that this composite index measure is not an absolute measure of loyalty but rather, a measure of *relative performance*. For example, average station index scores of 50 and 150 do not disclose the number of loyal listeners, but they do suggest that listeners to one station are much more likely to turn away.

To compare properly both large and small stations without introducing a statistical bias, a few sets of data used *percentages* rather than raw numbers or ratings. For example, when examining the magnitude of audience one station shares with another (cume duplication), it is more revealing to look at this relationship as a *percentage* of the station's total audience, rather than the total number of persons involved. Fortunately, Arbitron provides these percentages as part of its regular sweep report (RMR).

Two of these standardized measures were *reverse scored* so that across all dimensions, high and low scores would imply the same performance levels. As a result, for this instrument, the higher the index we assume the greater the audience loyalty. To the contrary, low indexes suggest instability and decreased loyalty. Later portions of this study will provide exact data manipulations for each of the selected variables.

The index for exclusive audience required an additional accommodation. The problem was that some stations had *no* exclusive audience. With zero in the numerator, the product becomes zero and this confounds the index. The simple solution for this was to add one to the entire data set. The variance stays the same and the average for the group goes up by only one. Each station's performance was indexed against the calculated mean of all stations.

Finally, selected indexed variables can be combined and averaged to provide one composite statistic for each station. For a busy media buyer, this single index can facilitate quick comparisons among competing stations. However,

this does not forbid the examination of each dimension index separately. Combination was acceptable because the statistical tests, conducted as reported below, combine the measures. The combination may not be as exact as individual measures because of the relative weight of the different measures. For example, averaging assumes equal importance of all measures where, in fact, exclusive come *may be* much more important.

Analysis

The data analysis was divided into two stages. The first stage looked to see if all variables were describing a singular construct. Essentially, we looked to determine whether (a) audience size and (b) station switching were mutually exclusive or mutually dependent. Depending on the results from stage one, the second stage examined the relationship among the four proposed switching variables.

Stage One: Stage one analysis began with an analysis of the Pearson correlations. Table 1 presents the correlations between the variables. The correlations indicated a significant relationship between share and cume ($r = 0.867$). At the same time, share and cume failed to correlate with any of the proposed switching variables except "listening in car." A set of weaker but significant correlations existed between the switching variables. The only exception to this trend was between "listening in car" and "percent exclusive cume." As predicted, these correlations indicated two distinct clusters of variables.

Correlation was a good place to start. It was a component in other important tests and helps to get a general understanding for the data. However, factor analysis was specifically designed to separate variables. This technique statis-

Table 1
Correlations of Variables Considered

	Cume	Share	TOR	In Car	Exclusive
Share	.867**				
TOR	-.228	.125			
In Car	-.480**	-.212	.491**		
Exclusive	.002	.246	.497**	.228	
Competition	-.124	.126	.458**	.339*	.590**

**Correlation was significant at the 0.01 level (2-tailed).

*Correlation was significant at the 0.05 level (2-tailed).

TOR = Turnover ratio.

Car = Percent time listening in car.

EXCL = Percent exclusive cume.

Comp = Number of important competitors.

tically looks for groupings in data and measures. Factor analysis is a little different from other statistical tests in that there is not an absolute test of significance. However, there are standards. The major decision is how many factors to include. The importance of the factors was measured by eigenvalues. A common standard for inclusion is that the eigenvalue for the factor must exceed one (Statsoft, n.d.) In this study, we chose to accept this standard. In addition, we chose to do the analysis through SPSS factor analysis (principle components, varimax rotation).²

A factor analysis was performed for the six variables. The first stage of the analysis identified factors with eigenvalues greater than 1.0. In this case, two factors were identified. The system automatically went on to compute the loading of those factors. The second part of the analysis was calculating the rotated loadings. The results were persuasive. Cume and share loaded together on a single factor (factor number two) while the combined switching variables (turnover, in car listening, exclusive audience, and competitive stations) loaded together on a separate single factor (factor number one). Clearly, there were two mutually exclusive forces at work here.

Stage Two: The findings from this factor analysis were corroborated by a Cronbach's Alpha test. The alpha is designed to test the reliability of a collected scale. The more the measures work together, the closer to 1.0 the score. In this case the Cronbach's Alpha was an acceptable 0.708.

Summary of Analysis

The combination of the above test allows the researchers to answer the two research questions. First, audience size was not a good predictor of station switching (RQ1) and secondly, the four proposed loyalty variables worked well together (RQ2). Because the four variables work effectively together at measuring a single dimension and that dimension was not audience size, it was reasonable to posit that the combined scale was measuring loyalty as predicted.

Applying the Method

The real power of these findings was the easy application. Although the analysis required a powerful statistical tool, applying the model can be simple. The data, as described above, could be compiled in a Microsoft Excel document. Because Arbitron publishes measures of audience size in the RMR, the user needs only to enter the appropriate data and create indexes for the four measures of audience switching. The average of the four switching measures becomes a single composite measure. Because the indexes were created so that high scores meant low switching, one may consider the composite score as a measure of audience loyalty.

Now it was easy to consider audience size and loyalty for each station. Table 2 displays the share and loyalty index for the 35 stations listed alphabetically by call letters. The correlation between share and the combined loyalty

Table 2
Station Performance on Loyalty and Share Index

Station	Loyalty	Share	Station	Loyalty	Share
1	75	262	19	71	104
2	119	227	20	93	99
3	68	224	21	111	80
4	113	168	22	117	55
5	72	161	23	78	54
6	113	154	24	122	49
7	120	149	25	190	42
8	97	146	26	94	38
9	96	141	27	68	35
10	99	140	28	77	30
11	123	137	29	194	30
12	77	133	30	76	26
13	72	133	31	196	22
14	147	128	32	118	19
15	102	128	33	88	18
16	187	122	34	121	9
17	78	114	35	107	7
18	102	110			

index was not significant $\beta = -0.249$). By studying Table 2, one can see that there was considerable disparity between station performances on these two measures. Some stations exhibited high audience shares with relatively poor loyalty. Conversely, other stations enjoyed both high loyalty and high ratings but another group reflected low audience share but impressive audience loyalty. The bottom line is that for this particular market, a media buyer cannot assume any predictable relationship between audience size and loyalty. Therefore, each station's audience delivery should be "handicapped" or weighted using this tool.

SUMMARY OF STEPS FOR THE LOYALTY INDEX

Anyone with a copy of the local Arbitron report and a simple spreadsheet program can replicate this project for their own market. Given access to the proper data, the method can extend to individual dayparts or demographics.

Step One: For all the stations in the market, collect and enter into the spreadsheet data from exclusive cume percent.

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Step Two: For all the stations in the market, collect and enter into the spreadsheet data from percent of listening in car (from Listening Locations Table).

Step Three: To compute audience turnover (if not supplied), enter cume audience and AQH audience for all stations. Turnover equals cume divided by AQH audience.

Step Four: Important competition was defined as the number of stations above a certain threshold in the cume duplication percent table. For this study, we defined the threshold at market average. This meant we needed to enter the entire cume duplication percent table and find a grand average.

A less rigorous approach would be to choose an arbitrary number. However, a more arbitrary choice may not be appropriate across several markets. Once the threshold is chosen, you simply count the number of competitors (for each station) that exceed the threshold.

Step Five: At this point, you should have four switching variables (exclusive cume percent, percent listening in car, turnover, and number of significant competitors) in your spreadsheet. You need to convert all of these to indexes. For this study, we choose to make high index numbers good news for the station. The formulas are as follows:

- For listening in car, turnover ratio, and important competition

$$\text{Indexed value} = \text{Absolute value of } [(\text{Mean} / \text{Individual value}) - 2]$$

- For exclusive cume

$$\text{Indexed value} = (\text{Individual value} + 1) / (\text{Mean} + 1)$$

The formulas above should result in an array for each of the variables. Index values may be formatted as percentages for easier viewing or left as the original number centered on one.

Step Six: Audience loyalty is a simple average of the index values for listening in the car, turnover ratio, important competition, and exclusive cume. This index value shows the relative strength of audience loyalty for stations in the market. The value can be used to compare station performance with other indexes such as the ones for audience size. The combined index is a shortcut and does not give a complete picture but is a shortcut for the busy executive.

DISCUSSION

This proposed loyalty measurement tool was not perfect, but there is no explicit measure available. The next best thing is to use station-switching behavior as a surrogate for loyalty. Therefore, we attempted to find several measures that

should provide persuasive circumstantial ratings evidence of switching behavior. The variables selected for our overall station switching measure were based on logic more than empirical evidence of switching. However, based on these results, the researchers for this study conclude that findings from this proposed commercial loyalty tool were probably *conservative* estimates of the true magnitude of switching occurring in the real world.

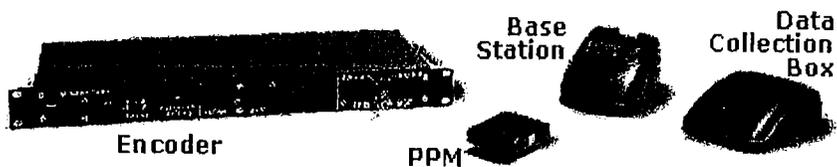
This study was limited by the fact that the Arbitron data set used for this study was not representative of the nation but rather drawn from a single ratings book from one large radio market. Given the success of this study, the loyalty index should be applied to the national market. Researchers may also look across markets to see how the effect is moderated by other factors such as station consolidation, minority interest appeal, and future FCC policy shifts. It may be more difficult, but a moderated version of the index may be applied to loyalty of cable channels—particularly music, news, and other short format services.

In recent months, Arbitron has been experimenting with an electronic device that ultimately would eliminate conventional diaries, enabling a far more precise measurement of station switching. Called a Portable People Meter or PPM, the pager-sized device detects automatically inaudible codes that radio and TV broadcasters, as well as cable networks, have embedded in the audio portion of their programming. At the end of each day, the survey participants place the meters into base stations that recharge the devices and send the collected codes to Arbitron for tabulation. Unlike Nielsen TV meters, which must be attached to a TV set within the home, the PPM (Figure 1) is completely portable.

This device has the potential of recording minute-by-minute exposure to commercials as well as programming. But until the PPM becomes a reality, we must use less precise alternative ways to evaluate to some degree the extent of commercial zapping.

We see from this study that frequent but noncontinuous listening behavior does not discriminate between popular and unpopular stations. A highly ranked station can still share its audience with many competitors. As long as listeners

Figure 1
Arbitron's Portable People Meter (PPM).



(Arbitron, 2002).

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continue to *return* to a station within a brief time span, its overall quarter hour ratings are not handicapped appreciably. The result is a rating that can over-represent audience size during advertisements. The application of a new audience loyalty measure can help advertisers get more power for their dollar by buying audiences that are more likely to listen to the advertisement.

Notes

¹Listener location was only available for the 18 and over age group. While this was not perfect, the researchers accepted this limitation on the data set.

²While this method is not explicitly stated, the choices would be considered standard by Statsoft (n.d.).

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