

Switching Radio Stations While Driving: Magnitude, Motivation, and Measurement Issues

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Rather than examining the factors that motivate audiences to tune a radio station, this study looked at what motivates audiences to turn away. Among the findings of a general public survey of more than 350 people were that (a) drivers frequently switch stations during a mere quarter-hour listening span, and (b) avoidance of commercials (or zapping) was by far the most influential motivator. In light of these findings, this article discusses the limitations of conventional Arbitron quarter-hour methodology to measure station switching and explores how the company's experimental electronic Personal People Meter (PPM) can offer a welcome solution to this problem.

The business of commercial radio is the selling of audiences to advertisers. An underlying assumption of the radio business model has been that while audiences listen to program content, they are exposed coincidentally to inserted commercial messages. Researchers have found that people listen to the radio for a variety of reasons, including the desire for information, companionship, relaxation and mood enhancement. To date, there has been far more research on why audiences tune in than why audiences tune out. One particular motivation for switching stations that threatens the underpinnings of the radio business model is the deliberate avoidance of commercial interruptions, often referred to as *zapping*.

To measure the size and demographic composition of radio audiences, the industry, for more than 3 decades, has relied on the personal diary methodology of the Arbitron Company. The basic unit of analysis has been the *quarter hour*. Many critics have questioned the accuracy of diary entries, particularly while respondents are driving a car or truck. Additionally, the protocols used to assign quarter-hour listening credit to stations have a tendency to mask the

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magnitude of station switching. In recent months, Arbitron has embarked on a radically new venture using passive electronic meters to measure radio and television listening. If accepted by the industry, this new research technology will have a profound effect on audience measurement.

The purpose of this study was threefold. First, the researchers wanted to ascertain to some degree the magnitude of drivers' radio station switching while driving, particularly within a typical 15-minute time span. The second goal was to evaluate the plausible motivations for switching stations, with special attention paid to the notion of commercial avoidance. Finally, in light of the findings, the researchers wanted to *disclose* the limitations of conventional Arbitron quarter-hour methodology to capture accurately station switching and how the company's experimental electronic Personal People Meter (PPM) may offer a *practical* solution.

Although there is considerable published research on channel switching and commercial zapping on television, little attention has been paid to its occurrence with radio. However, the limited research that does exist on radio is quite good, and it was not the intent of this study to plow old ground. Rather, the researchers wanted to add to the body of the existing knowledge by approaching these topics with a different slant. In particular, other studies have not looked at commercial avoidance in relation to other motivations for switching stations. Furthermore, earlier studies have not focused on the quarter-hour measurement issue and its implications for the buyers and sellers of radio audiences.

BACKGROUND & LITERATURE REVIEW

Barnouw (1970) maintained that since radio's inception in the 1920s, the notion of using program content to expose audiences to embedded advertising messages has proven to be a winning business model. Radio's contribution to the successful marketing of consumer products and services has been well documented by industry organizations, such as the Radio Advertising Bureau (RAB Website, 2002). Although the desired objectives of this model have not changed over the years, there have been major changes in execution.

The first commercial advertising strategies were program sponsorships, where the sponsor's name and products were integrated into the fabric of the program. During the early years of radio, many programs were limited to a single sponsor. For three decades, radio prospered with highly structured long-form programming, such as soap operas, dramas, comedies, quiz shows, and live big band concerts. However, with the advent of television, radio audiences dwindled and radio operators were compelled to find new ways to attract audiences. By the mid-1950s, conventional long-form programming on radio was essentially extinct. Its highly successful replacement was music format programming that did not burden the listener with having to tune to a particular

program at a scheduled time. Instead, listeners could "join in progress" (JIP) and not feel disoriented with the continuity of the programming (Alexander, 1997; Barnouw, 1970).

Coinciding with this change in programming was a change in commercial placement. Pure sponsorships with limited and unobtrusive interruptions gave way to today's modular spot announcement clusters, where many advertisers can "participate" in a single program or daypart. In addition to affording the advertiser more selection and flexibility, this multi-spot placement configuration enabled radio stations to make more money by airing more commercials (Tankel & Williams, 1998).

Radio Today

Today, in large markets where dozens of radio stations compete for the same target audience, listeners often find that several stations broadcast highly similar content and that one station can be easily substituted for another (Alexander, 1997). In a desperate effort to cultivate station loyalty and discourage switching, radio operators have introduced myriad marketing tactics, such as contests, promotions, celebrity guests, and advertising in other media (Buchman, 2002).

Scheduling radio commercials has become a highly sophisticated enterprise. Knowing that too many commercials can drive audiences away, station sales managers must deal with a *limited inventory* of commercial opportunities. For most radio stations, morning and afternoon "drive times" generate the most listeners and therefore the most revenue from commercials. For the past 5 years, many advertisers and media buyers have commonly complained that poor inventory control on the part of the broadcaster resulted in *commercial clutter*; a situation of commercial overload where advertising messages allegedly lose some of their effectiveness on audiences. An undesirable outcome from clutter is zapping; the deliberate avoidance of commercials by switching stations or channels (AAAA, 2002; Elliott & Speck, 1998).

Theoretical Concerns

From a business perspective, Alexander (1997) maintained that the primary goal of radio programming is to maximize the size of an audience targeted by advertisers and the only way to accomplish this goal is to satisfy the needs and wants of that audience. "Uses and gratifications" has long been a popular approach to understanding audience motivations for tuning to radio and television programming. The underlying presumption is that audiences are not passive nonjudgmental receivers of media but are, rather, active seekers of program content that will satisfy specific needs. From practical considerations, such as wanting information about traffic congestion, to more abstract psychological desires, such as relief from emotional stress, listening patterns are determined by each person's expectations of how well different media or programs will gratify their needs (Rubin & Perse, 1994).

In many respects, radio listening can be compared to retail consumer behavior. That is, audiences "consume" certain brands of media content in a manner similar to the way people consume branded packaged goods. The concepts of audience gratification and consumer satisfaction are essentially synonymous.

Facing unprecedented competition and fragmenting audiences, radio and television broadcasters in the 1990s began to embrace the jargon of *brand management* (Belamy & Trout, 2000; Buchman, 2002; Dickey, 1994; McDowell & Batten, 1999). A 1998 editorial from *Broadcasting and Cable* magazine proclaimed, ". . . branding is threatening to supplant 'synergy' or 'convergence' as the queen bee of TV buzzwords" (Editorial, 1998).

Media professionals and the trade press began to make references to branding, brand identity, brand image, brand loyalty, brand extensions, and—the most muddled of brand management notions—brand equity. Brand equity is the added value a brand name gives a product or service. One particular aspect of consumer-based brand equity theory that can be applied easily to radio station switching behavior are the notions of *positioning* and *substitutability*. In simple terms, brand positioning is the art and science of differentiating a brand from its competitors. According to Keller (1998), successful brands with strong brand equity are those that exhibit favorable, strong, and unique images or brand associations. They are "positioned" in the consumer's mind as special and superior. Along the same lines of thinking, substitutability looks at how well one brand can be substituted for another without any discernable change in consumer satisfaction. Taking this audience-based brand theory perspective, we can see that radio station switching can be explained through three simultaneous processes:

1. Dissatisfaction with the expected content provided by a particular brand of station.
2. Knowledge that there are alternative brands offering highly similar content that may be more satisfying.
3. A predisposition that these alternative brands can be substituted readily with no substantial risk (no loss of program continuity).

As mentioned earlier, this final component has become a double-edged sword for radio programmers in that most contemporary program formats are designed to be joined in progress. Although this tactic facilitates the welcoming of new audiences at any time, it also readily opens the door for audiences to leave. Unlike most television programming, radio programming permits audiences to move about the programming landscape without risk of losing a "storyline."

Based on the outcome of two focus group projects, which will be elaborated later in this article, the researchers found that among the several motivations for

switching stations, *avoiding commercials* was ranked the highest. Of course station switching is based on the premise that alternative station brands provide similar levels of satisfaction. The primary common denominator underlying all brand management principles and practices is *competition*. As the number of similar products or services in the marketplace increases, the need for highly differentiated brands becomes more acute. According to Keller (1998), increased competition stimulates a similar rise in the speed and sophistication of measuring tools. For broadcasting, evidence of this phenomenon can be found in the recent people meter experiments conducted by Nielsen and Arbitron. In coming years, as media competition becomes more fierce and advertiser demands become more sophisticated, the issues of radio station switching and commercial avoidance will become ever more important. At the core of these issues is the need for better audience measurement.

Arbitron Audience Measurement

The Arbitron Company, the largest provider of radio audience information, utilizes a personal diary methodology to ascertain radio listening in several hundred markets. Diary holders are asked to record by hand pertinent information, such as the exact times of listening, call letters, and location of listening. Obviously, it is nearly impossible to fill out an Arbitron diary in detail while driving a car. Instead, most diary-keepers complete this task after the conclusion of the trip, relying on short-term memory. By comparing tape-recorded listening versus conventional diary entries, Abernathy (1989) found significant differences up to 6.5% for station listenership and 8.5% for daypart listenership. The inherent problems of accurate diary keeping are well recognized in both academia and the private sector.

The standard Arbitron market report provides subscribers with data on individual station performance across several day parts and demographics. In most cases, audience behavior is reported using a *quarter-hour* unit of analysis. Although this quarter-hour format is certainly convenient and universally accepted by the industry, it is important to scrutinize the precise definitions of several commonly used terms. Whether dealing with total persons, ratings, shares, or cumes, Arbitron's average quarter-hour (AQH) audience data are all configured according to estimated number (or percentage) of persons who listen to a station for a *minimum of 5 minutes* within a reported day part. One should remember, that this 5-minute threshold is not necessarily 5 *continuous* minutes of listening but the aggregate of time spent listening (Arbitron Methodology, 2001). For example, within a 15-minute time span, a listener can switch back and forth among several stations and still accrue the necessary 5 minutes of listening to give quarter-hour ratings credit to a certain station. Similarly, a person can listen continuously for the first 5 minutes of a quarter hour and leave, and the station will receive a full 15 minutes credit.

Advertisers and media planners use Arbitron quarter-hour ratings to derive complex reach and frequency objectives. Frequency refers to the average number of times an audience member is supposedly exposed to a commercial. The key word here is "exposed." The presumption has been that an audience member needs to see or hear an advertising message a specified minimum number of times before the message is totally assimilated (Hall, 1996; Webster, Phalen, & Lichty, 2000). However, the reality of this situation may be that because of commercial zapping, a message needs to be *broadcast* several times before an audience member is actually *exposed* even once.

Keeping in mind the potential problems with the reliability of diary entries and quarter-hour measures, there is one rudimentary measure of station switching using Arbitron ratings called audience *turnover*. By dividing a station's Cume audience by its AQH audience, this index does offer some measure of audience retention or loyalty (Webster, Phalen, & Lichty, 2000).

Another section of a typical Arbitron Report addresses *Cume Duplication*. Here, the reader can learn what stations share or duplicate audiences. One could speculate that a station that shares its audience with many competitors also suffers from considerable station switching in that listeners perceive several formats as equivalent substitute brands. Comparing this data with the above-mentioned audience turnover index offers some circumstantial evidence concerning the vulnerability of a station to switching.

Radio program directors have found ways to exploit Arbitron's quarter-hour measurement protocols by clever scheduling of commercials and music segments. For example, one tactic is to schedule no commercials during the first 5 minutes of any quarter hour in hopes that audiences will linger with the station for at least the minimum number of minutes. A more conspicuous strategy involves scheduling continuous commercial-free music for three of the initial four quarter hours within a clock-hour followed by a surplus of commercials (i.e., clutter) during the final quarter hour. The assumption here is that the station is willing to alienate audiences for one quarter in exchange for holding them for three.

Arbitron's Proposed Personal People Meter (PPM)

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. Coined a Personal 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 is completely portable.

Nielsen Media Research is providing financial support and has an option to join Arbitron in the commercial deployment of the Arbitron PPM in the United States (Arbitron Website, 2002; Moss, 2002). The implications of this device are presented in the discussion section of this article.

Station Switching and Commercial Avoidance Issues

Acknowledging that audiences switch stations while listening to the radio is not a major revelation, but attempting to accurately measure this phenomenon has been a challenge. An extensive review of prior research found that, aside from an Arbitron (1999) study, only a handful of academic studies have looked into this topic and almost all have dealt exclusively with television. For example, Ching Biu Tse and Lee (2001) found that nonzappers revealed better brand recall than zappers. Zhao (1997) discovered in a TV clutter study that the number and position of commercials within a commercial break could influence brand recall, recognition, and advertisement liking. Zufryden, Pedrick, and Sankaringam (1993) discovered that households subscribing to cable tended to engage in more channel switching than households without cable, suggesting that more program choice results in more switching.

The Arbitron Company, in conjunction with Edison Media Research (Arbitron Study, 1999), conducted a large telephone survey of more than 1000 Arbitron diary keepers. Among the stated goals of this "spot load" study was to probe listener perceptions toward radio advertising. Because Arbitron has a vested interest in the overall success of radio as an advertising medium, the wording of many questions and the presentation of many findings have an obvious positive spin. Among the relevant findings were that the vast majority of respondents believe that listening to commercials is a "fair price to pay for free programming on the radio." On the other hand, a less publicized finding was that one third of the total sample would be willing to pay \$5 per month for commercial-free programming. This study also concedes that young people (ages 12 to 24) are more likely to switch stations due to commercial avoidance. The Arbitron study (1999) does provide some important insights, but there is a clear agenda permeating the entire project. The obvious intent was to place radio in as good a light as possible and not dwell on chronic problems. Although switching due to commercials was recognized, there was no attempt to actually quantify its magnitude except by using imprecise phrases such as "rarely" and "sometimes." Additionally, other plausible motivations for switching stations were not investigated.

Abernathy (1991) provided one of the few significant studies to address radio station switching. Assuming that proximity to the radio while in a car encourages listeners to change stations, Abernathy used an elaborate setup of portable tape recorders and diaries distributed among 100 young respondents (ages 19 to 24). An on-air sample of the radio stations involved was also recorded as a comparison benchmark. Station switches and commercial zap-

ping were detected by scrutinizing the recorded sounds on each tape. Among the results were that only half of the scheduled commercials were exposed in their entirety to the sample audience. The researcher was also able to determine that commercials that were placed first in a cluster or pod were far more likely to be exposed than the commercials placed deeper into the cluster.

This ingenious study is a forerunner of Arbitron's new PPM device and offers much insight from a behavioral perspective, but it does not touch on attitudinal questions, such as the motivations for switching. One assumes that the underlying motivation for switching stations during a commercial break is commercial avoidance (zapping) but we cannot be assured absolutely with this circumstantial evidence. Furthermore, Abernathy (1991) did not delve into other plausible motivations for switching stations. Also, the study's sample base was a "demographically homogeneous" group of young student volunteers. Based on the findings of other studies, young people tend to change stations more often than older people. Finally, the findings are more than a decade old and it is possible that radio listening habits have changed over the past decade.

Based on the above literature review and the voids in knowledge that remain unexplored, the researchers crafted a study to reinvigorate the discussion on switching stations.

Research Questions

The following research questions are worth considering.

RQ1: While driving, how much radio station switching occurs within a typical 15-minute interval?

RQ2: While driving, what motivates people to switch radio stations?

RQ3: Does station switching exhibit any discernible patterns?

METHODOLOGY

Sample Design and Administration

A pencil and paper self-report survey was administered in person to a sample of 373 adults representing a cross section of a large southeastern city. Because of the complexity of the questionnaire, particularly question number four, the researchers avoided telephone and mail techniques in favor of self-reports where respondents are recruited and supervised in person.

Furthermore, this approach usually generates high response rates (Babbie, 2002). Recognizing that obtaining a generalizable sample from a large diversified population can be a daunting task, the researchers opted for a sampling technique that is similar in concept to that used by Arbitron and Nielsen, namely cluster sampling (Babbie, 2002).

The first stage was a cluster sample of 34 randomly selected geographical locations within the city. A trained research associate was assigned to each

location. As suggested by Babbie (2002), stratification was used within the clusters to enhance reliability. The first stratum was gender (male and female). The second stratum was age (under 24, 25–40, and over 40). Thus the sample equally represented different areas of the city, genders, and age groups. This strategy yielded 386 completed surveys with an 84% response rate. Seventeen surveys were pulled because the respondents did not listen to the radio while driving. An additional 12 surveys were eliminated due to various response errors. This yielded a final sample of 356 usable surveys. One could argue that the results were derived from a convenience sample. However, it was a convenience sample of people who happen to be at one of 34 locations and fit a needed demographic profile. The diversity of collection points and additional strata help reduce selection bias and insure respondent diversity.

Survey Instrument Design

The first question was a screening device intended to acquire only participants who listen to the radio while driving.

1. While driving in your car, do you sometimes listen to the radio? Yes/No

Respondents who claimed that they did not listen to the radio under these circumstances were excluded from answering the remaining questions.

The second and third questions addressed station switching. Because Arbitron uses average quarter hour (AQH) as its basic unit of measure in market reports, respondents for this survey were asked to describe their switching habits with a typical 15-minute time period.

- 2. While driving, during a typical 15-minute time period, on average how many times do you change stations (including going back and forth among the same stations)?*
- 3. During the same 15-minute time period mentioned in question #2, on average how many different radio stations do you listen to?*

The fourth question addressed the motivations for changing stations. Respondents were asked to rank their top three reasons. Prior to the creation of this quantitative survey instrument, the researchers conducted a pilot study and two subsequent focus groups to arrive at an understandable, exhaustive, and mutually exclusive list of plausible reasons to change stations.

Suspecting a possible order effect bias, a reliability check was initiated where a random sample of 35 of the distributed surveys had the "commercial interruptions" option moved from the first to the fifth position on the list. Results indicated a perfect correspondence between the results of the test group and the larger database (i.e., exactly 84% of each group mentioned commercial interruptions).

4. Below is a list of possible reasons for changing stations while listening to the radio. Please rank your top 3 reasons by placing the #1, # 2, and #3 next to the best three reasons.

- (a) Commercial interruptions
- (b) A song I do not like
- (c) Annoying announcers or program guests
- (d) Boring conversation topics
- (e) Unimportant or repetitive newscasts
- (f) A Passenger wants to change stations
- (g) Other _____

The fifth question focused exclusively on the issue of commercial interruptions.

5. On a scale of 1 to 5, with "1" meaning you disagree completely and "5" meaning that you agree completely, please indicate how much you agree with the following statement:

While driving, as soon as I hear the beginning of a commercial on the radio, I immediately change stations.

Questions six and seven explored the notion that perhaps listeners who profess having a favorite station would be less likely to change stations and more tolerant of commercial interruptions.

6. *While driving, do you listen to one radio station more than all others? In other words, do you have one favorite station? Yes/No*

7. *Assuming you have one favorite station, on a scale of 1 to 5, with "1" meaning you disagree completely and "5" meaning that you agree completely, please indicate how much you agree with the following statement:*

On a scale of 1 to 5 with "1" meaning you disagree completely and "5" meaning you agree completely, please indicate how much you agree with this statement: I am less likely to change stations during commercial interruptions when I am listening to my favorite station, than when I am listening to another station.

The final two questions dealt with gender and age.

8. *Are you Male? or Female?*

9. *In what year were you born?*

RESULTS

Question one was merely a screening device to acquire an appropriate sample of people who listen to the radio while driving. A total of 356 usable surveys

were analyzed. At the conclusion of the survey, questions nine and ten collected demographic data for age and gender. The sample was 56% male with the remainder female. Respondent age ranged from 15 to 78 with a mean age of 33 (SD 12.8).

Response to Research Questions

The research questions yielded the following responses.

RQ1: How much radio station switching occurs while driving?

In this study, subjects reported significant station changes while driving (Table 1). Only 7.2% ($n = 25$) reported that they did not switch the radio during a typical 15-minute period. Median changes were 4.0 (mean = 5.9, mode = 3). This compares to Abernathy (1991) who reported 7.9 changes in 15 minutes. The results were highly skewed (skew = 4.5). Several subjects ($n = 23$) reported 15 or more switches in a period. Some results were hard to believe, but it was reasonable to believe that subjects changed the radio constantly. In fact, two subjects, not included in the data for this question, simply responded "all the time" or "a lot." To control the effects of outliers, the data were reduced to four categories for later analysis. In addition, data reduction was justified because most of the rest of the data were ordinal or nominal.

Similar results were found in responses to question three—number of stations. In all, 11.4% ($n = 40$) of the subjects reported only one station. Subjects reported a median of three stations used (mean = 3.5). Again, some extreme results were reported (skew = 2.1). A group of 19 (7%) subjects reported using seven or more stations. Again, the data were reduced to three categories (Table 2). The most common group was three or four stations

Table 1
Distribution of Station Changes and Stations Heard
Changes per Quarter Hour

Changes Per Quarter Hour		Stations Per Quarter Hour	
0	7%	1-2	34%
1-2	21%	3-4	41%
3-4	30%	5-6	20%
5-6	19%	7+	7%
7+	23%		
$N = 354$, Standard Error = 0.4		$N = 351$, Standard Error = 0.1	

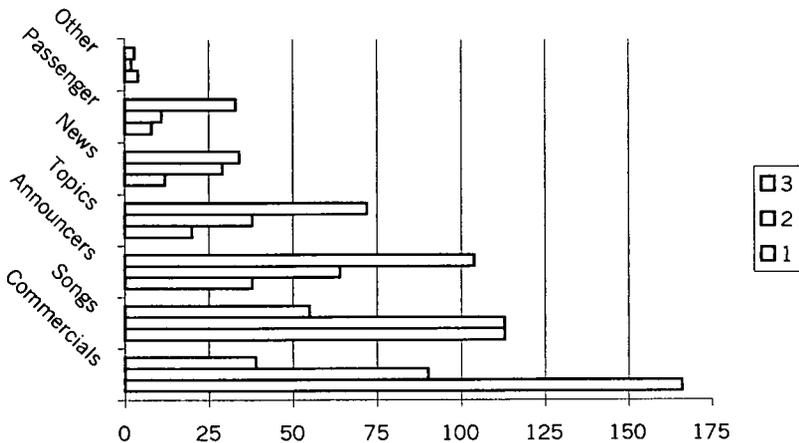
representing 41% ($n = 146$) of the subjects. An additional 34% ($n = 121$) of the subjects reported listing to only one or two stations in 15 minutes.

RQ2: What motivates people to switch radio station while driving?

The remaining questions looked at the reasons why a person switches stations. Question four asked for the top three reasons. By far, the most common motivation cited was commercial interruption with 82.9% ($n = 295$) subjects reporting this as one of the top three reasons and 46.6% ($n = 166$) reporting it as the top reason. Next, song selection was important with 78.9% ($n = 281$) choosing it and 31.7% ($n = 113$) making the top reason. The third most popular reason, "program announcers or guests," was different. It was the third most mentioned (by 57.9%, $n = 206$) but was most commonly listed as the third reason for switching (29.2%, $n = 104$). As seen in Figure 1 below, the remaining reasons were all less important and most often ranked third. The order for these were "boring topics" (36.5%, $n = 130$), "newscasts" (21.1%, $n = 75$), and "passenger desire" (14.6%, $n = 52$). The pattern suggests that there may be an important second reason for station switching. The "other" category was chosen by only nine subjects and most often involved not listening to the radio at all. Figure 1 summarizes the results of this question.

The next question asked subjects if they were likely to change stations at the beginning of a commercial. Fifty-nine and two tenths percent ($n = 209$) of the subjects agreed with this hypothesis whereas 20.1% (71 disagreed). There was an overall mean of 3.65. If a subject had a favorite station (73% did, $n = 261$), 54.7% ($n = 143$) agreed that they would be less likely to change from that station for a commercial while 30.6% ($n = 64$) disagreed with a mean

Figure 1



score of 3.47. Table 2 summarizes the results of questions five and seven. A regression analysis between the desire to change on a commercial (independent variable, question 5) and the number of changes in 15 minutes (dependent variable, question 2) revealed a significant relationship ($F = 14.9$, significance 0.000) although not particularly powerful (adjusted R square = 0.04). This means that, although commercial avoidance helped predict station switching; it was not a strong predictor. A more complex relationship exists.

RQ3: Does station switching exhibit discernible patterns?

The regression analysis above suggests that to understand station switching, additional intervening variables needed to be examined. Two demographic areas where the data were logically ripe for further investigation were age and gender. Furthermore, the researchers were curious to see if there were any systematic relationships among the six specified motivations presented in question number four. It should be noted that the seventh motivation category in question four of "other" received only a few responses (eight), thereby validating the 6-motivation questionnaire design. In fact, the majority of "other" responses dealt with turning the radio off or opting for CDs, neither of which motivates station switching.

Analysis of the age and gender variables took two forms—Pearson correlation and chi-square. There was a high correlation between number of stations and number of changes per quarter hour (Pearson $r = 0.53$, significance = 0.000). Effectively, the more changes per quarter hour reported by the subject, the more stations they reported using. Because there is a strong correlation, further analysis will consider only changes per quarter hour. Eliminating the extra variable reduced the possibility of type II error.

Table 2
Willingness to Change on Commercial

Will change on commercial					
	Disagree				Agree
Mean	1	2	3	4	5
3.65	24	47	73	95	114
$N = 353$, Standard Error = 0.07					
Will change from favorite station					
	Disagree				Agree
Mean	1	2	3	4	5
3.47	30	34	56	68	75
$N = 263$, Standard Error = 0.08					

The Pearson *r* revealed a high correlation between age and (a) station switching, (b) commercial avoidance, (c) song selection, (d) boring topics, and (e) newscasts (Table 3). Not supported were relationships between age and announcer avoidance or passenger desires. In addition, the correlations were negative for station switching, topic, and news. This suggests that, compared to older persons in this study, younger respondents were (a) more likely to switch stations (b) more likely to avoid commercials, and (c) avoid an undesirable song. On the other hand, there was also support for the idea that older people tended to avoid announcers and newscasts. Chi-squares were also run using reduced values for age. The chi-square confirmed exactly the findings of the correlations. Given space limitations, the results of the chi-square were not included.

Gender was tested using the same variables. In this case, only a chi-square was used to test the variables. Although the stereotype assumption might be that males would change stations more than females, there was no support for a relationship between gender and any of the variables. In effect, these data did not support an effect of gender on switching. In fact, looking at the subjects that reported the most station switching (20 or more changes in 15 minutes), the decisive majority (14 out of 20) were female.

DISCUSSION

Conclusions

This study had several interwoven components. The first was a survey conducted to assess to a reasonable degree the magnitude of station switching today. The second component was an attempt to assess the motivations for switching, particularly, commercial avoidance. The final component was an evaluation of Arbitron methodology to accurately measure station switching and commercial avoidance.

Based on the statistical findings of the self report, we conclude the following.

- First, the magnitude of station switching within a 15-minute interval was sizable, implying quick dissatisfaction with program content and the desire to

Table 3
Pearson Correlations for Age

	Changes	Comms	Songs	Announcers	Topics	News	Passenger
Pearson's							
<i>r</i> =	-0.25	0.30	0.24	-0.71	-0.27	-0.18	-0.05
Significance	0.00	0.00	0.00	0.19	0.00	0.00	0.37

seek a more satisfying "brand." These findings are consistent with Abernathy (1991) who used a tape recorder methodology.

- Second, the dominant motivation for switching radio stations was the desire to avoid commercials or zapping. Tied to this behavior was the tendency to abandon a commercial break almost immediately—even when listening to a "favorite station." Again, these findings are consistent with Abernathy (1991) who found that the first commercial in a break had a better chance of being exposed than later commercials within a cluster.
- A third conclusion is that Arbitron's diary-based surveys, including its arbitrary 15-minute unit of measure and 5-minute listening credit rule, can disguise station switching and provide a false sense of listening stability. Calculations of turnover ratio offer some insight but all of this quarter-hour information is predicated on the dubious assumption that the diary keeper is conscientious, entering by hand the details of every single switching episode.
- A related conclusion is that Arbitron's experimental PPM device has the potential to revolutionize audience data collection and in turn, change the way radio stations are programmed and audiences are sold. Instead of burdening the diary keeper with the disagreeable duty of entering precisely by hand every change in listening behavior, this passive listening device is intended to record these changes with ease and accuracy. Unlike Abernathy's (1991) cumbersome tape-recorder methodology, where the coders had the daunting task of listening and interpreting each tape, the PPM utilizes fool-proof electronic encoding to identify almost instantaneously the appropriate stations.

Whether Arbitron will maintain its 5-minute rule and quarter-hour reporting format is still under discussion. Considering that the device is capable of reporting *minute by minute listening* (similar to Nielsen's home meters), one would hope that this data would be made available to subscribers. However, radio industry executives may not be pleased with these findings. Presuming our study exhibits even modest reliability, the implications of adopting the PPM device may be unsettling to those who buy and sell radio audiences. Minute by minute electronic tracking would render many quarter-hour programming strategies obsolete and uncover commercial avoidance by listeners. Conversely, advertisers will probably find the PPM a desirable diagnostic tool for finding stations with loyal and attentive audiences. To date, the radio industry has given the PPM a disappointing reception, mainly because, compared to conventional diaries, the electronic device appears to underestimate overall radio listening. Ironically, the television industry has given the identical device much better grades because, compared to conventional Nielsen diaries, overall television viewing appears to be up! Additionally, Arbitron has encountered problems with disappointing response rates for the PPM; far worse than those encountered with the conventional diary method. As a consequence, Arbitron and

Nielsen have decided to extend the duration of the trials in the Philadelphia pilot study market.

Limitations

A limitation to this study is its external validity. It is difficult to predict how different the results of our single market "general public" study would be compared to a pure random sample of the entire radio market. However, most of the results from this study are so dramatic, it seems unlikely that a wider study would reveal significantly different results. Another possible limitation is the accuracy and integrity of the responses. It is possible that there is a difference between self-reported activity and actual radio listening. There was no way to test whether the estimates of station switching and claimed motivations for switching were truthful. The only counter argument the researchers can make is that there was no obvious reason or benefit from providing dishonest answers. Additionally, data reduction techniques used in the analysis reduced the effect of exaggeration. Therefore, we assume that the essential findings were genuine.

Implications and Future Research

It would be naive to presume that media brand switching and advertising avoidance happen only in radio. To the contrary, these problems can be found across all advertising-based media. Whether the communication medium is electronic or print, advertising is seen often as an unwelcome intrusion. For radio, this obvious aversion has been disguised somewhat by diary-based methodology, but with the introduction of Arbitron's PPM, a new era of audience measurement is upon us. By adopting brand management principles and practices and regarding audiences as active *consumers* of radio content, programmers have a conceptual framework from which to make enlightened management decisions.

This study opens the door for future research. One area that is ripe for more investigation is the relationship of program formats to station switching. Are audiences that prefer a certain type of music or announcing style more tolerant of commercial interruptions? Could long-form programming of the "golden years" of radio make a comeback? Additionally, more work can be done in the area of advertising clutter. For example, can commercial break structures be manipulated to raise or lower audience perceptions of clutter? Regardless of the short-term repercussions of a PPM device, a more precise understanding of station switching and commercial avoidance will lead ultimately to better radio for advertisers and audiences.

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