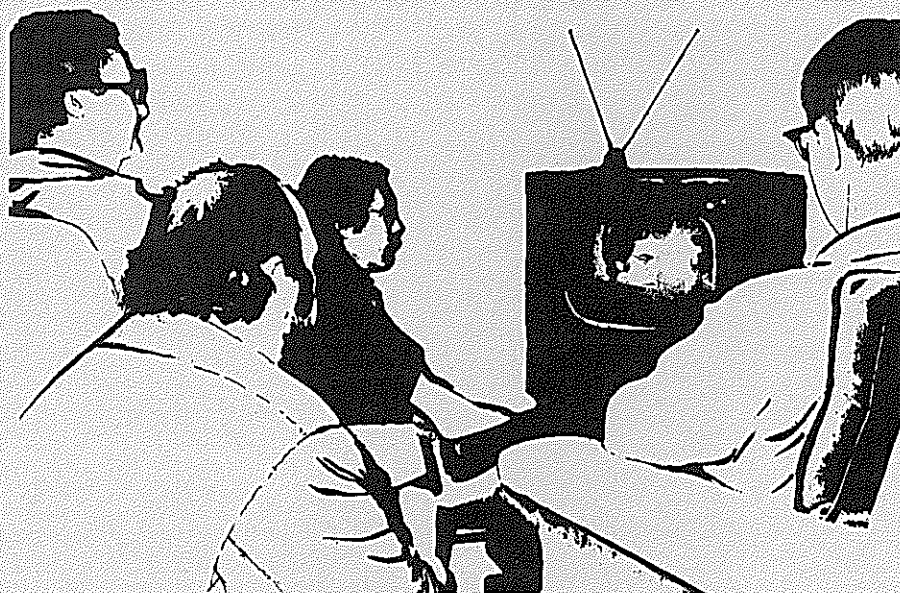


FOREST SERVICE
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PACIFIC SOUTHWEST Forest and Range Experiment Station

RADIO AND TELEVISION USE IN BUTTE COUNTY, CALIFORNIA: APPLICATION TO FIRE PREVENTION

William S. Folkman



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— The Author —

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SUMMARY

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Retrieval Terms: fire prevention; mass media; radio; television research; community attitudes.

This paper reports the radio and television use habits of Butte County residents, covering the times of day they most often use these mass media and the types of programs they prefer, and also suggests ways the results can be applied to fire prevention work.

The survey was conducted as part of an evaluation of an experimental fire prevention program in Butte County. The sample interviewed is representative only of County residents who are 14 years of age or older. But the findings should be applicable to other nonmetropolitan residents of California's Central Valley-Sierra Nevada foothills. Many of these people have frequent and sustained contacts with wildlands.

Radio and television are much used by the population studied—60 percent reported listening to radio at least 1 hour per day, and 80 percent said they watched television for a similar period of time. Various demographic, social, and economic characteristics were found related to rather marked differences in radio and television use patterns, but not in the same way for the two media.

Differences in education, sex, and marital status particularly related to differences in amount of time spent with these mass media. Those people most involved in wildland activities spent less time using radio and television, but a lower proportion than the general public reported *no* use.

People make much more use of radio during the morning hours, while television, in the main, is used in the evening. There is some variation between week-day and weekend use of both media.

The period of the day in which radio and television were used varied considerably more in terms of the variables studied than did the amount of time

used. Age, marital status, education, occupation, and wildland activity all produced variations in the pattern of use.

The programing format for radio differs markedly from that of television. News/weather was by far the most popular program on both media. Music was the only other major type of radio program mentioned. People mentioned a variety of favorite television programs, but comedy/variety and westerns were most frequent second choices.

Variations in program choice for both media were strongly influenced by age. There were also sex, marital, educational, occupational, and wildland activity differences in program choice.

Mass communication is a relatively cheap but not particularly effective means of influencing the behavior of large numbers of people. Much fire prevention effort is dependent on its use. Because of the reliance on donated public service time on radio and television, fire prevention planners have limited opportunity for making optimum effective use of those media for this purpose. By more carefully considering the listening/viewing habits of the high fire-risk audiences that they are most desirous of reaching, fire prevention program planners could more profitably utilize the discretionary power they do have. If they conclude that (a) their fire prevention announcements *are not* shown when desired audiences would see them and more desirable showing times are not feasible or (b) the audience that *is* exposed to the announcements presents no significant risk to the forest resource, then they might consider shifting from mass media to fire prevention approaches with better possibility of payoff.

Agencies responsible for wildland fire protection depend upon radio and television as the mass media for much of their prevention effort. Public service announcements, such as those of the national Smokey Bear campaign, are the principal means used to keep the public sensitive to the forest fire problem. In addition, other types of spot announcements, news releases, and special programs, largely of local or regional origin, seek to educate potential forest users as to appropriate use of fire and to make them aware of specific hazardous situations or periods of time.

How people react to these and other forms of mass communication depends upon a variety of physical, psychological, and social factors affecting the communicator as well as the communicatee. The actual content of the message only partly determines a person's responses. The reception of the communication is filtered by the recipient's own values, loyalties, identifications, expectations, defenses, frames of reference, personality, and the particular social setting in which the message is received. A large body of confusing, and sometimes, seemingly conflicting research concerning mass communication has been developed over the past several decades.¹ Some principles derived from this research appear to be too general for application to specific problems and others too specific for more general use. There are, however, some viable pragmatic principles which may be applied to the production of more effective fire prevention communications.

¹ Some comprehensive and critical evaluation of this research includes: Janis, Irving L., and Carl I. Hovland. 1959. *An overview of persuasibility research*. In *Personality and persuasibility*. p. 1-26. Yale University Press, New Haven; Hovland, Carl I., 1954. *Effects of the mass media of communications*. In *Handbook of social psychology*, Vol. 2 p. 1062-1103. Gardner Lindzey, ed. Addison-Wesley, Cambridge, Mass; Davidson, W. Phillips. 1959. *On the effects of communication*. Public Opinion. Quart. 20(111):3; Klapper, Joseph I. 1960. *The effects of mass communication*. 302 p. The Free Press, Glencoe, Ill.; Rogers, Everett M. 1962. *Diffusion of innovations*. 367 p. The Free Press, Glencoe, Ill.

One of these principles is that different audiences react differently to the same communication. Another is that, ordinarily, individuals do not really hear communications that are not in accord with their interests, needs, and opinions. From these principles, it is apparent that the practitioner needs to tailor the message in terms of content, timing, and other considerations to the intended audiences. To do this the practitioner needs to know as much as is feasible about the interests and habits of these specific audiences.

As a practical matter, public agencies have only limited control over the timing of their fire prevention releases. They are dependent on the commercial media for donated *public service time*. This public service time is usually made available at the least-preferred nonprime time. Notwithstanding that limitation, if public agencies knew more about the viewing and listening habits of potential audiences, they could more profitably utilize what discretionary power they do have. In addition, knowledge of the tastes and preferences of those segments of the general population that might be considered high fire risks could provide leads for producing more effective fire prevention programs.

This paper reports the radio and television use habits of Butte County, California, residents, covering the times of day they most often use these mass media and the types of programs they prefer, and suggests ways the results can be applied to fire prevention work.

The survey was conducted as part of an evaluation of an experimental fire prevention program in Butte County.² The sample interviewed is representative only of County residents who are 14 years of age or older. But the findings should be applicable to other nonmetropolitan residents of California's Central Valley-Sierra Nevada foothills. Many of these people have frequent and sustained contacts with wildlands.

²Folkman, William S. 1973. *Fire prevention in Butte County, California . . . evaluation of an experimental program*. USDA Forest Serv. Res. Paper PSW-98, 23 p., illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

RADIO AND TELEVISION HABITS

Radio and television are much used by the Butte County population studied. Three out of five persons reported listening to the radio an hour or more per day, while more than eight out of ten said they watched television at least that long (*table 1*).

Hours of Use

- **Age**—Variation by age was not significant. Persons under 35 years of age and those between 55 and 65 tended to be the heaviest radio users, while those over 55 were the heaviest television users. One-fourth of those 65 and older reported no radio listening. The group under 25 had the lowest proportion reporting two or more hours per day spent watching television, but even for this group over half (55.5 percent) reported this amount. The 35-to-45 age group had the highest proportion reporting no television use (12.7 percent).

- **Sex**—Females reported heavier use of these mass media than did males. This was especially true for television.

- **Race**—The numbers in various racial categories, other than white, proved too small to be analyzed separately.

- **Marital Status**—The formerly married (widowed, divorced, or separated) reported the heaviest use of radio, and along with the currently married the heaviest use of television.

- **Education**—Heavy radio use tended to increase as the number of years of education increased—through high school. The relationship was inverse for college graduates. On the other hand, heavy television use was inversely related to education at all levels.

Table 1—Number of hours per day reported spent listening to radio and watching television by Butte County residents, 1970

Hours per day	Spent listening to radio	Spent watching television
	Percent ¹	
2 or more	44.2	68.9
1 to 2	17.2	16.0
Less than 1	14.6	3.5
Once or twice a week	10.0	6.5
Not at all	13.7	5.1
Not reported	.3	.0
Total	100.0	100.0

¹n = 663

Non-use of radio was highest among the lower educational levels; for television, non-use was highest among higher educational levels.

Young people currently in school were not markedly different from the general population in the time spent in listening to the radio. Being in school did seem to reduce the time they had available for television watching—contrary to prevailing opinion.

- **Occupation**—Blue-collar workers tended to spend more time listening to radio or watching television than did their white-collar counterparts. However, in terms of occupational status, housewives did the greatest amount of television viewing, although their radio use was among the lowest.

- **Income**—Use of radio and television was somewhat related to income. Those with reported family incomes of less than \$4,500 had the highest proportion of heavy radio users, while those with incomes of \$8,000 or more had the lowest. The higher income group likewise had the lowest reported television use, but there was no difference in use among the lower income groups. For those who refused to give income data (3.3 percent), the proportion of reports of heavy use of both radio and television was much lower than for the rest of the population.

- **Residence**—Length of residence in present location of less than 1 year was associated with less than average use of both radio and television. Otherwise there was little variation in use.

Respondents reporting previous residence "elsewhere in Butte County" recorded heavier television use than did those reporting other previous residence categories.

Some variation by place of current residence was observed in radio and television use. City residents had the highest proportion of heavy users of radio, while suburban residents had the highest proportion of heavy television users. Small-town residents had the smallest proportion of heavy radio users, while they and farm residents had the smallest proportion of heavy television users.

People whose residence was located in a high fire-risk environment (i.e., surrounded by land covered with brush, dry grass, or both) reported somewhat heavier use of radio and considerably lighter use of television than did those in less exposed areas.

- **Wildland Activity**—Those people most involved in wildland activities spent less time using radio or television than other respondents in the study. However, the distinction in heavy use was found to be between those with any reported wildland visits and

those with *none*. There was no difference between frequent wildland visitors and infrequent visitors. Few wildland users reported no use of these media, however; in fact, the more wildland visits the less non-use of both radio and television.

As people's use of fire in wildland areas is closely associated with their use of wildland, responses grouped on this basis quite naturally followed the same pattern of radio and television usage as those for wildland users.

Hours of the Day

Radio and television have come to have distinctly different functions in the lives of their users. This is reflected in differences in the hours of the day in which they are most likely to use the two media.

Radio

On weekdays, nearly half the respondents, for example, reported the early morning hours—before 9 a.m.—as a time when they were likely to listen to the radio (*table 2*). In contrast, less than 5 percent reported use of television during this time period. The remaining morning hours—9 a.m. to noon—were the next most frequently used hours for radio listening, with 29 percent reporting this period. The remaining periods of the day for both radio and television were mentioned quite uniformly by more than one-fifth of the respondents.

Television

In contrast to radio use, television use starts off slowly; less than 5 percent reported use before 9 a.m. (*table 2*). This usage builds gradually through the morning and afternoon, so that 23 percent reported

use between 3 p.m. and 6 p.m. Then during the 6 to 9 p.m. period, the percentage who reported watching television jumps to 78. After 9 p.m., television watching drops back to slightly less than half the population surveyed.

On weekends, there is slightly greater use of television between the hours of 9 a.m. and 6 p.m. than there is on weekdays. Otherwise, the level of use is lower than that on weekdays. There is an especially large decrease in the proportion using radio before 9 a.m. The proportion reporting no use of radio or of television on weekends was more than doubled over that reported for weekdays. More than one-third reported no radio use on weekends.

• **Age**—Respondents' radio use varied according to age. Those 35 through 44 years old were the most frequent users of radio before 9 a.m. on weekdays, while the group under 25 and over 64 had the lowest proportion reporting use at that time. After 12 noon on weekends, and 3 p.m. on weekdays, the youngest age group (under 25) had a considerably higher proportion reporting use of their radios.

Television use by age level was quite variable, but the group 55 and over tended to have the largest proportion reporting use for all periods before 9 p.m. Excluding the under-25 group, which had about average proportion reporting use for that time period, television use after 9 p.m. decreased as age of respondents increased.

• **Sex**—Radio listening during the high use period—before 9 a.m. on weekdays—was the same for both sexes, although it was slightly higher for males during this period on weekends. It was higher for males after 6 p.m. on weekdays and weekends.

• **Marital Status**—Single persons were more likely than married, or formerly married, persons to listen

Table 2—Times of day radio and television are reported most used by Butte County residents, 1970

Hours	Listening to radio		Watching television	
	Weekdays	Weekends	Weekdays	Weekends
	Percent ¹			
Before 9 a.m.	48.3	32.3	4.7	3.9
9 a.m. to 12 p.m.	29.3	25.3	11.6	12.8
12 p.m. to 3 p.m.	18.6	18.1	18.4	22.8
3 p.m. to 6 p.m.	19.6	19.2	22.9	25.3
6 p.m. to 9 p.m.	21.6	18.3	77.8	70.1
9 p.m. to 12 a.m.	16.9	15.8	47.5	45.9
None	15.7	35.8	6.8	14.3

¹ n = 663

to the radio between 6 p.m. and midnight on weekdays. The marrieds and formerly marrieds were the most frequent listeners before 9 a.m. weekdays.

Singles were less frequent television viewers at all time periods. Married persons generally had a higher-than-average proportion viewing television except during the midday time periods, when the proportion was about average. The distribution of formerly marrieds was similar to that of the marrieds except for the 9 p.m.-to-midnight time period, when the proportion viewing was almost as low as that of the single group.

• **Education**—Respondents with at least some but not more than a high school education were more inclined to listen to the radio before noon. Listening habits during the middle of the day were quite similar among all respondents. In the evenings, radio use tended to increase as amount of education increased. The group with a grade school education, or less, had the lowest proportion reporting radio use between 6 p.m. and midnight, while the group with at least some college had the highest. The group with some high school education was in an intermediate position. This pattern held true for both weekdays and weekends.

The pattern for television use was quite different. Morning use among respondents at all educational levels was low. Except before 9 a.m., a lower percentage of those with at least some college education reported television use during all periods of the day, while those with grade school education or less reported highest use for the periods before 6 p.m. The groups with grade school and high school education were very close in the proportion of persons reporting television use from 6 p.m. on.

Youths currently in school were much less likely to listen to the radio before 3 p.m. on weekdays (school hours). After that time and on weekends, they had a higher rate of use. Television was more popular among the out-of-school respondents at most hours of the day, except for the period before noon on weekends.

• **Occupation**—Persons with full-time employment were most likely to report radio use before 9 a.m. on weekdays, while those whose occupational status was listed as "student" were highest users during after-school hours. Housewives and those retired or disabled stood out as high television users.

Occupation, whether white-collar or blue-collar, did not distinguish respondents in terms of radio use at various times of the day. High proportions of blue-collar workers reported television use at all time periods during the day except for the hours before 9 a.m.

on weekdays and after 9 p.m. on both weekdays and weekends.

• **Income**—Differences in family income were not reflected in major differences in radio use. Respondents with a family income under \$4,500 reported slightly higher use in afternoons and evenings. This same group reported higher television use during all periods of the day before 6 p.m. and less thereafter. The middle income group—\$4,500 to \$8,000—resembled the low income group in its use of television during the period before 6 p.m., but was somewhat similar to the higher income group thereafter.

• **Residence**—Length of residence in present location and place of previous residence were not discriminating in terms of radio or television use, except that those who had changed residence within the past 2 years were low users of radio before 9 a.m., and those who had never moved were high users during these early hours.

Differences in location of residence, such as city, suburb, and open country, were not related to radio or television use in any clear-cut pattern.

• **Wildland Activity**—Except for use during weekday mornings, frequency of visits to the wildlands was quite directly related to radio use. The group reporting the highest number of visits to wildland areas (11 or more visits) during the previous year had the highest proportion using radio from noon through the day on weekdays, and the highest proportion for the entire day on weekends. Those who reported between one and 10 visits, as opposed to more visits or no visits, were also in an intermediate position as to radio use.

Program Choices

The program choices of radio and television users further demonstrate the distinctly different use patterns of these two groups, as well as the differences in the programing format of the two media.

Radio

When asked to name the radio programs listened to most, respondents most often mentioned news/weather (*table 3*). Music was the next most frequently mentioned first choice and was the leading second choice. Indiscriminate listening, as reflected by such expressions as "whatever is on" or "anything," was the only other major type of listening reported.

Radio preferences were seldom designated by name. Radio listening is often determined more by the character of the particular stations listened to than by an interest in specific programs. Stations, pa

Table 3—Percent of respondents reporting types of programs most frequently listened to on radio, Butte County, 1970

Program choice	1st mention	2d mention	3d mention
	Percent ¹		
News/weather	47.2	4.0	2.3
Music	17.8	22.8	1.0
Talk programs	5.0	2.8	.2
Sports	1.3	4.5	1.1
Religious programs	1.3	1.1	.8
Public affairs	—	1.0	.2
Foreign language programs	.3	.2	—
Indiscriminate listening	11.8	—	—
Miscellaneous	1.0	—	—
No choice	—	49.3	80.1
Does not apply (non-user)	14.3	14.3	14.3
Total	100.0	100.0	100.0

¹ n = 663

ticularly metropolitan stations, often tailor their programs to cater to specific audiences. In addition, people often turn on a radio for background music, whereas television requires more attentive use.

Television

Television viewing presented a much broader range of program preferences, but news/weather was again the only type of program that stood out as the first choice named (table 4). However, comedy/variety and westerns were most frequently named as a second choice.

To facilitate further analysis, the less frequently mentioned program choices shown in tables 3 and 4 were combined into an "other" category for both radio and television (tables 5,6).

When favorite program choice was cross-tabulated with hours per day of radio and television use, indiscriminate listening and watching were, as might be

Table 4—Percent of respondents reporting types of programs most frequently watched on television, Butte County, 1970

Program choice	Mention				
	1st	2d	3d	4th	5th
	Percent ¹				
News/weather	26.1	9.4	5.9	1.1	1.1
Comedy/variety	9.8	12.1	10.0	4.8	3.5
Westerns	9.8	12.1	7.7	5.3	2.0
Detective/crime	5.0	6.0	5.0	2.0	1.8
Sports	9.4	5.9	2.4	.9	.6
Situation comedy	3.9	5.3	4.1	3.5	1.2
Adventure/drama	4.2	5.7	4.1	1.8	1.2
Movies	4.8	5.6	3.6	2.3	.5
Soap operas	7.2	4.7	2.4	.8	.2
Public affairs/documentaries	1.4	2.4	3.2	1.1	.3
Game shows	2.9	2.4	1.2	.6	.5
Talk shows	1.5	1.1	.8	.2	—
Specials	.3	1.2	.3	.8	—
Children's programs/cartoons	.5	.5	.2	—	.2
Travel	.5	.3	.2	.2	.2
Family shows	.9	.3	—	—	—
Religious programs	—	—	—	.2	.2
Opera, ballet, classical music, etc.	—	—	—	.2	—
Miscellaneous	.9	.6	—	—	—
Indiscriminate watching	4.4	2.1	1.4	.2	.2
No choice	—	15.7	41.0	67.5	79.8
Does not apply (non-user)	6.5	6.5	6.5	6.5	6.5
Total	100.0	100.0	100.0	100.0	100.0

¹ n = 663

Table 5—Radio programs most often listened to by Butte County residents, by amount of time spent listening, 1970

Item	Respondents ¹	2 or more hrs	1 to 2 hrs	Less than 1 hr	Once or twice per week
	Percent				
News	316	49.1	21.5	19.9	9.5
Music	119	55.5	16.0	15.1	13.4
Other	50	48.0	20.0	10.0	22.0
Indiscriminate listening	87	58.5	20.9	13.6	13.4

¹n = 572

expected, most characteristic of those reporting the highest number of hours use (tables 5,6). Listening to music was also popular among the heavy radio users. People who mentioned westerns and "other" television programs as favorites were among the heaviest users of television.

The radio and television program choices were related to the characteristics of different respondents.

• **Age**—Although there was not much variation, by age, of respondents in the number of hours per day they reported listening to their radios or watching television, the popularity of different types of programs was quite strongly related to age. News programs on both radio and television were least frequently mentioned first by the youngest age group and increased in popularity up to the 65 and over group. The reverse was true for radio music. Indiscriminate listening to radio, but not indiscriminate watching of television, was most prevalent among the young. "Other" television programs were generally popular with the very youngest age group and also the middle-aged or older groups. Sports programs

were least mentioned by the 65-and-over age group. "Other" radio programs were most popular with those over 45, while the opposite was true of the "other" television programs.

• **Sex**—News programs on both radio and television were somewhat more popular with males than with females. Otherwise, there was little difference, by sex, in the choice of radio programs. Western and sports programs on television were more popular among males than among females; the reverse was true for comedy/variety and "other" programs.

• **Marital Status**—The never-married respondents were most different from the average in their choice of radio and television programs. A high proportion of them favored music and indiscriminate listening on radio, while fewer than average listed radio or television news. Television sports programs were not popular with the formerly married.

• **Education**—The popularity of music programs on radio increased directly with amount of education, while respondents with at least some college education demonstrated the least interest in "other" radio

Table 6—Television programs most often watched by Butte County residents, by amount of time spent watching, 1970

Item	Respondents ¹	2 or more hrs	1 to 2 hrs	Less than 1 hr	Once or twice per week
	Percent				
News	174	65.5	24.1	4.6	5.7
Comedy/variety	65	63.1	18.5	3.1	15.4
Westerns	65	78.5	15.4	1.5	4.6
Sports	62	66.1	19.4	6.5	8.1
Other	225	80.9	11.6	2.7	4.9
Indiscriminate watching	39	89.9	13.8	5.7	11.6

¹n = 630

ograms. Among television programs, sports increased in popularity with education, while the reverse was true for westerns and indiscriminate watching.

Radio news was much more popular among those not in school than among those currently enrolled. With television news the difference between these two groups was not as great. Radio music and television sports were particularly popular with the in-school population.

- **Occupational Status**—Persons employed full-time and those retired or disabled most frequently mentioned radio and television news as programs most likely to be heard. On the other hand, these groups and housewives were least likely to mention radio music and indiscriminate listening.

The white-collar workers group had a higher proportion watching news on television, while the blue-collar group had the highest proportion reporting listening to radio news. Comedy/variety, western, and sports programs on television were also more popular with blue-collar workers than with white-collar workers. The opposite was true for radio music programs.

- **Income**—Popularity of various radio and television programs was not found to be closely related to

income. Television westerns were less popular with those having incomes of \$8,000 or more, and sports programs were more popular. Otherwise choice of programs was quite similar.

- **Residence**—The popularity of radio music was inversely related to length of residence in the area. "Other" radio programs and television westerns were particularly unpopular with recent residents (less than 1 year in the area) compared with other residence groups.

Those who had always lived at their present location and those who formerly resided in Southern California most frequently mentioned radio news programs. Former residents of Southern California also more frequently mentioned television news programs.

Open country, farm residents were among the highest listeners to radio news, but were much lower than others in their listening to other types of programs. They also stood out as high watchers of "other" television programs and low users of television news.

- **Wildland Visits**—The most striking variation from the average in terms of frequency of use of wildlands was that those reporting no wildland visits also did not report sports programs on television as a favorite. This variation was also true for those who had not used fire in the wildlands.

CONCLUSIONS

This analysis of the radio and television use patterns of Butte County, California, residents shows that most people do make considerable use of both of these media. But their use of radio was markedly different from that of television. Most radio listening is done in the early morning hours (before 9 a.m.) and most television viewing is done during the evening. News and music are the principal attractions on radio, although indiscriminate listening accounts for considerable use. The selection is much broader for television, but, again, news programs are by far the most popular single category. In aggregate, the various types of dramatic productions account for the bulk of viewing preference. Various demographic, social, and economic characteristics were found related to rather marked differences in radio and television use patterns.

The hard-pressed fire prevention officer might well ask how this information might be utilized, as his agency is largely limited to donated public service time for the airing of its fire prevention messages.

Although the agency's control of the situation is limited, there are still several avenues open to it for improvement within the existing limitations.

In considering alternatives, the practitioner should keep in mind that reception of a communication is filtered through the recipient's own values, expectations, and other attributes. Consequently, different audiences react differently to the same communication. Messages that are not in accord with a listener's or viewer's interests, needs, and opinions may not be heard or seen.

- Greater attention might be given to matching the form, content, and appeal of the fire prevention announcements to the characteristics of those considered to be most likely to start fires. Increased personal efforts with station program directors may improve the chances that such directed announcements will be aired *at the times when such high-risk audiences are most likely to be reached*. (This suggestion presupposes that purchasing time is not feasible.)

- Fire prevention announcements might be more closely designed to fit the characteristics of audiences who *are* listening or viewing at the times the commercials are most likely to be broadcast.

- Finally, if fire prevention planners conclude that (a) their announcements *are not* shown when

desired audiences would see them and more desirable showing times are not feasible; or (b) the audience that *is* exposed to the announcements presents no significant risk to the forest resource, then they might consider shifting from mass media to fire prevention approaches with better possibility of payoff.

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