

CHANNEL REPERTOIRE IN THE
NEW MEDIA ENVIRONMENT

Douglas A. Ferguson, Ph.D.
Department of Radio-Television-Film
Bowling Green State University
Bowling Green, Ohio 43403
(419) 372-6007
BITNET: ferguson@bgsuopie

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Abstract

Although there are many new channels in the new media environment, few people watch more than 10 channels. Channel repertoire is the number of available channels that viewers choose to watch. Previous research has looked at the contribution of cable subscription to the number of channels viewed. Certainly VCR programs are also a source of viewing. Another element which has not received much research deals with how viewers use their remote control devices to "graze" different channels. This study examined variables associated with remote control devices (RCDs) that predict channel repertoire. Using 1990 random telephone survey information (N=583), a hierarchical regression of situational and motivational variables (cable subscription, VCR presence, flipping frequency, and six flipping motivations) showed that cable subscription explained 16% of the variation. VCR ownership explained an additional 1% of the variation in channel repertoire. Although RCD flipping frequency considered alone was a significant predictor, it lacked predictive power over and above cable subscription. However, one the flipping motivations (watching two or more channels) accounted for significant increment-to-R². The paper concluded that the remote control device is an important element in the new media environment, despite a scarcity of published research on RCDs.

Channel Repertoire in the New Media Environment

Part of the promise of the "new media environment" is that unbounded choice replaces the homogeneity of the "old media" (Webster, 1986). However, some argue that the typical viewer watches a much smaller repertoire of channels than is available (Nielsen, 1982). This study examined channel repertoire by looking at situational and motivational variables associated with remote control devices (RCDs) that might predict this subset of available channels.

One of the first suggestions of channel repertoire, though not by name, came from Arthur C. Nielsen, Jr., in an address delivered to the Advertising Research Foundation's 8th Annual Mid-Year Conference in 1982:

In short, even though the number of channels viewed increases as the number of stations receivable goes up, it does so at a much lower rate. Obviously, there comes a point when the viewer finds it difficult to utilize any additional channel choices. (Nielsen, 1982, p. 10)

From May 1981 data, Nielsen observed that viewers watched only 8 channels from an offering of 25 channels.

Webster and Wakshlag (1983) developed a framework that incorporated theory into the idea of channel choice. Their model

contrasted content variables with scheduling variables, noting that viewer availability and awareness were important considerations. This framework pointed the way to a theoretical understanding of channel repertoire.

In the first academic research that mentioned "channel repertoire" by name, Heeter (1985) found the number of cable channels strongly related to the number of channels watched. Heeter also suggested that channel familiarity influenced channel repertoire. In a multiple regression, channel repertoire was "related to being male, younger, of higher education and income, subscribing to pay cable, cognitive and sensate novelty seeking, watching more TV, and dominating the choice process" (pp. 147-148).

In their book Cableviewing, Heeter and Greenberg (1988) noted "one individual's repertoire of 10 regular channels may be very different from another's repertoire" (p. 38). There were also studies of channel repertoire concerning radio listening (p. 117), viewing by children (pp. 146-147), and cable/noncable viewing style (pp. 217-233).

Becker, Creedon, Blood, and Fredin (1989) summarized channel repertoire research about cable subscription. Although they acknowledged the limit to how many channels a cable subscriber will regularly watch, they cited findings that "at least within that set of watched channels, subscribers do switch around from channel to

channel quite a bit, often sampling from more than one program at the same viewing time" (p. 296). They also concluded that cable television "has altered the way in which television itself is viewed" (p. 325), especially among those low in education. Furthermore, they noted "the larger the number of choices, the lower the amount of actual attention given to the networks . . . even without the existence of cable" (p. 301).

Lochte and Warren (1989) found that viewers of television-receive-only (TVRO) satellite systems limited their channel repertoire to fewer than eight channels, analogous to the repertoire of cable subscribers. They concluded that satellite loyalty to a set of easily-accessed transponders was similar to the idea of channel loyalty. They suggested future research into the use of remote control devices (RCDs). Brown (1989) reported that a national study on the use of remote control devices has revealed higher channel repertoires for those with RCDs (9.1 versus 5.5, $\underline{M} = 8.2$ channels)

Remote control research represents an important yet under-researched area of the new media environment. Remote control penetration in 1990 had reached 77% of television households in the United States (Shagrin, 1990), although the inclusion of VCR remote control devices has reportedly inflated such Nielsen estimates 10 percentage points (Sylvester, 1990). Heeter and Greenberg (1985;

1988) examined the impact of RCDs among cable viewers, pointing out that viewers with RCDs are more likely to zap commercials during and between programs.

Ainslie (1988) reported on "grazing" (flipping through channels with remote control devices) as a new way of watching television. Drawing on a national sample of 650 adult respondents surveyed by Frank N. Magid Associates, Ainslie found that two major motivations for grazing were boredom and concern for missing a better program on another channel. Brown (1989) summarized the findings of the Magid study, warning that it would be "perilous" for broadcasters to downplay the importance of grazing (p. 55).

Walker and Bellamy (1989) wrote that the "neglect of RCDs by communication researchers is unfortunate" (p. 3). Their research centered on a transactional model of gratifications/effects. Using a sample of university students (N=455), they reported a factor analysis of gratifications that identified selective avoidance as an important motivation for RCD use.

In a series of focus groups, [Author] (1990a) qualitatively identified six themes about viewing in the new media environment: selective viewing as a purposeful activity, the use of television as a source of noise, boredom as a prerequisite to choice, RCD channel flipping as a flourishing phenomenon, a sense of interruption as a

part of the viewing experience, and a sense of frustration over control as a part of RCD use. [Author] concluded that people are using new media technologies to view prime-time television selectively.

Statement of the Problem

This study looked at variables associated with RCD use that might predict channel repertoire. A review of literature produced three categories: (1) technology presence, specifically cable subscription and VCR presence; (2) RCD flipping frequency, defined as the number of times per hour a viewer changes channels with a remote control device; and (3) RCD flipping motivations, suggested by the Magid study. The research question here concerned which variables are the best predictors. Cable subscription explains channel repertoire more than VCR presence, given the findings by Heeter and others, but are there interactions among such situational variables? Furthermore, what is the contribution of flipping frequency and flipping motivations?

One may wonder whether RCDs are important to study. For example, Greene (1988) focused on message recall versus program exposure. He reported that recall of advertising messages is higher among cable subscribers, not significantly different among RCD owners, and only slightly lower among those who graze during program viewing. Shagrin (1990) also presented evidence that RCD

grazing is not related to the avoidance of commercials.

Commercials, however important to the constituents of Greene or Shagrin, are not what make the study of RCDs important. What matters is the contribution to understanding of selective exposure and audience activity. Such theoretical concerns transcend the decline of the commercial broadcast television networks.

Method

A telephone survey in Spring 1990 used a random-digit dialing technique that assigned four digits to three available telephone prefixes, weighted by their actual distribution within the town (Frey, 1983). The target population was adults living off-campus in a university town in the Midwest. Trained college students in an audience measurement class dialed 2452 numbers from a closely-supervised central location. Nonworking numbers accounted for 1364 attempts, leaving 1088 valid attempts. Each working random number was dialed three times and callbacks were used. After deleting 130 business numbers, there were 958 phone numbers in the sample. There were 583 completions, with 182 refusals and 215 no answers, for a 60.9% completion rate.

The survey collected information on technology ownership (TV, cable, pay cable, VCR, satellite dish) and basic demographics patterned after the Magid study (sex, education, age, and income).

The questionnaire also surveyed attitudes toward RCDs to determine gender differences ([Author], forthcoming).

Flipping frequency was determined by asking: "During a typical hour of TV viewing yesterday, how often did you change the channel?" If the respondent did not watch television "yesterday," the interviewer asked about "the day before yesterday." There was no third chance given; other responses were coded as missing data.

Respondents identified their motivations for flipping through channels during programs by verbal frequencies (always-usually-rarely-never), using statements that also closely paralleled the national data from the Magid study. Specifically, there were six motivations for changing channels during programs: (1) to escape boredom, (2) to avoid missing a better show, (3) to check other programs out of curiosity, (4) to avoid commercials, (5) to avoid certain persons on television, and (6) to watch two or more channels at the same time. These "flipping motivations" were validated earlier in the survey by an open-ended question regarding the respondents' major reason (and any "other reason") for changing channels with the remote control.

In order to operationalize channel repertoire, the survey asked about time spent with different television channels. The chosen method was a compromise between aided and unaided recall.

Greenberg, Heeter, and Lin (1988) noted "unaided recall provides a smaller set of channels in the channel repertoire of the individual viewer" (p. 197). Because five of the local channels were network affiliates (ABC, CBS, NBC, PBS, and FOX), the survey assumed that respondents were most familiar with them and least likely to attribute hours of viewing where none took place. The remaining channels, usually available via cable subscription, were less familiar and more likely to get erroneous mentions. Therefore, the five network channels were asked directly ("I'm going to list some channels available in (city) and I'd like you to estimate how many hours you watched them last week") and the rest indirectly ("What other channels do you watch? How many hours did you watch that channel last week?"). To reduce confusion, the five network channels were identified by call letters, channel numbers, and city. Respondents identified the "other channels" by their cable channel name (e.g., ESPN, CNN, MTV) or cable channel number.

Channel repertoire was defined as the sum of all channels for which at least some response (in hours) was given. The possible range was from 0 to 42 channels, given the capacity of the only cable system in the sampling area at the time of the survey.

The statistical package SPSS Version 4.0 was used for all computations. A simple regression with RCD frequency as the

dependent variable was done to test channel repertoire. Next, the motivations were entered into a stepwise multiple regression to determine which flipping motivations were the best predictors of channel repertoire. Then, the final test was a hierarchical regression among cable subscription, VCR ownership, flipping frequency, and flipping motivations (including interactions).

Results

Nearly 76% of the 583 respondents owned a remote control device for their television set. Yes/No responses on cable subscription and VCR ownership were coded 1 and 0, respectively. The average cable penetration was 67.2% and VCR penetration was 71.1%. Remote control frequency ranged from 0 to 50 changes per hour (\underline{M} = 4.92, \underline{SD} = 5.75). On the six motivation scores, "always" was coded 4 and "never" was coded 1. A reliability test on the six motivations yielded a standardized item alpha of .66, with none of the items being outliers.

Channel repertoire values ranged from 0 to 15 with 5.3 channels for the mean (\underline{SD} = 2.4). This was below estimates found in previous studies (usually about 7 or 8 channels), probably because of the cautious mix of aided and unaided recall items. However, the responses were normally distributed. The interviewers reported that a common response among respondents was: "I don't know, I just

watch TV." This response was identical to an answer found in earlier research (e.g., Heeter, 1985).

The flipping motivations ($n = 412$) were coded 4=always, 3=usually, 2=rarely and 1=never. In descending order, the responses to the question "How often do you change channels because . . ." were: boredom ($M = 2.85$, $SD = .78$), curiosity ($M = 2.73$, $SD = .81$), avoid commercials ($M = 2.47$, $SD = 1.06$), avoid missing a better program ($M = 2.39$, $SD = .81$), avoid certain people ($M = 2.09$, $SD = .88$), and watching two or more shows ($M = 1.76$, $SD = .86$).

Table 1 shows the intercorellations among the nine

Table 1 about here

independent variables. The highest value (between curiosity and commercial avoidance) was .41, which was considered weak.

The simple linear regression showing the relationship between flipping frequency and channel repertoire was statistically significant ($F [1,353] = 4.93$, $p = .027$) with flipping frequency measuring 0.048 for the unstandardized beta coefficient ($R^2 = 0.013$).

Table 2 shows the results of a forced-entry multiple regression

Table 2 about here

of the six flipping motivations on channel repertoire. A stepwise regression using the same variables is also shown in Table 2. Only the "How often do you change channels to watch two or more channels at once?" item had a significant standardized beta weight ($\beta = 0.18$, $p < .001$) in the forced-entry multiple regression ($R^2 = .08$, $F [6,401] = 6.49$, $p < .001$). In a stepwise solution of the same six motivations, the previous "two or more channels" item ($\beta = 0.21$, $p < .001$) and an item measuring curiosity ("How often do you change channels to check other programs?", $\beta = 0.13$, $p < .02$) were both significant predictors.

Table 3 is a summary of the hierarchical regression that

Table 3 about here

entered situational variables first, followed by flipping frequency and flipping motivations. As anticipated, cable subscription explained most of the variance ($R^2 = 0.16$, $F [1,350] = 76.05$, $p < .0001$). VCR ownership also added a significant change in the variance ($R^2 = 0.01$, $F [2,349] = 4.38$, $p < .04$). Flipping frequency failed to contribute a

significant increment-to- R^2 , but the flipping motivations explained an additional 6 percent of the variance ($F [9,342] = 4.77, p = .000$) over the situational variables. There were no significant interactions among any of the variables. Table 3 also shows the unstandardized coefficients used for prediction (Pedhazur, 1982).

Discussion

This study looked at the relationship between RCD use and channel repertoire, identifying the relative importance of situational and motivational predictors. The contribution of cable subscription confirmed past research, explaining 16% of the variance. The additional 1% of the variance explained by VCR ownership shows that VCRs have a previously undetected impact on the channel repertoire of viewers in the new media environment. However, the expectation that RCD flipping frequency would have predictive power over and above cable subscription was not supported by the data. Viewed alone, flipping frequency appeared to explain channel repertoire, but it fell short when considered after the impact of cable subscription and VCR ownership.

The expectation that motivational variables associated with RCD use would predict channel repertoire was partially correct. Two of the reasons people flip between channels, checking other programs and watching two or more programs at once, were significant

predictors in the absence of situational variables. Again, after considering cable subscription, only one of the motivations survived as a predictor of channel repertoire: watching two or more channels at once. Although boredom and concern for missing a better show were important motivations in the Magid study, neither played a part in predicting channel repertoire.

These findings are important to scholars and practitioners who study the multichannel environment. On a practical level, remote control devices are changing the way people watch television, although apparently to a lesser degree than cable television and VCRs. Although no interaction effects were found in this study, it seems likely that the cumulative effects of choice-facilitating devices and proliferating channels make viewers more selective.

Channel repertoire is thus important on the theoretical level, again because of the increasingly selective nature of the new media environment. Critics of television who complain about the passivity of viewers have given insufficient weight to the active choices that are tied to increased channel repertoire and enhanced program choice by pay cable, VCRs and RCDs. Bryant (1986) has questioned cultivation analysis in a time of new media fragmentation. Rather than worry about the cultivation of viewers into a violent worldview, future critics could show concern about viewers who choose to selectively

avoid functional messages that were formerly commonplace and universal, if only through de facto channel loyalty. More channels, more program choices, and easier ways to make choices allow viewers to select a media environment that not only is outside of the ordinary, but more possibly outside of the mainstream of public discourse.

The findings of this study are subject to the limitations of self-report data. Future research on channel repertoire needs more objective information on channel selection, possibly through meters instead of diaries. Arbitron and Nielsen already measure VCR recording and playback; the need exists for similar information on remote control use. Sylvester (1990) is one of the first voices among the advertising community to cajole such data from the ratings services.

Another consideration for further research is that all remote controls are not created equally (see Heeter & Greenberg, 1988, pp. 45-47). For example, there is a remote control device feature called Quick-View (Consumer Reports, Jan. 1983, p. 36) that memorizes the last two channels watched so sports viewers can easily watch two games at the same time. Some RCDs permit random access, while others can only step up or step down. Also, Canadians have developed interactive uses for RCDs (Moshavi, 1990).

Television markets with higher VCR and cable penetration

produce more selective viewers ([Author], 1990b). In a similar way, viewers with RCDs and enhanced channel repertoires are actively selecting their own new media environments. The remote control device is an important element in the new media environment, despite a scarcity of published research on RCD use.

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Table 1

Correlation Matrix

Variables:	2	3	4	5	6	7	8	9
1. Cable Subscription	.21	-.07	-.09	-.05	-.05	.00	-.02	-.09
2. VCR Ownership	---	-.08	-.04	-.06	-.01	-.08	.04	-.09
3. Flipping Frequency		---	.11	.17	.26	.17	.19	.25
4. Avoid boredom			---	.26	.24	.26	.20	.13
5. Other shows (curiosity)				---	.41	.27	.13	.33
6. Avoid commercials					---	.26	.24	.37
7. Avoid missing better show						---	.22	.18
8. Avoid certain people							---	.18
9. Watch two or more shows								---

Note. Variables are defined as follows:

1-2. Yes=1 and No=0

3. Number of times per hour the channel is changed with a remote control device

4-9. How often the channel is changed because of the given reason (4=always, 3=usually, 2=rarely, 1=never)

Table 2

Multiple Regression of Channel Repertoire
on RCD Flipping Motivations

Attitude Measure	Multiple <u>R</u>	Adjusted <u>R²</u>	<u>R²</u> Change	β	<u>F</u> Ratio
<u>Forced Entry Method</u>					
All six motivations	.30	.08	.09		6.49**
Avoid people	.10	.01	.01	.01	0.03
Avoid boredom	.07	.00	.01	-.01	0.51
Avoid commercials	.20	.03	.04	.07	1.73
Avoid missing better show	.22	.04	.05	.08	2.39
Other shows (curiosity)	.25	.05	.06	.09	2.48
Watch two or more shows	.30	.07	.09	.18	11.79***
<u>Stepwise Method</u>					
Watch two or more shows	.25	.06	.06	.25	27.20***
Other shows (curiosity)	.28	.07	.08	.21	16.89***

** $p < .01$ *** $p < .001$

Table 3

Hierarchical Regression of Channel Repertoire
on Situational and Motivational Variables

	Step Entered	R^2 Change	Final b	Final β
Situational Variables				
Cable Subscription	1	.16**	2.18**	.41**
VCR Ownership	2	.01*	.54*	.10*
Flipping Frequency	3	.00	-.00	-.00
Flipping Motivations				
Avoid boredom			-.15	-.05
Missing better show			.27	.09
Avoid commercials			.25	.08
Curiosity			.18	.08
Avoid people			.05	.02
Watch two shows			.39	.14**

Note. Standardized beta weights are shown in the final column; the constant term for the unstandardized beta weights in the preceding column is 1.07.

Step 1: $F(1,350) = 76.05, p < .0001$

Step 2: $F(2,349) = 4.38, p < .05$

Step 3: $F(3,348) = 0.00, n.s.$

Step 4: $F(9,342) = 4.77, p < .0001$

Summary: $F = 14.90, p < .0001$
Adjusted $R^2 = .26$

* $p < .05$. ** $p < .01$

Table 1

Correlation Matrix

Variables:	2	3	4	5	6	7	8	9
1. Cable Subscription	.21	-.07	-.09	-.05	-.05	.00	-.02	-.09
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3. Flipping Frequency		---	.11	.17	.26	.17	.19	.25
4. Avoid boredom			---	.26	.24	.26	.20	.13
5. Other shows (curiosity)				---	.41	.27	.13	.33
6. Avoid commercials					---	.26	.24	.37
7. Avoid missing better show						---	.22	.18
8. Avoid certain people							---	.18
9. Watch two or more shows								---

Note. Variables are defined as follows:

1-2. Yes=1 and No=0

3. Number of times per hour the channel is changed with a remote control device

4-9. How often the channel is changed because of the given reason (4=always, 3=usually, 2=rarely, 1=never)

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Avoid boredom	.07	.00	.01	-.01	0.51
Avoid commercials	.20	.03	.04	.07	1.73
Avoid missing better show	.22	.04	.05	.08	2.39
Other shows (curiosity)	.25	.05	.06	.09	2.48
Watch two or more shows	.30	.07	.09	.18	11.79***
<u>Stepwise Method</u>					
Watch two or more shows	.25	.06	.06	.25	27.20***
Other shows (curiosity)	.28	.07	.08	.21	16.89***

** $p < .01$ *** $p < .001$

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on Situational and Motivational Variables

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Flipping Frequency	3	.00	-.00	-.00
Flipping Motivations	4	.06**		
Avoid boredom			-.15	-.05
Missing better show			.27	.09
Avoid commercials			.25	.08
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