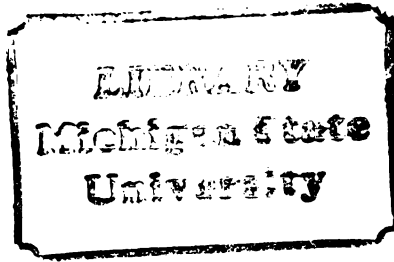


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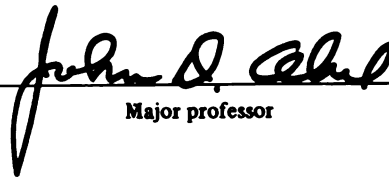
MEDIA EXPOSURE AND COMMUNITY INTEGRATION
AS PREDICTORS OF POLITICAL ACTIVITY

presented by

Joey Reagan

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of the requirements for

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Major professor

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MEDIA EXPOSURE AND COMMUNITY INTEGRATION
AS PREDICTORS OF POLITICAL ACTIVITY

By

Joey Reagan

A DISSERTATION

Submitted to
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ABSTRACT

MEDIA EXPOSURE AND COMMUNITY INTEGRATION AS PREDICTORS OF POLITICAL ACTIVITY

By

Joey Reagan

Mass media use is a good predictor of voting and major party political participation. Previous research has ignored "quasi-mass" media as well as political activity outside major party national campaigns. The present research explores the impact of quasi-mass media in a causal model predicting two types of political behavior: voting and political participation. The model includes the simultaneous effects of media use, community integration, education and length of residence.

The hypotheses predict that media use and community integration are causes of political behavior. Mass media use is predicted to be a stronger cause of voting while quasi-mass is expected to be the stronger predictor of political participation and community integration.

Data collected in personal interviews in 17 United States cities are subjected to a LISREL maximum likelihood analysis. The analysis explains 92 percent of the variance in voting and 59 percent of the variance in political participation.

Mass media use is the stronger predictor of voting, although print mass use is a positive predictor while electronic use is negative. Quasi-mass use is the better predictor of political participation and community integration.

The following conclusions are drawn: 1) mass media use continues to be an important predictor of political behavior; however, 2) it is important to include quasi-mass media use in a model of communication effects; 3) because the measurement of media use was restricted to exposure other factors should be included in a multidimensional approach to measuring media use; and 4) research on the effects of media use should keep in mind the nature of communication and its effects as a process--other variables like community integration can mediate communication effects.

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The one person who made this finally come about, who provided the security and love and stability necessary for my motivation to proceed unencumbered, is my wife, Janay Collins. She begins her doctorate now that I have finished mine. And I expect that when she finishes she will be that many years beyond me.

Of course, the people who gave me the encouragement when I was young to pursue whatever my intellectual interest desired were my parents. My father is not alive, and while I don't believe in heaven I do believe that a part of him is inside me to see all this. I am glad my mother can see this, I hope I've made her proud.

James is always older and he taught me everything when I was a kid. He read to me and taught me to play baseball and even challenged me when I said something stupid about math or physics. That made growing up a lot easier, but I think it made school too easy. I've never learned how to work hard enough.

Julius accepted me, even though I was a long-haired, scraggly, unemployed, misdirected, etc. That helped me think there was some good left.

And my new parents have, I hope, taken a shine to me. I have to them.

There are my colleagues. My committee, Tom and John and John and Stan who encouraged me, made me feel like I might have latched onto something unique. John and Stan, special thanks for help with the drafts, and for not letting me get away with any shit. And fellow students I've laughed and worked with, Brian and Gail and Judi (whereever you are) and Rick and Kim. And Jayne, who always did everything before me because I'm such a chicken-shit. But we cried that second year for no good reason. Thanks.

The people at the (other) University of Michigan in the Department of Communication kept the heat off me this year so I could finish. I like it--keep it up. And Richard helped me conceptualize some of the model and analysis.

But all work and no play . . . So for the lighter side of life and contributions to sanity: Ed and Janice and Michael and Rick and Sara and Hal and Jane and David . . .

And special thanks and a round of applause to one of the best friends a fella could have (ta-dah): the vegetable garden. Seriously, folks, I could just eat it right up. (Sounds like something from Mickey One.)

Oh, and don't forget the motorcycle and the Carcinoma Angels. I won't. And the house. OK. And the washing machine. Sure. And ... So quit already!

I'm sure I forgot somone, something; I wonder . . .

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CHAPTER I

INTRODUCTION AND DEFINITIONS

Introduction

While there has been a considerable amount of research devoted to the relation of mass media use, interpersonal media use and political participation, a gap in communication research exists in two areas:

1) media other than mass or interpersonal (defined later as "quasi-mass") have received scant attention, and 2) political participation other than voting and major party identification (such as working for minor parties, social protest and community participation) has not been explored as an effect of media use.

This dissertation will try to fill part of this gap by focusing not only on mass and interpersonal media use, and voting, but also on "quasi-mass" media use and other forms of political activity. The research presented here will build a theoretical causal model (discussed in Chapter II) that relates media use--mass, interpersonal and quasi-mass--to political participation. Because social behavior arises in an environment that includes other effects, the model will also include demographic and community integration variables.

Before developing the model we will examine the need to incorporate new ideas into our own views of media use and political activity, and

then present definitions of the constructs used in the research. In addition, a discussion of the importance of predicting political activity is presented.

The Changing View of Media

Traditional definitions of media have categorized media into two groups: mass and interpersonal. But mass media are playing a relatively less important role, and new communication technologies are opening new media to public exploitation (Parker, 1973). Parker notes that, historically, writing was once reserved for the elite but became near-universally used; so too audio and video may also become the domain of the many. Parker further noted that access to new technologies means access to the conduits of information, and that this access, if on a mass scale, can help reduce the inequalities in the distribution of wealth and resources.

Maisel (1973) sees the United States engaged in the third stage of industrial development (for more information on the third stage of development see Bell, 1968; Clark, 1957). This third stage is characterized by a shift from manufacturing to service industries. Along with this shift, according to Maisel, comes a need for specialized forms of communication to meet the growing needs of specialized services. These new media would direct themselves at smaller, more homogeneous audiences. In an historical analysis Maisel found that while mass media use continues to grow, its growth rate has slowed considerably, and there is now a shift from rapid increases in the use of mass media to more rapid increases in the use of more specialized media.

It is possible to expand the "marketplace of ideas" with the dissemination of information through expanded use of new communication

technologies (Emery, 1978). The "marketplace" here does not mean the traditional town meeting. It refers to the means by which people exchange ideas. Using a network of micro computers, citizens could address various sources of information: electronic mail, electronic publishing, libraries, electronic town meetings, etc. This network would offer a variety of uses, from interpersonal through mass communication, that could be selected by the receiver. Emery posits that the potential values of such a network would range from expanded access to instructional materials to greater political participation; however, the system may portend limits on such uses through its tight control by a few individuals or organizations. Emery states that, regardless of who controls it, the new technologies should offer the best chance to deal with the "staggering volume and variety of information necessary for modern life." (p. 80) Access to communication media, the development of new forms of communication and less reliance on mass media suggest a need to assess the impact of the use of such media on a person's relation to political and social processes.

The Changing View of Political Participation

In addition to the traditional view of communication media there is a traditional view of political participation. In communication research the focus has been on large group functions within the existing political structure, i.e., a focus on electoral politics or major party (Democrat or Republican) participation, with a major emphasis on presidential politics.

These are not the only political processes open to citizens, and these are not necessarily the ones that have the most impact on the daily lives of citizens. Other political and social participation can have a

more direct impact on the psychological and social well being of citizens. For example, when one feels disassociated from traditional politics, will the response be to work for an independent candidate or minor party? Or will the response be to organize social protest such as a revolution? Or are there local organizations through which citizens can exert influence on a community level to achieve day-to-day better lives (such as prodding city hall to fix the pot hole in the street)? The function of local services may mean more than the election of a president.

This research examines the traditional views of the relations of communication to political participation, but a main focus will be on quasi-mass communication and non-traditional forms of political participation.

Of particular interest will be the development of a model that helps explain the causal relations between media use variables (including quasi-mass), identification with a community, and political participation (measured with items that include non-traditional political participation). In addition, two demographic variables which have been shown to be the only strong, consistent predictors of media use and community integration--length of residence in a community and education--will be included in the model.

Before discussing the literature that relates these variables the variables are defined and then a discussion of the importance of studying the relations between them is presented.

Definitions

Definition of Communication

In defining communication we need to examine earlier definitions of mass and interpersonal communication.

Mass communication has been distinguished by the following characteristics by Wright (1959): 1) directed toward large, heterogeneous, and anonymous audiences; 2) transmitted publicly, often to reach receivers simultaneously; 3) transient in character; and 4) operated within a complex organization that may involve great expense.

Additional characteristics provided by Menzel (1971) include:

- 1) standardized messages uniformly broadcast to all who may be concerned;
- 2) contacts too fleeting for messages to be tailored to the recipients;
- 3) severely limited feedback; 4) special expertise required in operation of the medium; and 5) full control by the originating source.

Gumpert (1970) adds other characteristics: 1) the code of the message is known to all, i.e., there is little use of jargon; 2) direct cost to the receiver is minimal; 3) the communication is rapid; and 4) it is consumed on a short term basis.

Most definitions of interpersonal communication, especially in relation to interpersonal media, use the opposite characteristics of mass communication presented above.

Bienvenu and Stewart (1976) evaluated the characteristics that related to the development of interpersonal communication. Several factors related to characteristics within the communicator, self-disclosure and self-awareness, while others related to the external nature of interpersonal communication, acceptance of feedback and clarity of code.

Barnlund (1968) identified five characteristics of interpersonal communication: 1) physical proximity; 2) single focus of attention; 3) exchange of messages; 4) use of many senses at once; and 5) unstructured setting.

Mass media and interpersonal media would, of course, be the devices or environment through which the communication takes place. These may include everything from television and its adjuncts (the TV set, airwaves, etc.) to face-to-face encounters with eyes, ears, sound waves in the air, etc.

Imagine a continuum running from ideal mass communication to ideal interpersonal communication. Using dichotomous pairs, taken from characteristics described above, limits can be set up within which characteristics of media and communication type would fall. These characteristics can be grouped into three areas: those concerned with messages, those concerned with the institution within which the communication takes place, and those concerned with the audience.

Messages would be described between the following pairs: 1) public/private; 2) standardized vocabulary/individualized vocabulary; 3) rapid transmission/leisurely transmission; 4) transient/persistent; and 5) control by sources/considerable control by receiver.

The institution would be described between the following pairs; 6) complex, expertise required/simple, little expertise required; 7) limited access/ongoing opportunities for access; 8) high cost/low cost; and 9) source physically far away/source proximal.

The audience would be described as between the following pairs; 10) large/small; 11) heterogeneous/homogeneous; 12) limited feedback/

instantaneous feedback; and 13) anonymous/known.

The continua of characteristics and the mass-interpersonal continuum are presented in Figures 1a - 1c. Media can be represented as having various "amounts" of each characteristic. Taking all characteristics together, media can be ranked as more or less "mass" or more or less "interpersonal" on the main continuum. For example, the metro daily newspaper is portrayed as having characteristics close to the ideal type mass medium, i.e., it ranks high on all characteristics; therefore, it also ranks high on the mass-interpersonal continuum. Likewise, face-to-face communication ranks low on all 13 characteristics; thus, it is ranked lowest on the main continuum.

Of special interest are the media that fall between mass and interpersonal. As noted above, these media are becoming more important because of the increase in technological innovations that leads to greater access to these media. Menzel (1971) has called this "quasi-mass communication."

The newsletter of a community association serves as a good example of a quasi-mass communication medium. The newsletter would relate to the 13 pairs described above in the following ways:

- 1) It is not public since it is intended for less than mass distribution, yet it is not private since copies are often distributed in public settings such as at a city hall.

- 2) The message may include vocabulary specific to the interests of the association, like acronyms, but it must be written so that members with various levels of knowledge may read it, e.g., new members.

- 3) It may be transmitted (distributed) at varying rates, at meetings, through the mail, or left on counters in public buildings.

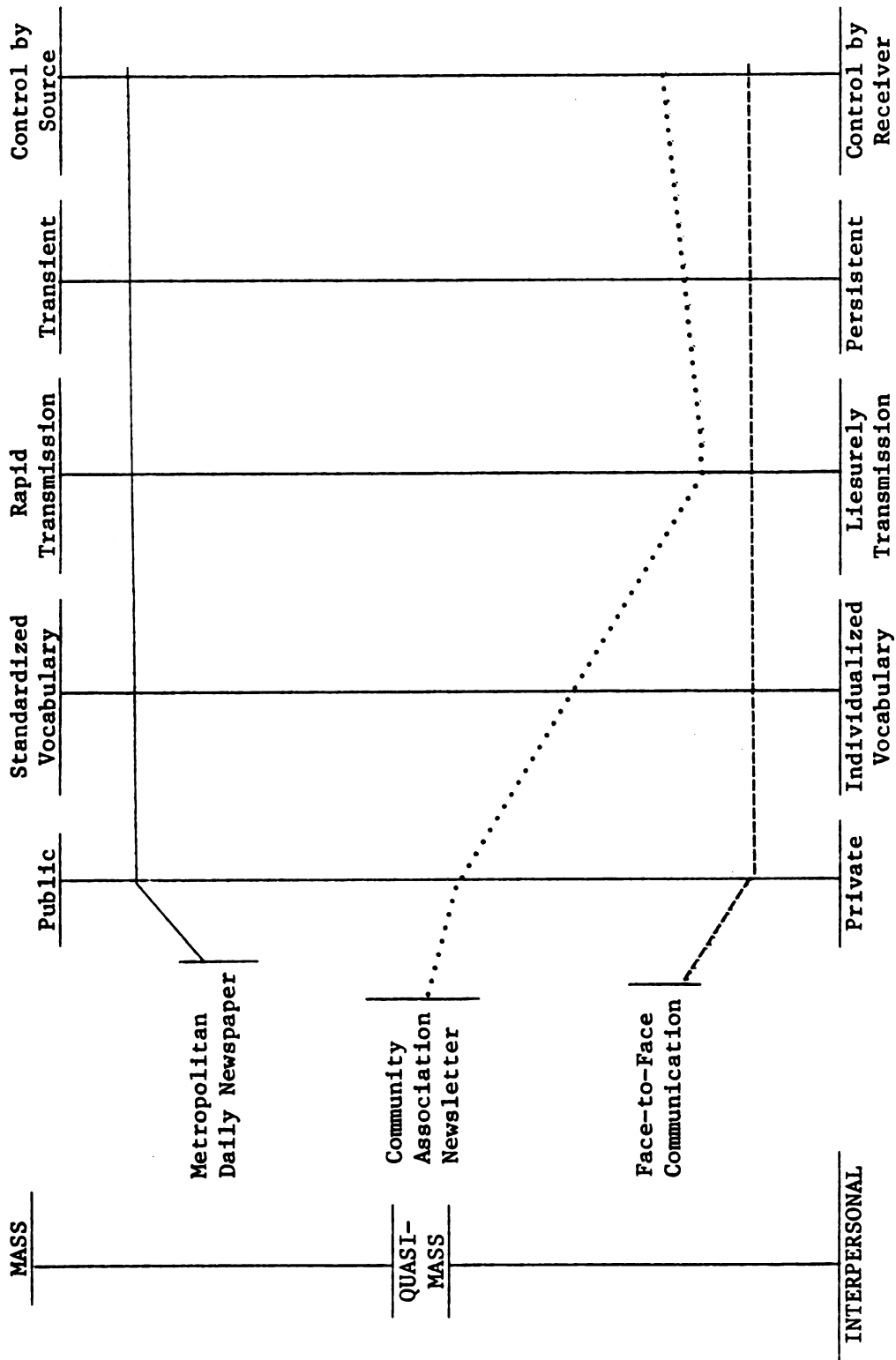


Figure 1a.--Characteristics of three media along the mass-interpersonal continuum: Message characteristics

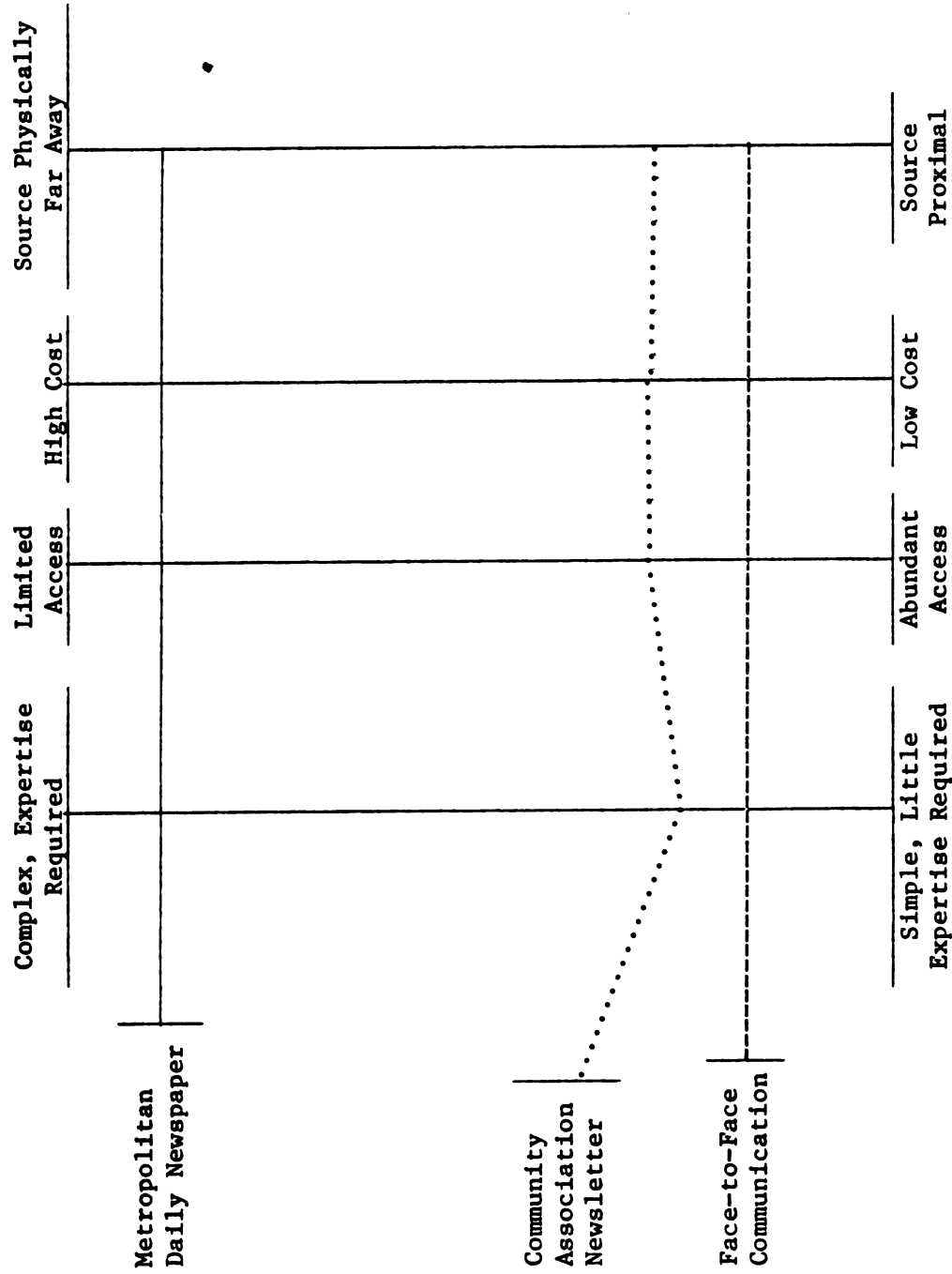


Figure 1b.--Characteristics of three media along the mass-interpersonal continuum:
Institution characteristics

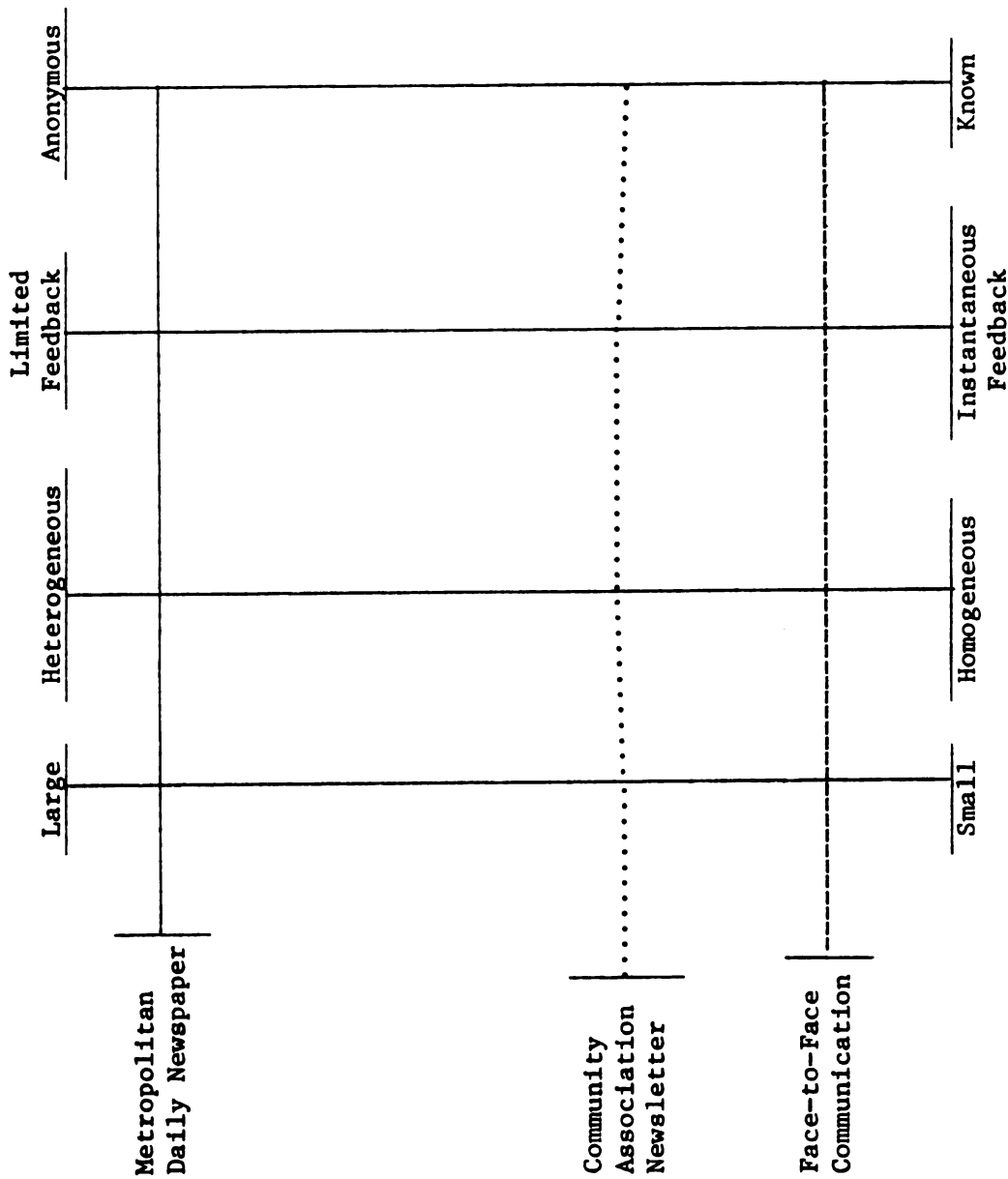


Figure 1c.--Characteristics of three media along the mass-interpersonal continuum: Audience characteristics

4) The messages may be related to continuing issues, such as a school bond referendum. It will then have meaning beyond the time of distribution.

5) Contributions to the newsletter may be open to all members of the association. The actual composition of a newsletter, however, may be limited to a committee.

6) A newsletter does not require the expertise of the journalist or typesetter. It does, however, require some skill if it intends to communicate with a variety of receivers.

7) Membership on the newsletter committee may rotate among members or be open to volunteers. A designated staff is usually needed to consistently turn out a newsletter.

8) Cost would be lower since volunteers would be used and printing costs would be minimal. There would be more cost than with face-to-face communication (excluding opportunity cost).

9) The source would be the association, close to the receiver in the neighborhood, but not next door to everyone.

10) The number of members (audience) and prospective members would probably not include all members of the community, but the association would need more than a few members just to exist.

11) Members would be homogeneous to the extent that they share a common interest (perhaps a position on a school bond referendum). They would likely not all be personal friends with the same interests.

12) Feedback mechanisms would be built into the association: election of leaders, speaking at meetings, letters to the editor of the newsletter, and talking among each other. There would be limits on

feedback, e.g., limits on speaking at meetings to preserve order.

13) Members would know each other by face and through a membership list, but not all would be personal friends, knowing each other perhaps fleetingly.

Having defined communication, our attention turns to classifying the media of communication, since it is these that will be of major interest later in trying to relate the use of certain types of media to political and community behavior. It would take too long to describe in detail the reasons for defining the following media as mass, quasi-mass or interpersonal. The reader might select a few and try to imagine the characteristics of the structure of each one (cost of entry, for example) as well as the messages usually presented by each and the audiences usually attentive to each.

Examples of mass media are:

- broadcast television
- broadcast radio
- daily, weekly and Sunday metropolitan newspapers
- certain cable television uses (broadcast, pay movie, sports, entertainment)
- general use magazines (including news magazines)
- movies,
- books

Examples of quasi-mass media are:

- certain cable TV uses (public access, data exchange)
- trade magazines (to which professionals have access)
- professional journals
- newsletters
- memos
- church bulletins
- non-highway citizens band radio use
- interactive computer use, among small groups

Examples of interpersonal media are:

- face-to-face
- telephone
- personal letters
- interactive computer use, on a one-to-one basis

Definition of Political Participation

It seems that the definition of political participation is as varied as the studies about the subject (and this study will not break that tradition). Researchers have used various terms to describe political actions: "political activity," "political behavior," and "political participation." There is no consistency across studies in either the use of these terms or in the operationalization of them. In a major review of literature on the effects of mass communication use on political behavior Kraus and Davis (1976) never specifically defined political behavior. They did say that most studies had focused on electoral politics, but that there are also other forms of political behavior. But even their discussion of the varying theories of social relation and social movements--pluralism vs. elitism, for example--focused on electoral politics and campaign effects.

Kline and Tichenor (1972) discussed the effects of mass communication on information diffusion, socialization and voting behavior. Even Stamm's (in Kline and Tichenor, 1972, pp. 265-294) discussion of "environment" focused on knowledge and attitude rather than behavior, and did not address the development of the environmental movement as a political force for specific societal change (See: Schoenfeld, 1979; and Schoenfeld, et al., 1979). The emphasis of Schoenfeld was in changing attitudes toward environmental issues rather than behavior.

Welch (1977) in a study of Mexican-Americans focused on registration and voting behavior as a measure of political behavior. In addition, she considered only attitude toward the protest activities of Mexican-American political organizations as a measure of such behavior.

Jackson-Beeck (1979) used five measures of political activity in her analysis of mass communication effects across the U.S. All five measures revolved around electoral politics: voting, attempting to influence voting, opinion expression, working for a party or candidate and wearing campaign buttons or displaying a bumper sticker.

Acock and Scott (1980) in developing a model for predicting political participation used two measures of political participation: low-visibility--passive behavior such as watching political programs on TV; and high-visibility--including the five measures used by Jackson-Beeck, above.

These measures of political behavior all revolve around electoral politics and bear a striking resemblance to Matthews and Prothro's "Political Participation Scale" (in Robinson, et al., 1973, pp. 427-430). This scale not only focuses on electoral politics, but also emphasized party politics--and this among the major parties--with items such as: "Do you ever talk about public problems with government to people in politics, I mean Democratic or Republican leaders?" and their list of clubs specifically emphasizes "Young Democrats or Young Republicans" as political clubs or groups.

The emphasis on major parties and electoral politics ignores other significant forms of political participation. These include: electoral participation for non-major parties, independent candidates, minor parties and the like; other forms of working within the political system that do not involve elections, such as lobbying a political official and

major attacks on the status quo outside the legitimate political area-- everything from sit-ins to revolutions. Welch (1977), for example, found that, among Mexican-Americans, identification with the ethnic community, though low, was more related to engaging in protest than in voting for Democrats or Republicans, and was a considerably higher predictor of protest than working in the major party campaign or registering to vote. (Further relations between media use, community identification and political participation will be discussed in the next chapter).

Thus, added to a definition of political participation should be activity revolving around support of minor parties, independent candidates, and ballot issues.

As will be noted later in the discussion of the relations between media use, community integration and political activity, there is a need to distinguish between voting as an indicator of political activity and other political activities. This distinction stems from: first, the literature shows clearer relations when using voting as the criterion variable than other activity; and second, there is a logical difference between voting and other activity. Voting involves a right--often considered a duty--that can be executed secretly, and can express with relatively little effort support for a political candidate or issue. Other political participation involves tangible public action. Obviously petitioning and canvassing involve the commitment of time as well as exposing one's political beliefs to public scrutiny, albeit some of these publics may be very small in number. But even the simple act of writing one's name on a petition involves making a public commitment and placing one's beliefs on public record.

Thus, for purposes of this dissertation political participation will encompass voting and political participation (which will include activity for major and minor parties and issues).

Definition of Community Integration

Because new communication technologies may engender greater feelings of attachment to a community, and because community integration can lead to greater political participation within the community (discussed in Chapter II), the concept of community integration needs to be defined.

Many talk about community integration but none has defined it. From social movement theory to communication models, the phrase "sense of community" has been used but not defined. McLaughlin (1969), in defining a social movement, included as essential to the movement organization a sense of community. Granosvetter (1973) proposed that organizations are created more easily where there is a free flow of information and ideas within a group, noting that this free flow takes on a "sense of community." (p. 1373) In discussing the uses of CB radio, Gatseos and West (1979) and Dannefer and Poushinsky (1977) each include creating a greater sense of community as a beneficial consequence.

In the social movement and protest area, the community variables discussed usually revolve around those that relate to the feeling of integration within a community: primary group (family, friend or neighborhood) integration (Isaac, et al., 1980), or community attachments (talking with friends and neighbors) (Useem, 1980).

In the creation of a scale to measure sense of community, Abel et al. (1980) found that the items generated in their in-depth interviews

related primarily to feelings of belonging in the community. (The "Sense of Community Scale" is used in the present study, and will be discussed more fully, below.)

So this study defines community integration as: feelings of belonging in and feeling of attachment to the community.

Definition of Cause

Since the model of interest will involve looking at not only inter-relations between media use, community, demographic, and political activity variables, but at the process in which these variables operate, it will be important to develop a model that defines causal relations among the variables. And it is important now to define "cause."

Causality has been distinguished by three factors by Asher (1976, p. 11): 1) covariation between two variables; 2) time ordering; and 3) elimination of other possible causes. The covariation and time ordering will be posited in the theoretical development of this dissertation. Covariation will further be tested in the analysis of the data to fit the model. And other possible causes will be considered as part of the analysis: if unexplained variance is large and systematic then one would conclude that other possible causes have not been included in the model.

Thus, cause will be a mixture of theoretical development of expected causal relations with confirmation or rejection based on the analysis.

The Need to Study Political Participation

We come now to the "who cares?" part of the dissertation. What makes the study of political participation and of its causes important? Aside

from the "pure" nature of research--research gratia research--political participation is an essential element to the maintenance of a democracy. In addition, relatively new (new compared to 1776) media may have an impact on political participation and thus an effect on the maintenance or demise of democracy in the United States.

Mencken (1926) summarized the dogma of democracy with two axioms:

- 1) that people have an inalienable right to govern themselves; and
- 2) that they are competent to do so. In order to achieve self-government people are to sustain political parties that support the aims of democracy (Daveis, 1947). The people are also supposed to remove their support when the party strays from support of the democratic ideal. This ideal is the happiness of the community through the regulation of the actions of people (Leggett, 1947).

The historic view of democracy is that political participation should be through the development and support of appropriate political parties. But the test of a true democracy is how well it extends representation to the diverse elements of the nation--both through extending suffrage to all and through representation of all classes (Mill, 1862). Lipset (1960) noted that there are restricted choices in ideology among American parties. Thus, those seeking an alternative ideology (such as intellectuals) are forced to support extreme actions--including revolution--to bring about that choice.

So political participation can take a variety of forms--from traditional party support and voting to revolution. Where there is dissatisfaction with existing parties, the public's support should turn to other parties or candidates if the tradition of democracy is to be upheld.

If the selection of alternative parties is blocked, more radical approaches like revolution are necessary.

The ability to make political choices comes from the ability to communicate. In his discussion of the functions of free expression, Emerson (1966) found an identifiable function for free expression that allows participation in community decision-making; the best judgments for the common good are reached through judgments by all rather than by an elite. Since all persons are not of one mind on any issue there is a need to allow open communication among citizens to allow all alternatives to be considered. Thus, there is also a need to allow access to channels of discussion. Historically, these have been assembly and the printed press.

Modern channels, such as television, have added a new dimension to expression. With large amounts of time devoted to electronic media (for example, the average American viewed over 25 hours of television per week in 1980; almost 90 percent of households watched the major party conventions in 1976; A.C. Nielsen, 1980) questions have been raised about the impact of the mass media--media over which citizens have little control, certainly less control of the content than a face-to-face encounter.

Posited effects of the use of mass communication media have ranged from increasing voter turnout (Kraus and Davis, 1976) to the massification of society which leads to individuals unconcerned with societal good (summarized in DeFleur and Ball-Rokeach, 1975).

For the democratic ideal to be upheld--for citizens to participate in community decision-making--channels of communication must be open to citizen use. Where the system strays from the democratic ideal--where the

need for a new party arises, for example--there is a need for the dissatisfied to communicate among themselves in the creation of a new party. Hence the need to assess the relation between communication uses and political participation.

CHAPTER II

RELATION OF COMMUNICATION USE TO COMMUNITY INTEGRATION AND POLITICAL PARTICIPATION

Predictors of Political Activity

There are three areas of interest from which predictors of political activity will be selected: media use, community integration and demographics. Media use is important--as discussed in the previous chapter--because of its ability to open avenues of expression and thus enhance political activity. Community integration's importance is discussed below; its importance lies in the positive relation between feeling a part of the community and active participation in the community, both social and political. Demographics are considered for two reasons: first, one must at least consider the effect of characteristics that one must carry through one's life, such as race; and second, other acquired characteristics have been shown to relate to political activity. Actually, there is no consistent demographic predictor--except one--which will be discussed below.

Relation of Communication to Political Participation

Communication might be used in two ways to affect political behavior; first, it can make available to the citizen political information through

which political decisions would be made; and second, it can be used as a persuasion tool to influence political behavior.

It is possible that through the control of information the mass media can "mold" community sentiment, and thus control the perceived need for political change? Can the mass media keep current political parties in power by limiting the information available to citizens and controlling their voting behavior? This would be true if those in office controlled the sources of information. But it is editorial limits that are imposed on the media by the editors rather than control of information flow by politicians (Donohue, et al., 1972). The mass media may still determine who remains in power, through the biases of the media. Donohue, et al. (1972) summarized the literature on the "gatekeeping" function of the mass media. They found that the media industry and the psychology of the editor tended to limit the information a community can receive noting that a local news story does not result from the needs of the audience, but through the limits imposed by the bureaucracy of the industry and the perceptions of what the editor thinks is true. In addition to shaping messages, they found that certain information is not reported; stories tending to expose institutional faults are "buried" while those tending to unify the community are used.

The "agenda-setting" function of the media could limit the issues around which citizens develop their political decisions. Kraus and Davis (1976) noted that the mass media are selected as the primary source of political information in several studies of political campaigns. Does the selection of mass media as sources of information affect political decisions? At least in voting this does not seem to be the case.

In the area of campaign effects, while the mass media have been seen as effective in bringing sweeping campaign victories, research evidence indicates that the mass media are relatively useless in achieving political conversion (McCombs, 1972). Rather than the mass media leading to changes in campaign decisions, McCombs found that those who are more identified with a major party are heavier users of mass media than are those with low identification or who are neutral, i.e., people who have made a campaign decision then turn to the mass media. Basically, the mass media serve as a useful tool in mustering the loyal partisans to the polls and in reinforcing their party identification.

Kraus and Davis (1976), reviewing the "classic" voting studies--1940 through 1973, from Erie Country, Ohio to Michigan and Texas studies--support the notion that the mass media do not provide a conversion effect, but are primarily reinforcers of those currently supportive of the political status quo. Those outside the traditional political arena, especially shifting voters, are the least exposed to mass media.

However, there is considerable evidence that heavier mass media use increases voter turnout. Studies of political advertising in mass media also seem to show the same effect. While recall of information can be enhanced by advertising, the less partisan voter is not converted by the ads.

The notion that the mass media are effective in reinforcing existing political partisanship is supported in recent works by Roberts (1979) and Jackson-Beeck (1979).

Roberts found that persons who primarily used mass media for political information about the 1976 presidential campaign found it easy to remain

partisan, supporting the reinforcement effect. However, those who had gathered information through interpersonal association found it more difficult to maintain their original decision on who to vote for, suggesting that to change loyalty or insert a new loyalty (perhaps to a new party or candidate) interpersonal media would be more useful.

In an analysis of national election data from 1976 collected by The University of Michigan Center for Political Studies, Jackson-Beeck (1979) summarized what seemed to be the general effects of mass media use as well as demographic factors on voting and political participation: heavier use of both newspapers and television is related to heavier rates of political participation, but mass media use does not erase basic differences in political participation among population subgroups, e.g., men are more active than women, the middle-aged are more active than the elderly, etc. Jackson-Beeck's conclusion was that mass media exposure facilitates political participation among those already predisposed to participate.

While the use of mass media causes increases in political knowledge or the use of specific political topics, it cannot be linked to political conversion. The effects of mass media use seem to be limited to:

1) increasing general levels of voting; and 2) reinforcing and mustering those already identifying support for a candidate, party or issue.

For those who find themselves outside the mainstream of American politics, how does their dissatisfaction translate into a new political party, support for an independent candidate or for independent "legislative" action (such as petitioning for a ballot issue)?

One should find that where political parties and the current political system have been legitimized the mode of communication should be from the political arena to the citizens. Basically, one would expect that one-way, heterogeneous communication would take place-- mass communication. However, where the development of a competitive party or system takes place there is a need first to develop the party. This requires communication that involves easier access to feedback systems, smaller, more homogeneous audiences, i.e., quasi-mass and interpersonal communication. The need for such communication is clearer when the system is to be overturned or there is a direct attempt to change existing ideology (for a description of communication uses for social movements, see Reagan, 1981). The need for such communication among potential new party members is not as clear and has been given little attention in the literature.

Blacks (who are also a large part of another dissatisfied group: the poor) have found that the two major parties have ignored their economic and political problems, especially at the community level ("New Party," 1980). This has spurred the development of a new party (unnamed by the reporter) whose goals include promoting candidates and becoming involved in community organizational activities (including protest marches).

What type of communication was most effective in developing this new party and its attendant protest activities? The use of press releases to the mass media came after the core of two thousand members had already defined the party's goals and ideology. Then the need was to recruit the "mass" support necessary for state and national activities. For the development of the party structure and goals and for its

community activity, quasi-mass and interpersonal media were more useful.

There is a dearth of research on political activity designed to challenge the major parties. Further, most studies have concentrated on national politics and have ignored the need for alternative political activity for regional or local problems. However, some relations have been found between media use and feelings of being outside the existing political arena.

O'Keefe (1980) found that "political powerlessness" was negatively related to television and newspaper consumption while "political alienation" was not. Thus, lighter users of these media were less likely to consider themselves adequately represented by politicians (O'Keefe referred to the then current government and major party candidates in his study--Nixon and McGovern) from the status quo. However, this lower use of mass media does not mean lower political participation since lower use did not relate to alienation.

Given the relative uselessness of mass media in assisting those outside the existing power structure leads us to infer that other types of communication are necessary.

Fainstein and Fainstein (1974), for example, observed the problems encountered by a West-Side Manhattan school governing board made up of the neighborhood citizens. Deteriorating buildings and minority staffing problems had been ignored by the school district's board and the city. Finding themselves outside the current power structure, they found a need to organize the community to lobby or compete with elected officials. Even area newspapers ignored the efforts of the group since

the problems did not affect the entire area, and since there was no ready-made channel available and since the group did not create one, communication with the community was not achieved and the needs went unfulfilled. Here then is an example of the uselessness of the mass media and the failure of a cause through the lack of communication.

It seems clear that when one begins to compete with those in power, one is less likely to receive mass media coverage (see Gitlin, 1980). Further, the mass media are relatively useless until an issue becomes "noteworthy." The case of a Chicano union strike in Texas received no mass media coverage until two years of marches and a national boycott forced the issue to the fore (Rada, 1977).

When trying to find the media that are useful for developing new political ideas, we can take a cue from the literature on the dissemination of innovation. After all, the purpose of developing a competing party, candidate or issue is to introduce a new idea to the public--one that will be likely to be accepted.

Katz (1962) showed the importance of the use of non-mass media in the dissemination of new agricultural practices to farmers and new drugs among doctors. While mass media conveyed information, there was a need for both groups to use other forms of information in acquiring acceptance of the new ideas: friends, neighbors, colleagues and specialized journals (uses of interpersonal and quasi-mass media).

While interpersonal information is useful in dissemination through the "two-step" flow, Rogers (1962) suggests that interpersonal communication contributed more to the explanation of the variance in acceptance of innovation than did mass communication.

For the acceptance of an idea in an engineering academic community, Dahling (1962) noted especially the importance of "centers" of information exchange.

To the extent that non-traditional political participation parallels innovation acceptance, interpersonal and ~~quasi-mass~~ use is more important than mass media use.

The foregoing discussion suggests that heavier mass media use is related to increased voting behavior, voting being the easiest form of political behavior and the one to which more people are culturally pre-disposed. But it also suggests that other types of participation are related to relatively less use of mass media and more use of quasi-mass and interpersonal media. Keep in mind that among both groups, those who support major parties and those who do not, activity besides voting is related to heavier quasi-mass and interpersonal media. This is true of the former group because they find the mass media useless in fostering change. It does not mean that mass media are not important or that they will have a negative effect on political participation. It just means that mass use will be relatively less important than it is for voting. Indeed, one would still expect a positive relation between mass use and political participating because the mass media are still useful for engaing mass support.

Since all three types of media use are expected to cause both types of political activity the following hypotheses are suggested:

H1a: Media use (all three types) is a direct cause of voting.

H1b: Media use is a direct cause of political participation.

But the use of each medium is expected to have a relatively greater or lesser effect depending on the type of political activity. Thus:

Hlc: Mass use is a stronger predictor of voting than is either quasi-mass or interpersonal.

Hld: Quasi-mass and interpersonal use are stronger predictors of political participation than is mass use.

The hypothesized causal relations are diagrammed in Figure 2 and Figure 5.

Exposure vs. Use

A question arises about the appropriate operationalization of media use--should media use be measured as exposure to a particular type of medium (e.g., hours of television use) or should one determine if the medium was used for a specific purpose (e.g., using television for political information rather than entertainment)? Both methods have been used. Tan and Vaughn (1976) used hours of television exposure as a predictor of public affairs knowledge and Black political militant behavior. But other studies (O'Keefe and Liu, 1980, e.g.) first asked which sources were relied on for political information and then tied those responses to political behavior, principally voting, finding significant relations here.

Which measure to use might relate to what one is trying to prove: select exposure if one is expecting a relation between exposure and political activity, or select use if one is expecting the relation to be with use. One might be tempted to think that it is logical that unless a medium were used for political information it cannot be expected to have an effect on political behavior. This is the logic behind the operationalization of media use as use of a medium for "How much the respondent counts on television for making up their mind about who to vote for,"

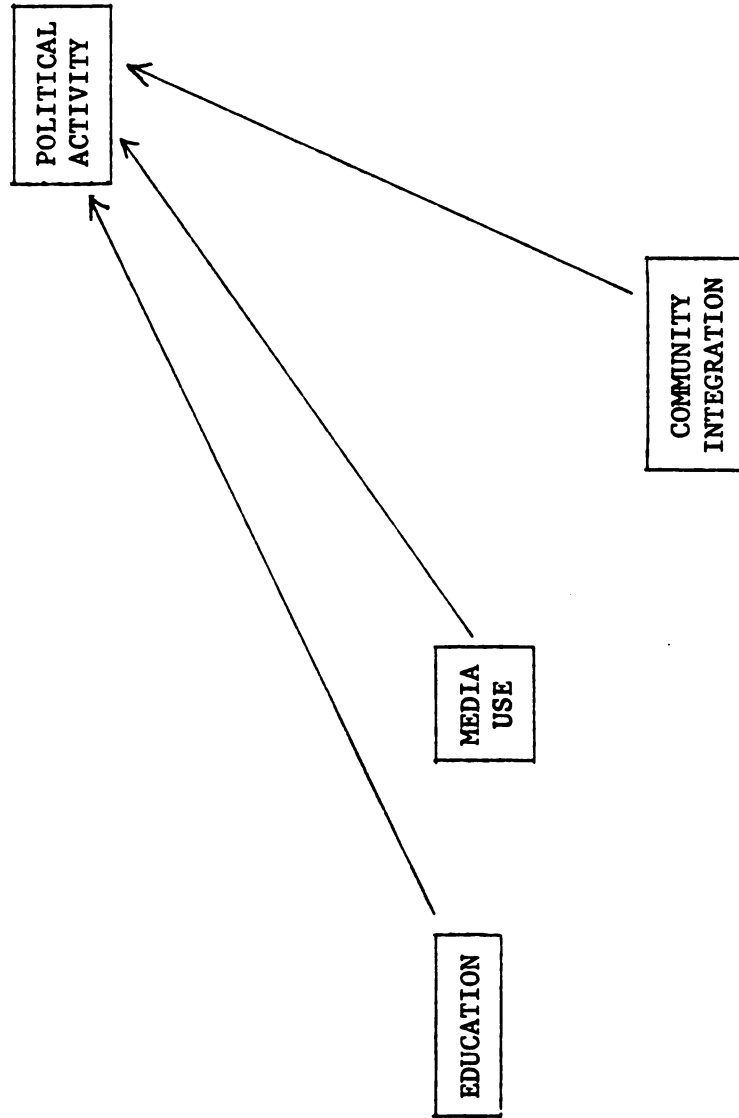


Figure 2.--Causal model predicting political activity from education, media use and community integration

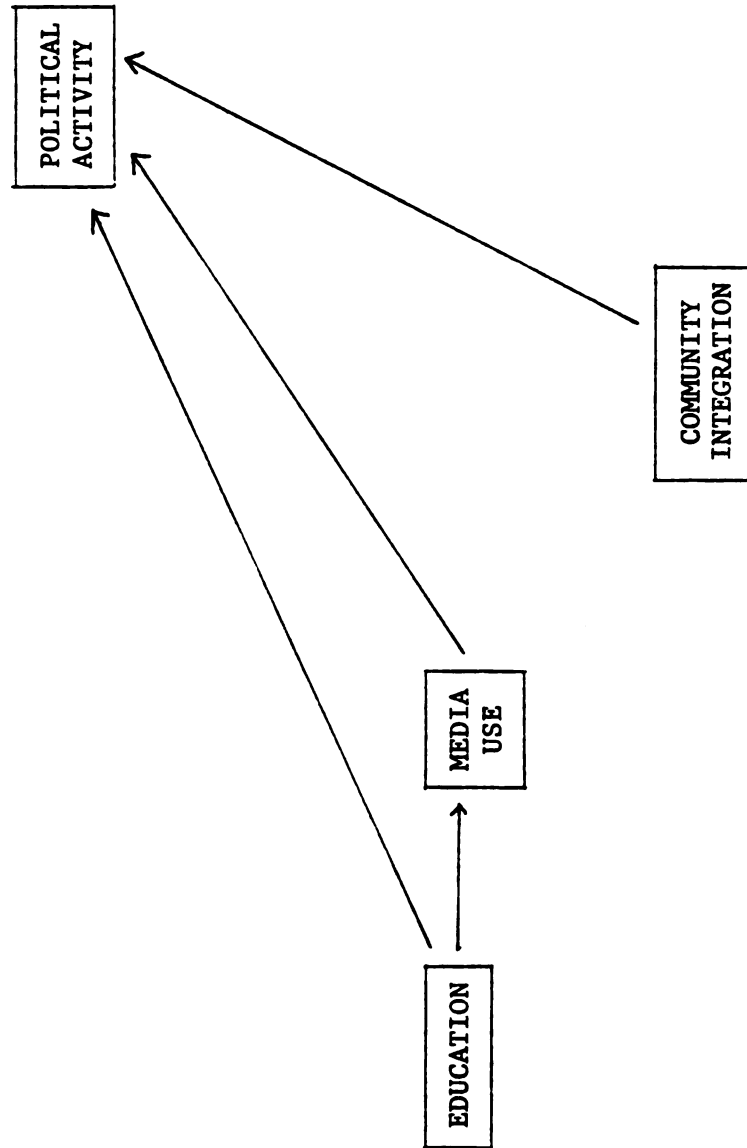


Figure 3.--Causal model with education added as a predictor of media use

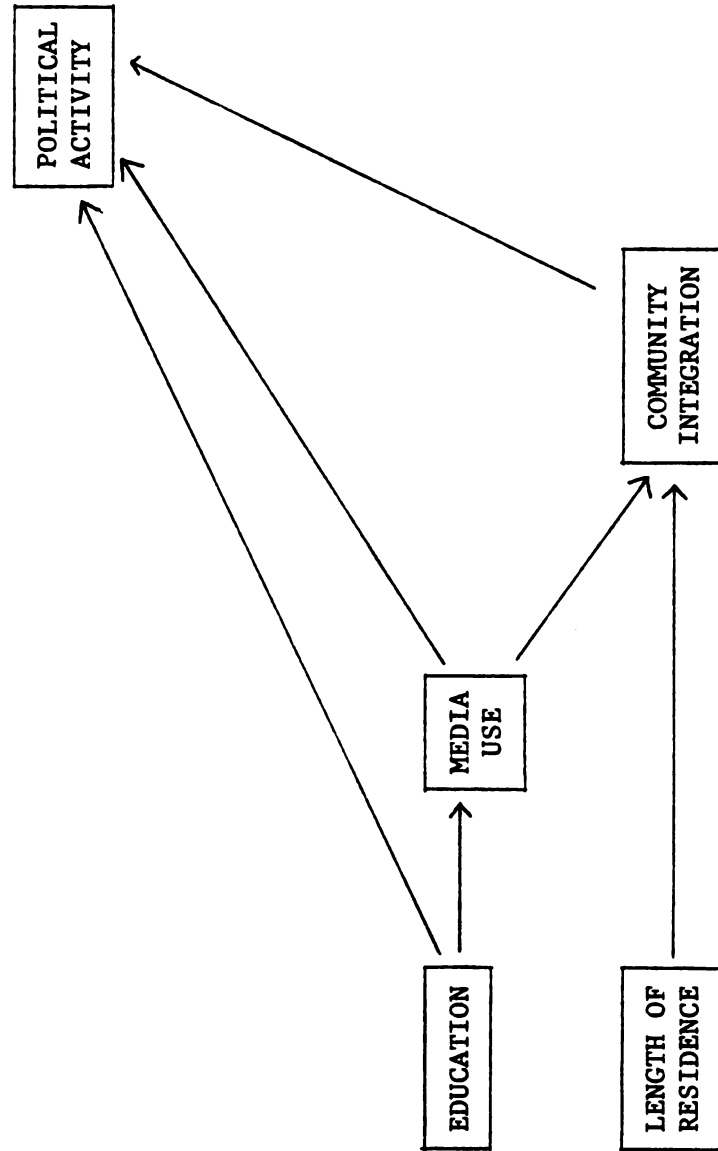


Figure 4.--Causal model with length of residence and media use added as predictors of community integration

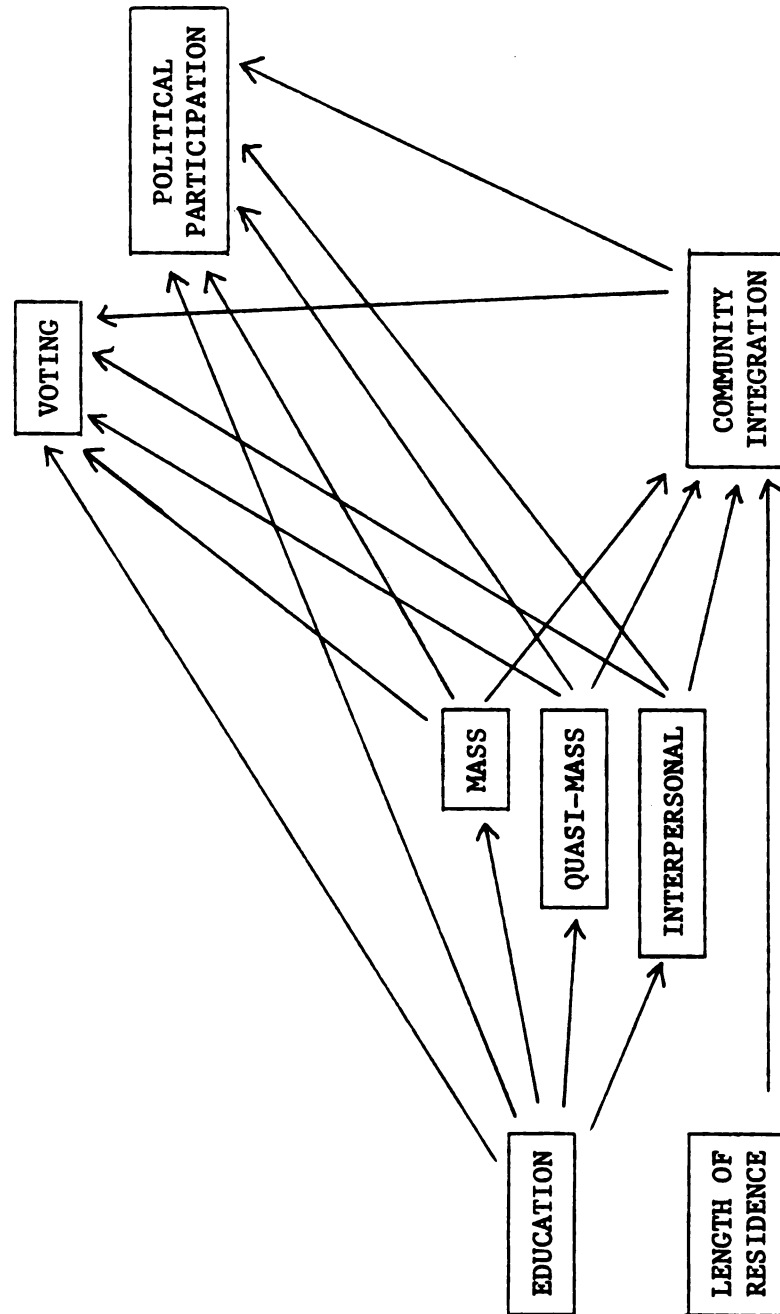


Figure 5.--Causal model with the three types of media and two types of political activity added

etc. (O'Keefe and Liu, 1980, p. 125)

When one considers causal relations, however, what little research has been done on causal effects of media use on political attitudes and activity suggests that media exposure precedes political activity while use may, in fact, be caused by preceding political attitudes.

Tan and Vaughn (1976) explored relations between media exposure, public affairs knowledge and political behavior (in their study political activity focused on militancy). If use (vs. exposure) is the cause of political behavior one would expect that exposure precedes public affairs knowledge which precedes militancy. While Tan and Vaughn did not do a causal analysis, their results contradict the notion that use is the causal element. If, on one hand, one finds that there is a relation between exposure and public affairs knowledge, as well as a relation between public affairs knowledge and militance, at least the basic relational aspects of a causal relation between use and political activity are supported. If, on the other hand, one finds that there is a relation between exposure and public affairs knowledge, between exposure and militance, but no relation between public affairs knowledge and militancy, then one would tend to reject use as the causal element in favor of exposure. In fact, Tan and Vaughn found the latter to be the case.

One causal analysis of political attitudes and media use suggests that use is the result of previously held attitudes. Kimsey and Atwood (1979) found that earlier attitudes were better predictors of later exposure to mass media political messages about Democrats than mass media use was of attitudes toward Democrats; and that earlier attitudes toward Democrats was a better predictor of later attitudes than was media use. This suggests

that use of media for specific political information is a result of previously held political attitudes,

The above results tend to support a model that uses exposure to media as the relevant element to predict later political activity. From this point both "exposure" and "use" will be employed as "exposure" to a medium.

Relation of Community Integration to Political Activity

Personal Uses of the Community

A community is more than a social organization. It is also a collection of individuals who interact to greater or lesser extents with other individuals and organizations in the community.

Without a sense of community or feelings of integration, i.e., social alienation from one's community, the individual will withdraw from the community. The result may range from simply not using community services to personal destruction.

Young and Wilmot (1962) found that residents of East London who felt more a part of their community were also more likely to use the community within which they lived for day-to-day services, shopping and going to pubs.

Community integration is also related to common cultural understanding, helping promote community understanding on a larger scale. Posner (1974) believes that community integration is related to cultural and artistic understanding which can lead to a more responsive community in distributing its economic services. This relation between community integration, and community understanding in major metropolitan areas was the basis

for a cable TV system design in Detroit to help promote community integration (Cable TV Study Committee, 1972).

The major concern among the elderly is crime (Louis Harris and Associates, 1975). In searching for the social determinants of fear of crime, Yin (1980) concluded that four major factors are important in reducing fear, especially unreasoned fear. Three of these relate to one's integration in the community: 1) interactions with friends and neighbors; 2) the existence of a local support network; and 3) familiarity with the structure of one's neighborhood. Yin notes especially that reduced fear is related to feeling a part of the community and feeling free to communicate with one's neighbors.

The most devastating effect of a lack of community integration is self-destruction. Durkheim (1951) long ago proposed that there was a relation between suicide and an individual's sense of community.

Politics

While community integration relates to several areas of social behavior, one thing is clear: those more integrated into the community are also more likely to participate in its political processes.

Feeling a part of and taking an interest in one's community relates to political participation as well as the holding of power in a community. Lazarsfeld, Berelson and Gaudet (1968) pointed out that those who were more interested in community affairs were more likely to vote than those whose interest was low. In a study of public affairs in Swindon, England, Croll and Husband (1975) also found that those who felt more a part of the community and had more interest in the community in general also

participated more politically. Hunter (1953), in his study of power in the urban community, found that those who felt a part of the community and who participated in community affairs also were more likely to be those in power in the community.

Isaac et al. (1980), in the only quantitative study of causal relations between community integration and political activity known to the author, found that their measures of community integration (family, friend and neighborhood integration) related positively to political protest activity. Integration was found to be a stronger predictor than demographics.

With only a few studies of community integration and political activity available, there is a consistent suggestion that higher community integration leads to more political activity--ranging through all types of activity, from voting to political protest. This suggests adding community integration as a relevant element in the model predicting political activity (see Figure 2). And it also suggests the following hypotheses:

H2a: Community integration is a direct cause of voting.

H2b: Community integration is a direct cause of political participation.

These relations are diagrammed in Figures 2 and 5.

Demographic Predictors of Political Activity

In addition to their discussion of media use and political activity, Kraus and Davis (1976) also summarized demographic relations to political activity. They found a single consistent predictor: formal education. While other variables may have been shown to be related (race, socio-economic status, for example) to political activity as well as media use

education is the single consistent predictor. "Education" is used here as years of formal education. This is probably due to the fact that education is either related to or is a major component of the other variables: income is related to education, income is related to race, education is a component of status, etc.

In the Isaac, et al. (1980) analysis of causal elements predicting protest activity, the same variable (education) was the strongest predictor (of the set of four demographic variables which also included age, income and occupation).

It seems reasonable to add education to the model (see Figure 2) as a predictor of political activity. And adds the final hypotheses predicting political activity:

H3a: Education is a direct cause of voting.

H3b: Education is a direct cause of political participation.

These relations are diagrammed in Figures 2 and 5.

There are three predictors of political activity: media use, community integration and education (Figure 2).

We now turn to other areas of the model. Since we have identified the predictors of political activity we can now examine causes of these predictors.

Causes of Media Exposure

There is a single area of consideration for which there is a consistent cause of media use: demographics. One might wonder if media use might also be caused by community integration, but the discussion of the causes of community integration, below, suggests that it is media

exposure that causes integration rather than the other way around.

The relation of various demographic characteristics to media exposure has not been consistently supported. Low socio-economic status has been associated with heavier use of television and lower use of newspapers (Martin, et al., 1976). Differences based on race have been noted by Greenberg, et al. (1970), and Comstock and Cobbey (1978). Even position in the life cycle (Dimmick, et al., 1978) and geographic location (Shaw and Riff, 1979) have been shown to be related to differences in media use.

Although these studies purport to demonstrate relations between various demographic characteristics and media exposure, generally such relations have not been consistent across all studies, or they can be explained as representing relations based on other characteristics. For example, while race was noted as a significant cause of media exposure, Allen and Bielby (1979a) question whether this is truly because of race differences, or--as their study showed--was really based on differences in socio-economic status.

Kraus and Davis (1976) in trying to overcome the lack of consistency in demographic indicators proposed that education was the only consistent predictor of media use. This notion is supported by recent research by Allen (1981) who found that among his predictors of television exposure, education was the only significant predictor (the other demographics included were: age, occupational status and income).

These studies have focused on the mass media, ignoring quasi-mass and interpersonal exposure. However, lacking other evidence, it is proposed that education is the only demographic that can be used as a

reliable causal element in predicting media use, and this relation shall be added to the model (see Figure 3), and the appropriate hypotheses are:

H4a: Education is a direct cause of mass media use.

H4b: Education is a direct cause of quasi-mass use.

H4c: Education is a direct cause of interpersonal use.

These relations are diagrammed in Figures 3 and 5.

Predicting Community Integration

Having disposed of the causes of media use, we now turn to causes of community integration. One can predict sense of community or community integration from several perspectives. Two will be considered here: media use and demographics.

The research done on the relation of types of media used to one's integration in a community suggests that heavier use of mass media is related to a lower sense of community, while heavier use of interpersonal and quasi-mass media is related to a higher sense of community.

Mass media are relatively useless for community integration because they communicate principally "newsworthy" events. The local issue, the personal conversation or small group interaction is not recorded in the mass media, i.e., the mass media are not useful for local organization. Fainstein and Fainstein (1974) noted that in West-Side Manhattan there was only a mass medium (newspaper) available to the citizens. With no quasi-mass media available and with little personal contact, citizens were not integrated with each other, leading to inaction on their part when faced with threats to the operation of the schools in the community.

If mass media cannot help the individual communicate with the community, what can? We need to look at interpersonal and quasi-mass media use. Ganovetter (1973) proposed that interpersonal associations, especially associations among those with whom one has weak ties, those extending beyond close friends and family, are important in contributing to the flow of information and ideas in a community.

Conrath and Thompson (1972) believe that new technologies are creating new forms of communication which are neither mass nor interpersonal and which can help integrate an individual into the community.

Not only did Posner (1974) and the Detroit Cable TV Study Committee (1972) recognize the value of community integration in contributing to community understanding and shared values, as discussed above, but they also recognized that non-mass media were necessary in helping to develop a sense of community. Posner saw that the media of new technologies, such as cable TV, could be used on a more community oriented basis. The Cable TV Study Committee specifically suggested community access cable TV channels, in neighborhoods and across the city, as a means for integrating individuals into neighborhoods within the city

Even in the small town the availability of mass media can thwart the continuation of community integration (Vidich and Bensmen, 1977). Local persons, especially local politicians, because of the importation of outside information no longer trust themselves or local experts for community decisions. This helps erode confidence in the community. Thus, more reliance on mass media would relate to a lower feeling of community integration.

In a study of the relation of community involvement to radio use Surlin (1977) found that involved citizens were less exposed to radio.

Those more involved would be more likely to use media that allow some form of receiver control (such as quasi-mass or interpersonal) than the mass media.

In the study of political protest orientation by Isaac, et al. (1980) the model included demographic factors which were used to predict family, friend and neighborhood integration. A single variable significantly predicted all three and that was age. The other three demographic variables considered were education, income and occupational status. Older persons were more likely to be integrated in the community.

Age is also related because of changes in media use that are related to changes in the life cycle. Dimmick, et al. (1978) proposed that media uses varied through several stages in life. For example, early adults may use television news for relaxation while older persons may seek more serious news.

Warren (1978) reported that the most important factors in predicting community integration were homogeneity and mobility. Mobility is related to age; very young persons are restricted to the local community by their parents and lack of access to autos; older persons are restricted because of physical and economic limitations.

Thus, based on the above discussion, one would expect the following to relate to higher community integration: older, heavier use of interpersonal and quasi-mass media, and lighter use of mass media.

A recent study by Reagan, et al. (1980) supports the notion that use of quasi-mass and interpersonal media is positively related to feelings of belonging in the community. In their study of predictors of sense of community quasi-mass and interpersonal media use were stronger predictors

of a sense of community than were the mass media measures. Their results also suggest that while age is a significant predictor, another variable--highly related to age--is a stronger predictor: length of residence in the community. Other studies that found age to be a strong predictor may have been tapping length of residency.

Thus, the following predictive relations of community integration are added to the model: media use and length of residence (see Figure 4). The appropriate hypotheses are:

H5a: Length of residence is a direct cause of community integration.

H5b: Media use (all three types) is a direct cause of community integration.

And since the use of non-mass media is related to higher community integration:

H5c: Quasi-mass and interpersonal use are stronger predictors of community integration than is mass use.

These relations are diagrammed in Figures 4 and 5.

To some extent the causal relations are imposed upon the model. It makes little sense to look at political participation causing media use unless our interest is in increasing audience size as a program producer or advertiser. The interest in this study is to look at factors that cause political behavior. Determining factors that cause change in the political structure can be used in a strategy by groups attempting to change the political structure--as in the replacement of a useless political party.

Causal Model With Types of Media and Types of Political Activity

Figure 4 specifies the causal relations between general areas of consideration. The model includes specific relations between media type

(interpersonal, quasi-mass, and mass), type of political activity (voting and political participation), and other variables in the model. In Figure 5 these specifications have been made.

Based on the foregoing discussion and hypotheses development we expect the following: 1) education is a positive cause of the three types of media use and the two types of political activity; 2) mass, quasi-mass and interpersonal media use are positive causes of voting and political participation, although mass is a stronger cause of voting, and quasi-mass and interpersonal are stronger causes of political participation; 3) length of residence is a positive cause of community integration; 4) community integration is a positive cause of both political activity variables; and 5) the three media use variables are causes of community integration, with mass a negative cause, and interpersonal and quasi-mass are positive.

Summary of Hypotheses

In Chapter I a definition of cause was given. That definition will be expanded here so that the terms "direct cause" and "stronger" are more fully defined. "Direct cause" means that a path coefficient in the model is "significant," i.e., its chance occurrence is $<.05$. A "stronger" predictor is presumed if the standardized path coefficient is greater than the coefficient of another path.

Predicting Political Activity

The primary interest in this research is to find causes of voting and political participation. Therefore, most of the hypotheses deal

with the predictors of such activity:

- H1a: Media use (all three types) is a direct cause of voting.
- H1b: Media use is a direct cause of political participation.
- H1c: Mass use is a stronger predictor of voting than is either quasi-mass or interpersonal.
- H1d: Quasi-mass and interpersonal use are stronger predictors of political participation than is mass use.
- H2a: Community integration is a direct cause of voting.
- H2b: Community integration is a direct cause of political participation.
- H3a: Education is a direct cause of voting.
- H3b: Education is a direct cause of political participation.

Other Predictors

Within the model there are other expected causal relations beside just predictors of political activity. These are the predictors of media use and community integration:

- H4a: Education is a direct cause of mass media use.
- H4b: Education is a direct cause of quasi-mass use.
- H4c: Education is a direct cause of interpersonal use.
- H5a: Length of residence is a direct cause of community integration.
- H5b: Media use (all three types) is a direct cause of community integration.
- H5c: Quasi-mass and interpersonal use are stronger predictors of community integration than is mass use.

Having developed the set of hypotheses, our task is now to take those hypotheses and the theoretical model and submit them to an empirical examination. The measurement of the constructs in the model, collection

of the data, and the specific analytic technique used to test the model with the data are described in the next chapter.

CHAPTER III

METHOD

Development of the Questionnaire

The questionnaire was developed as a personal interview instrument for the "Media Environment Study" at Michigan State University. [Funded by National Science Foundation Grant #DAR-7910614, principal investigators: Dr. Thomas F. Baldwin and Dr. John D. Abel.] The general instrument was developed in relation to major research questions arising from the "Media Environment Study." These dealt with comparisons across different media environments (cities with many choices of media, like Detroit, and those with fewer choices, like McAlester, Oklahoma) of perceived uses for the major mass media (TV, Radio and Newspapers). The additional questions relating to political participation, community integration and other media use were introduced by this author. However, all questions then were compiled into a draft instrument and subjected to criticism by the project team. The questionnaire was pretested with a convenience sample of about 20 persons who were selected to represent a variety of ages and socio-economic backgrounds. These included, for example, an 84 year old widow, a poor middle-aged female, and a graduate student. In addition, other comments from the agency conducting the interviewing (Market Opinion Research of Detroit) were incorporated into the final draft. The

process of developing the questionnaire took six months (October 1979 through March 1980) with the pretesting and rewriting taking another two months. The questionnaire underwent six revisions.

The final questionnaire was printed on one side of 8-1/2" x 14" paper. It was 43 pages long, and required approximately one hour to complete the interview in the home.

Because of the possibility that interviewee fatigue would affect reports of media use, the three sections that dealt with TV, Radio and Newspaper use were systematically rotated so that a third of the interviewees were asked TV questions first; one-third got radio first; one-third got newspapers first.

In assessing weekend media use half the respondents were asked about the previous Saturday and half the previous Sunday.

In addition, several areas of the country selected for the sample did not have daily newspapers. So an additional two versions were prepared: one asking about daily newspapers and one for weeklies. Thus, there were twelve versions of the questionnaire: for example, TV first-daily newspaper-Saturday media use; TV first-weekly-Saturday; TV first-daily-Sunday.

Measurement of Variables

A portion of the questionnaire used in the "Media Environment Study" is reproduced in Appendix A. Only those questions relevant to measures of the variables in the present study are contained in Appendix A. These questions are used to operationalize the measurement of the variables described below.

Demographics

The two demographics used in the model were: length of residence in the community (years); and education (highest level obtained: less than 8th grade, 8th, some high school, high school diploma, some college, college degree, some graduate school, graduate degree) (associate or trade degrees beyond high school were coded as: some college).

In addition, the following were also assessed as descriptive statistics of the sample: age (years); whether the residence was owned or rented; respondent's marital status (married or not); income (in increments of \$5,000 from "\$0 - \$4,999" through "\$50,000 and over"); gender; and race.

Media Use

Media use was operationalized as exposure or time using the media. The following were considered mass media: television, radio, weekly and daily newspapers, movies (number seen in previous month), magazines (number read regularly) and books (number read previous month).

The following were quasi-mass: trade and professional journals (minutes read, previous week), newsletters (read/do not), church bulletins (read/do not), citizens band (CB) radio use (hours, previous week).

And the following an index of interpersonal: face-to-face (persons talked with the previous day) plus telephone (personal phone calls, previous day). These two were combined because they shared over 20 percent variance.

Some indicators of mass media exposure were indexed: TV exposure--respondents were asked by day-parts the number of minutes they watched TV on the previous day and the previous Saturday or Sunday. Average

weekly TV use was computed by: $5 \times (\text{previous day total minutes}) + 2 \times (\text{previous Saturday or Sunday total minutes}) = \text{total weekly minutes (TV use)}$. Media exposure generally focused on the previous day since it was reasoned to be a more reliable estimate of exposure. Allen (1980) found that previous day estimates of media exposure were the most reliable, a specific day next most reliable, and average day the least reliable. Previous day and specific day had reliability coefficients of .85 and .83 for exposure estimates over two points in time, and average day was .71 in Allen's study.

Radio exposure was assessed the same as was TV exposure.

Newspaper use was measured in two ways: daily and Sunday exposure was indexed similar to TV and radio: $6 \times (\text{previous day's daily exposure}) + (\text{Sunday exposure}) = \text{Total minutes newspaper exposure}$. Weekly paper consumption was total minutes read in the previous week. All estimates were for local papers.

The reliability of using previous day estimates for media exposure may be confounded if systematic biases enter the data gathering. For example, asking previous day use only on Thursday in one city and on Monday in another could introduce artificial variance between cities; asking only on Thursday in all cities could inflate TV viewing estimates. The problem was handled by randomly assigning interviews across all days, Tuesday through Saturday--eliminating Sunday and Monday means that the "previous day" was not a weekend day. Although there was some variation from an even distribution because of callbacks occurring on a later day, the overall pattern was to distribute interviews throughout the week.

Community Integration

Community integration was assessed using the Sense of Community Scale (Abel, et al., 1980). Seven items, measuring feelings of belongingness and neighborliness, were asked. Each item has five responses: strongly agree through strongly disagree. This is a summated scale comprising a single item to assess integration with a range of 7-35 (higher scores indicating a higher sense of community). Abel, et al. report reliability for their entire scale (which includes a total of 19 items that also measure community activity and tolerance) as an alpha of .82. The present study found that the scale had an alpha of .77 with all item-total corrected correlations in excess of .43 (over 18 percent variance shared with the scale).

Voting

Voting behavior was assessed with the following three variables:

- 1) did respondent vote in the 1976 presidential election?
- 2) in the 1978 congressional election?
- 3) in the last local election?

These three indicators of voting behavior were dichotomized as did (1) or did not (0) vote, and summed to form an index of voting behavior with a range of 0-3. The scale had an alpha of .73 with each variable having item-total correlations in excess of .56.

Political Participation

Political participation was also indexed, this time with items similar to those used by Matthews and Prothro (in Robinson, 1973). However, additional questions to assess participation with minor parties and independents was included. Respondents were asked: 1) whether they

had tried to get a candidate on the ballot; 2) whether they had given money, attended rallies or helped canvas for Democrats or Republicans; 3) whether they had tried to get an issue on the ballot; and 4) whether they had given money, attended rallies or canvassed for independents or minor parties. These four items were summed (range 0-4) to form a single scale of political participation. This scale had an alpha of .57 and item-total correlations in excess of .312. This lower alpha is not unusual for a scale with so few items (Nunnally, 1978). Note that all items contribute in excess of ten percent of the variance in the scale.

Sampling

The sample was drawn from a national selection of 17 cities.

Sampling within each city was done by Market Opinion Research (MOR), a survey research organization with offices in Detroit. The firm has been responsible for field work on studies for several major educational institutions, including Michigan State University, Northwestern University, Yale University and The University of Michigan.

MOR used a cluster sampling method--called the "probability-proportion-ate-to-area" cluster. Within each city the total number of interviews was divided by five to determine the number of clusters for each city. Numbers in the remainder were assigned randomly, one each, to the initial clusters. Clusters were based on the most recent counts of occupied dwelling units available. In each cluster five or six households were selected, based on the following plan:

Each interviewer was provided with a map of the cluster to be sampled and the total number of interviews needed within the cluster. When six households were in the cluster, the interviewers were instructed to interview three males and three females. When five households were in the cluster, the interviewers were assigned three males-two females and three females-two males alternately. A randomly chosen dwelling unit was designated the starting point. The remaining households were identified by a skip interval and of four occupied dwelling units. The interviewers were provided a walk pattern and directions for callbacks.

Callbacks were conducted twice at each household--three times in the two largest cities, Dallas and Detroit, because of the greater difficulty of reaching people in large cities. Interviewers were instructed to make callbacks at different time periods during the day, in order to increase the probability of finding an appropriate respondent at home. If no one was home at the selected household, the interviewers were to contact the first house on the left, following the same callback procedure. If this failed to produce an interview, the first house on the right was selected.

Interviewer Training

Training in Detroit was conducted by the MOR director assigned to the project. In the other communities, where MOR had subcontracted the interviewing, the project director trained the on-site supervisor by telephone. The supervisor then conducted face-to-face training sessions with the local interviewers. During the local sessions the MOR project director in Detroit was available to answer questions by telephone.

Field Work

Personal interviews were conducted in the selected cities from June 17 through July 26. The following communities were used: Albany, GA; Augusta, AK; Buffalo, SD; Cedar Rapids, IA; Clovis, CA; Dallas, TX; Detroit, MI; Eureka, NV; Liberal, KS; Manchester, NH; McAlester, OK; Mesa, AZ; Missoula, MT; Portland, OR; Quincy, IL; Randallstown, MD; Tell City, IN,

Interview Verification

MOR verified ten percent of each interviewer's work or at least one interview for each interviewer. The verification was by telephone: the respondent was called and asked selected questions from the interview including length of residence and age. In addition, the respondent was asked if the show cards required for the questionnaire were used and the approximate time the interview took. If any of an interviewer's work failed to verify, MOR then verified all of that interviewer's work.

Michigan State University project personnel telephoned two respondents from each city in the sample. These respondents were selected from those who had not been contacted by MOR. The MSU verification caller asked if the respondent had been interviewed and thanked the respondent for participating in the project.

Sample Data

Interviews were completed with 1828 respondents. The lowest number of interviews in a city was 75, the highest was 121. Almost half (48.8%) were male; 53.5 percent had annual household incomes at or above \$15,000; 84.1 percent were White, 13.0 percent Black; 39.1 percent had some

college education or more; 68.0 percent were married; 79.2 percent lived in a house, 5.6 percent in a mobile home and 14.3 percent in an apartment; 71.9 percent owned their residence; 19.2 percent lived in rural areas.

Model Analysis

The model developed in Chapters I and II lends itself logically to an analysis applying the maximum-likelihood approach. This approach is appropriate since it does several things: 1) it takes into account sizeable measurement error often encountered in social science, 2) several equations can be analyzed simultaneously (for example, in the present model, the several equations relating variables to both voting and political participation as well as the equations relating measurement variables to theoretical variables); and 3) where there are problems with the model the analysis can indicate which parts of the model are causing the poor fit and suggest changes for a better model. (See, variously: Joreskog and Sorbom, 1977; Joreskog and Sorbom, 1978; Long, 1976; Kluegel, et al., 1977; Maruyama and McGarvey, 1980).

A computer program developed by Joreskog and Sorbom (1978) called LISREL (Linear Structural Relations) is designed specifically for analyzing a model through the maximum-likelihood approach. It is this program that will be used to analyze the theoretical model presented above.

The program requires a set of parameter specifications for the theoretical model as well as sets of indicators of each of the theoretical variables (the measurement model). The theoretical and measurement models are specified in Figures 6a and 6b. Figure 6a presents just

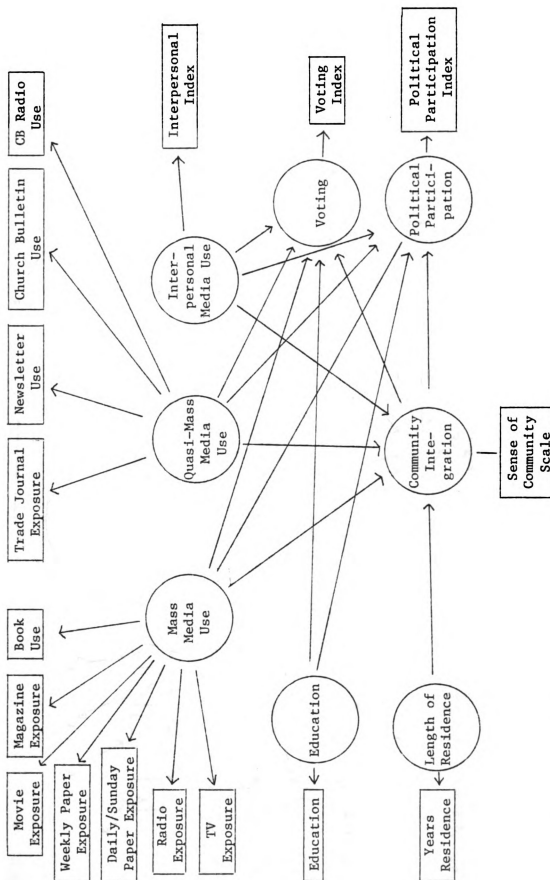


Figure 6a.---Basic theoretical and measurement model

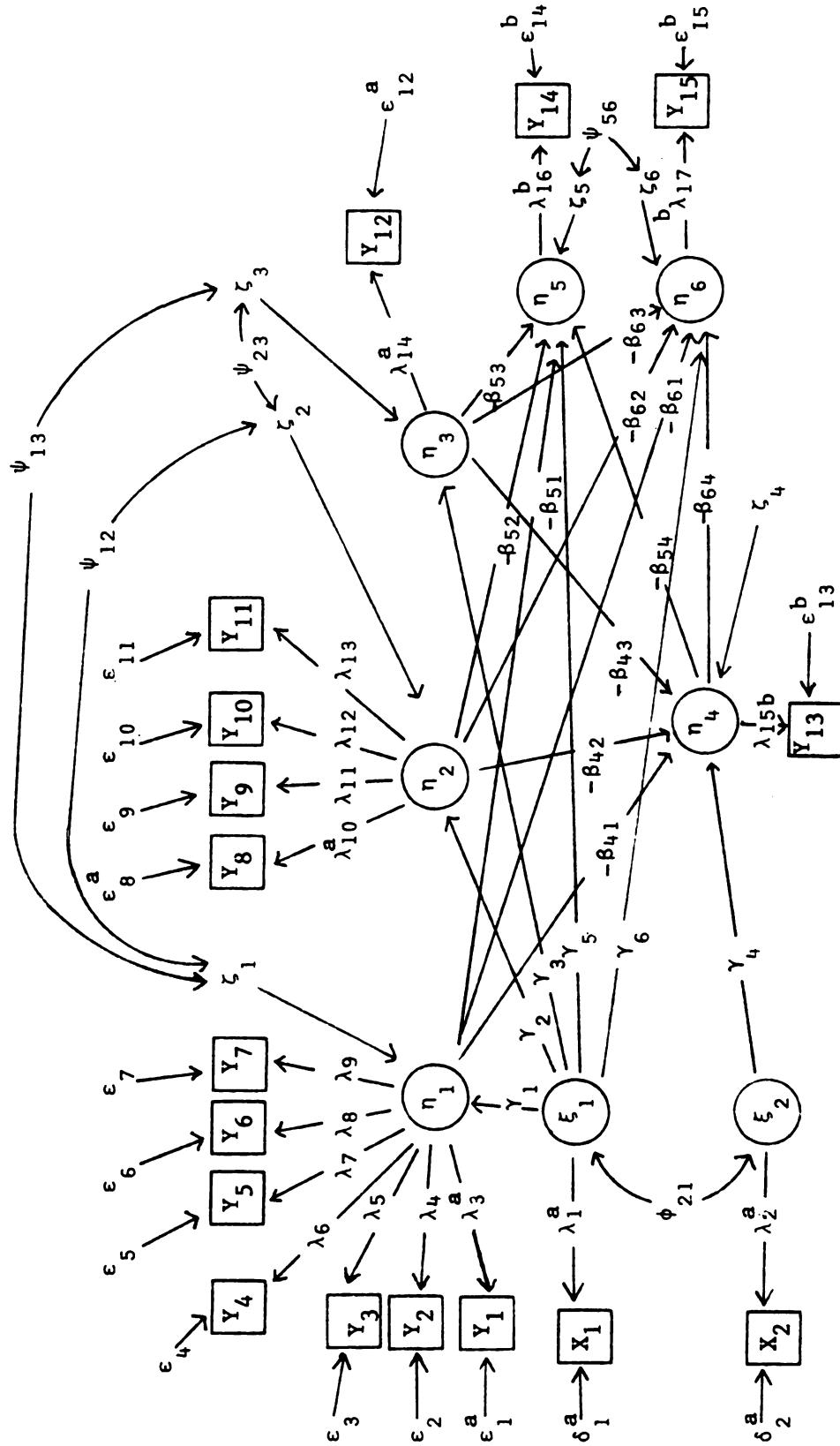


Figure 6b.---Theoretical and measurement model with notation (See tables 1 & 2 for definitions)

^aindicator fixed at 1.0; error fixed at 0.0 ^bindicator fixed other than 1.0; error fixed other than 0.0

Table 1.--List of parameters and their meanings for Figure 6b

Parameter	Meaning
Y	Measure of dependent variable
X	Measure of independent variable
ϵ	Residual of dependent measure
δ	Residual of independent measure
η	Unobserved dependent variable (endogenous)
ξ	Unobserved independent variable (exogenous)
γ	Coefficient of interrelation of endogenous with exogenous variables
$-\beta$	Coefficient of interrelation of two endogenous variables
ζ	Residual of endogenous variable
ϕ	Covariance of two exogenous variables
ψ	Covariance of residuals of two endogenous variables
λ	Coefficient of measure of unobserved variable

Table 2.--Parameters and theoretical and measurement variables for
Figure 6b

Theoretical Model		Measurement Model	
Parameter	Variable	Parameter	Indicator
EXOGENOUS:			
ξ_1	Education	X_1	Years of formal education
ξ_2	Length of residence	X_2	Years living in community
ENDOGENOUS:			
η_1	Mass media use	Y_1	TV exposure
		Y_2	Radio exposure
		Y_3	Daily/Sunday newspaper exposure
		Y_4	Weekly newspaper exposure
		Y_5	Movie exposure
		Y_6	Magazine exposure
		Y_7	Book use
η_2	Quasi-mass media use	Y_8	Trade/professional journal exposure
		Y_9	Newsletter use
		Y_{10}	Church bulletin use
		Y_{11}	CB radio use
η_3	Interpersonal media use	Y_{12}	Index of persons talked with and phone use
η_4	Community integration	Y_{13}	Sense of Community Scale
η_5	Voting behavior	Y_{14}	3-item voting index
η_6	Political participation	Y_{15}	4-item political activity index

the variables used in the model. The circles contain the theoretical variables which are connected by paths indicating the causal relations developed in Chapter II. The rectangles contain the measurement variables, those used to operationalize the theoretical variables, with paths indicating which measurement variable is used as an indicator of which theoretical variable. The measurement variables are those discussed earlier in this chapter. Figure 6b contains the model in complete notational form, with coefficients and indicators of measurement error entered into the model. Tables 1 and 2 contain complete definitions of the parameter specifications in Figure 6b.

Note that the model in Figure 6b contains not only specification of the variables of interest, but also the error associated with measurement (e.g., ϵ_1, ϵ_2) as well as error associated with each set of equations (e.g., ζ_1, ζ_2). Each path--for both indicators of theoretical variables and paths within the theoretical model--has an associated coefficient that is the weight used in the estimating equation for that part of the model. For example, the relation between mass use and daily/Sunday paper exposure is: $Y_3 = \lambda_5 (\eta_1) + \epsilon_3$. Likewise, the theoretical model has an estimated set of weights, for example: $\eta_4 = \beta_{41}(\eta_1) + \beta_{42}(\eta_2) + \beta_{43}(\eta_3) + \gamma_4(\xi_2) + \zeta_4$ (The minus sign on the β_s in Figure 1 is due to the fact that the matrix appears on the left side of the estimating equation.)

In addition to the model accounting for measurement error, it can also account for correlated error terms. This can account for underlying systematic variance that is not specified in relations in the model. The decision to allow error terms to vary or not vary together may come from two perspectives. First, there may be compelling theoretical

reasons to allow covariance among error terms, For example, Allen (1981) allowed the measurement error for his time-one measures of media exposure to vary with the time-two errors since there was reason to suspect related errors through the use of the same measure over time. (In fact, his results indicate the errors were unrelated.) Second, one may allow covariance among error in order to allow the model to fit the data more precisely and thus obtain an overall model that provides a better general fit. This has been done by Isaac, et al. (1980) who first kept covariances among errors fixed at zero and then allowed errors to covary, one-by-one, until an acceptable fit of the model to the data was obtained.

There are instances, however, when one just assumes that measurement errors are randomly distributed and proceeds with fitting the model as best as possible on this assumption (Acock and Scott, 1980; Maruyama and McGarvey, 1980).

The perspective that this research takes is that errors will be allowed to covary if there is a compelling reason to do so. Otherwise, the errors will be assumed to be randomly distributed and uncorrelated. This follows from the first perspective described above. However, it does not allow error to correlate in order to provide a better fit of the model--the second perspective. There are several reasons for this: First, to merely allow various combinations of correlated errors and selecting the one that provides the best fit of the model merely capitalizes on chance. With 105 bivariate comparisons for the dependent variable measures alone, at least 20 of these ought to improve the model by chance, if our criterion for model fit is .05. To allow all error to

covary would certainly overfit the model. Thus, one would be compelled to try various permutations of errors until a better fit was obtained. This would result in an even greater opportunity to capitalize on chance. Second, Maruyama and McGarvey (1980) point out that such manipulations run the risk of overfitting the data (p. 508) and violate one of the criteria for judging the fit of the model (See below, "Model Criteria"). Third, Maruyama and McGarvey further point out that manipulations of the error covariance parameters uses the LISREL analysis for exploration when it is designed for confirmatory analysis. While there may be some changes suggested in the results of the proposed model our interest is in keeping changes to a minimum in order to remain as close to the confirmatory and theoretical processes as possible. In the model in Figure 6b the errors in the theoretical variables for media use are allowed to correlate as are the two for voting behavior (ψ). This is because underlying components are expected. The measures of media use are taken from a single perspective, exposure. Because there are other factors that may compose media use, such as the purposes for which media are used, these other factors may cut across the distinction made in this model (mass-interpersonal). Therefore, correlated error terms will give us an indication about the importance of such other underlying factors. Likewise, political activity may involve other components beyond simply an active or passive political activity.

As with error terms for the theoretical model, error terms for the measurement model can be allowed to vary together. That has not been done for this model. There is no theoretical reason as compelling as there was for the theoretical variables discussed above.

Generally, specification of error terms has been done to test the feasibility of separating theoretical variables. Acock and Scott (1980), as in the present study, were interested in separating two types of political behavior, and, therefore, specified correlated error to both account for such error in the model and as an indicator of other underlying characteristics.

The results of the LISREL analysis will allow us to determine:

- 1) the overall goodness-of-fit of the model; and 2) the relative usefulness of the indicators and the theoretical path coefficients through a significance test (t-ratio) and comparisons of their standardized coefficients. The hypotheses, of course, can be tested using t-ratios and comparison of the standardized coefficients.

Model Criteria

There are several criteria by which one determined whether or not there is a good fit of the model to the data. These include:

- 1) Is the model correctly specified? 2) Is the χ^2 test nonsignificant?
 - 3) Are the first order derivatives of the fixed parameters in the model zero? 4) Are the residuals of the input minus the predicted matrix ($S - \hat{\Sigma}$) as small as possible? 5) Is the explained variance in the theoretical model as high as possible? and 6) Is the standard error for the coefficients within the model low enough to allow discrimination between coefficients and zero, i.e., are the coefficients significant?
- The six criteria are explained more fully in the following paragraphs.

For a model to be correctly specified it must provide unique path coefficients. Overspecification--identifying too many free parameters--will generate unidentifiable coefficients. The LISREL program

will tell the researcher if overidentification occurs with the following statement: "THE NTH FREE PARAMETER MAY NOT BE IDENTIFIED." If this statement is absent one assumes the model is correctly identified.

Usually, the goodness-of-fit is tested with a chi-square looking for a value small enough to produce a probability greater than .05. Unfortunately, with large sample sizes it is unlikely that one will obtain a nonsignificant chi-square (Joreskog and Sorbom, 1977, p. 318; Long, 1976, p. 171). This is not necessarily bad. As sample sizes approach infinity they are unbiased with regards to violations of normality assumptions (Long, 1976, p. 166). In addition, the chi-square is merely an indicator of relative fit of the model. Joreskog and Sorbom (1977, 1978) state that a chi-square with a probability less than .05 is acceptable with large sample sizes, that one merely uses the chi-square as an indicator of how a change in the model affects the fit. Joreskog and Sorbom suggest that χ^2 can be used to test the relative improvement in model respecifications. This can be done by comparing the reduction in χ^2 with the change in degrees of freedom. Changes that are about the same as the change in degrees of freedom are probably just capitalizations on chance, whereas changes that are larger than the change in degrees of freedom indicate genuine improvement in the fit of the model. Allen (1981, p. 246) provides a sample calculation. A test of significance is used based on the change in χ^2 with degrees of freedom equal to the change in degrees of freedom from model one to model two. In this case one wants a significant χ^2 because one is testing for a change in model results that are not due to chance.

The first derivatives of the fixed parameters should be zero (Joreskog and Sorbom, 1978, p. 15). If they are not then it indicates

that some fixed parameters should be allowed to vary, starting with the fixed parameter having the largest first derivative.

The residual matrix (input minus predicted matrix) should contain relatively small values. No specific level is given as being too large. Joreskog and Sorbom (1978, p. 15) and others (Maruyama and McGarvey, 1980; Acock and Scott, 1980; Isaac, et al., 1980) use the residuals as a subjective guide to the overall ability of the model to predict the original input matrix. Several large residuals, relative to the overall matrix, indicate a need to restructure the model. The large residuals also give a clue about which parts of the model to change. As a test of the magnitude of all the residuals, Maruyama and McGarvey computed the mean correlation and the mean residual, excluding diagonal elements. The lower the ratio of the mean residual to the mean correlation the better, since this indicates relatively lower residuals. Maruyama and McGarvey had a ratio of .33. This will be used as a guide in testing the results in the present study.

Acock and Scott (1980) use explained variance in their endogenous variables as an indicator of the fit of the model. This follows logically from the fact LISREL accounts for measurement error. Thus, explained variance in the theoretical model should be relatively high. The explained variance (R^2) is computed as one minus the residual ($1 - \zeta$). Acock and Scott found explained variances of 25 percent and 40 percent in their political participation variables. For purpose of the present study, the explained variances of the two political activity variables--the primary variables we are trying to predict--relative to the Acock and Scott results will be used as an indication of the fit of the model.

Finally, examination of the path coefficients will tell us how useful the model is with respect to causal relations. A large number of nonsignificant paths may indicate relatively large standard errors. A restructured model that acquires significant paths indicates a reduction of the relative standard error and a better fit of the model. (Of course, if a restructured model does not produce significant coefficients it may mean there are simply no relations.)

The literature on what can be done to improve the fit of the model by restructuring the model is rather scanty. Joreskog and Sorbom (1978, p. 15) only suggest freeing some fixed parameters. No one has addressed the issue of a major restructuring of the theoretical and measurement variables. For example, an option available beside freeing parameters would be to eliminate one or more variables. Another would be to restructure the measurement model with respect to the theoretical model. Of course this takes us into a more exploratory realm. But even the freeing of parameters has eliminated a strict confirmatory analysis, and if the results indicate restructuring that does not conflict strongly with the theory then--as they say--why not?

There is, however, a solid statistical reason for altering the model beyond merely freeing some parameters. This is embodied in the concept of "construct validity." To the extent that the results fit the theory the measurement can be said to be valid. Where the measurement fails to fit the theory significantly (in a statistical sense) one can consider the model "invalid." See Woelfel and Fink (1980, pp. 85-86) for a discussion of theory and measurement as determinants of validity.

LISREL Program Estimates

In order to begin the iterations of the LISREL program, estimates need to be made of most of the coefficients in the model. This will do two things: first, it will help reduce the time involved in computation, and second, it will increase the precision of the program's solution for the model by providing error estimates for some of the fixed parameters, thus, eliminate this source of confounding variance from the model solution. The start values and specification of fixed and free parameters are contained in Appendix B.

Estimates for the endogenous variables with multiple indicators will be made using factor analysis with a single factor solution. The lambdas will be estimated with the factor scores and the epsilons will be estimated with the residuals for each variable $(1-h^2)$.

Several of the endogenous variables and the two exogenous variables have single indicators. Normally these would be estimated as "1.0" with error assumed to be zero. However, since several have been created as indexes or scales scale reliability estimates will be used to estimate these coefficients. Their residuals will be used to estimate errors (Winer, 1971, p. 285; Acock and Scott, 1980). These values will remain fixed. Technically, one need only indicate some start value other than zero in order to have a free parameter. Indicating start values merely saves time in running the program. However, for fixed parameters, such as error estimates for fixed parameters, indicating start values will give the program more information and allow a solution that gives greater explained variance in the theoretical model.

The matrix to be analyzed will be the correlation matrix. This is done for the reasons stated by Maruyama and McGarvey (1980, p. 509);

the data are from a single population, cross-sectionally gathered, and--most importantly--standardized coefficients are far easier to interpret than are nonstandardized coefficients, especially when comparisons of coefficients are to be made. Use of the correlation matrix also fits the theoretical relations proposed in the hypotheses. The results will search only for significant predictors ("causes") and relatively larger coefficients. For the latter tests, standardized coefficients are required. Keep in mind, however, that there are limitations on the results. Having standardized our units we can no longer go back to the original data, i.e., we cannot then say that a one unit increase in education would result in an "X" number of units increase in voting. Of course, as discussed in Chapter I in the section defining political activity, different researchers use different measures of political behavior. So even with unstandardized units it is difficult to compare across studies. In addition to losing the ability to use the original data, the use of standardized units is dependent on sample results, namely the standard deviations, and are not appropriate for comparisons across samples because the path coefficients may change as standard deviations change (Blalock, 1979, p. 482). These limitations apply to the next chapter on results of the analysis.

CHAPTER IV

RESULTS

Although the primary interest is in the analysis of the causal model there is some interest in descriptive results. These results give a basis for comparing the present study with results of another sample. An additional reason to present the descriptive results is so that a reader can have the complete data necessary to replicate or extend the present LISREL analysis. The means and standard deviations are presented in Table 3, percentages for categorical variables are presented in Table 4, and the correlation matrix is presented in Table 5. It is only necessary to have the correlation matrix and the specifications of free and fixed model parameters and start values (see Appendix B) for one to replicate this study. The means and standard deviations, however, are necessary if one wishes to perform other LISREL analyses such as those employing the covariance or moment matrixes.

This results chapter will focus on the results of the LISREL analysis. Because problems were encountered in fitting the first model (the model developed in Chapter II) a second model was restructured from the first. This chapter will first review the criteria for acceptance of a good fit of a model to the data. These criteria will be applied to the first model--noting the fitting problems. The model will be

Table 3.--Means and standard deviations for variables used in the measurement model

Variable	Mean	Standard Deviation
Years living in community	19.82	18.41
TV exposure (minutes per week)	1272.62	1111.39
Radio exposure (minutes per week)	984.89	1329.89
Daily/Sunday newspaper use (minutes per week)	220.53	239.70
Weekly newspaper use (minutes per week)	13.05	29.13
Movie use (number per month)	.69	1.47
Book use (number read per month)	2.59	6.80
Trade/Professional journal use (minutes per week)	29.90	99.35
CB radio use (hours per week)	1.34	21.84
Interpersonal index (persons talked with per day)	18.79	84.16
Sense of Community Scale	27.06	4.28
Voting index	1.78	1.28
Political participation index	.63	1.01
Education	4.20	1.55
Newsletter use [*]	.40	.50
Church bulletin use [*]	.57	.50

^{*} 1=do use; 0=do not

Table 4.--Percentages for categories of variables used in the measurement model

Variable	%	(N)
Education:		(1813)
Less than eighth grade	5.1	
Thru eighth	7.9	
Some high school	15.5	
High school diploma	32.4	
Some college	22.7	
College degree	9.5	
Postgraduate work	2.9	
Graduate degree	4.0	
Newsletter use:		(1826)
Use	40.0	
Do not use	60.0	
Church bulletin use:		(1827)
Use	57.0	
Do not use	43.0	

Table 5.---Correlation matrix of measurement model variables (decimal points omitted)

1.	Education	1000
2.	Years residence	-206 1000
3.	TV exposure	-077 017 1000
4.	Radio exposure	059 129 017 1000
5.	Daily/Sunday use	115 146 098 -002 1000
6.	Weekly use	022 054 006 001 068 1000
7.	Movie use	173 -219 -051 144 -052 -027 1000
8.	Magazine use	339 -033 043 076 170 115 123 1000
9.	Book use	125 -075 012 044 -006 022 057 084 1000
10.	Trade journal use	260 -064 -079 080 046 045 052 144 058 1000
11.	Newsletter use	270 -018 003 028 090 052 033 180 142 180 1000
12.	Church bulletin use	087 163 -036 -033 130 060 -089 114 -001 114 146 1000
13.	CB use	018 -005 018 008 -021 -010 -013 009 011 009 -005 -021 1000
14.	Interpersonal index	-024 023 -063 -017 -030 -030 006 -006 019 -006 004 -018 -001 1000
15.	Sense of Community	035 231 -076 -059 102 116 -078 086 047 086 113 178 018 047 1000
16.	Voting index	225 285 -051 -183 232 150 -158 183 081 183 188 245 -025 -013 316 1000
17.	Participation index	266 -043 -014 053 104 106 054 231 056 154 220 079 020 010 146 216 1000
		1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.

restructured and these criteria will be applied to the second model; noting how it fits the criteria more successfully than the first model.

Having established an acceptable fit of the second model the hypotheses will be tested with the path coefficients of the second model. Finally, other results not expected in the hypotheses will be discussed.

Remember, the criteria for evaluating the fit of a model discussed in the previous chapter are:

- 1) Is the model correctly specified?
- 2) Is the χ^2 nonsignificant?
- 3) Are the first order derivatives of fixed parameters zero?
- 4) Are the residuals as small as possible?
- 5) Is the explained variance as high as possible?
- 6) Is the standard error of coefficients low enough to provide statistically significant estimates?

Results of the First Model

As mentioned above, the results of the LISREL analysis of the original model indicate that the model requires extensive restructuring. A portion of the results of this analysis is presented in Table 6. Only a portion of the results is presented for two reasons: 1) the results will not be used to test the hypotheses; and 2) the results in the table are meant to illustrate the problems of the model described in the text.

The First Model and the Six Criteria

The model is assumed to be correctly identified since there was no error statement from the program.

Table 6.--Some of the LISREL estimates for model one (Figure 6b)

Parameter	Standardized Coefficient	t-value	Residual	Variance
λ_1	.01	.29	ζ_5	.76
λ_2	.10	.30	ζ_6	.81
λ_3	.26	.30		
λ_4	.16	.30		
λ_5	.17	.30		
λ_6	.61	.30		
λ_7	.18	.30		
$-\beta_{41}$	.01	.17		
$-\beta_{51}$	.05	.27		
$-\beta_{61}$	.22	.29		
$-\beta_{43}$	.04	1.91		
$-\beta_{53}$	-.02	.85		
$-\beta_{63}$	.01	.63		

$\chi^2=999$; df=101; $p<.0001$

$R^2_{\text{voting}}=.24$

$R^2_{\text{political participation}}=.19$

The χ^2 is 999; $df = 103$; $p < .0001$. Degrees of freedom are calculated as: $(n(n + 1)/2) - t$, where n is the number of input variables and t is the number of free parameters in the model.

The χ^2 does not indicate a good fit, but this may be due to sample size. Calculating on the basis of a sample size of 200 would yield a χ^2 of 109 which is $p > .05$.

The first order derivatives for the fixed parameters are zero, rounded to three decimal places.

The above three criteria are acceptable for a good fit of the data to the model. However, it is the last three criteria that demonstrate the problems with the model.

An examination of the residual matrix reveals several values in excess of $\pm .20$. In addition, the ratio of the mean absolute residual to the mean absolute correlation is .403 (.0349/.0865). This is somewhat higher than the criterion of .33 taken from Maruyama and McGarvey (1980), and indicates residuals that are relatively large compared to the correlations.

The explained variance in the two political activity variables is relatively low, explaining 24 percent and 19 percent of the variance in these two variables (see Table 6). Only one R^2 comes close to the lowest explained variance of Acock and Scott (1980)--24 percent compared to their lowest 25 percent.

The major problem is that the model offers little explanatory power because of relatively large standard error, indicated by the lack of significant predictors and low t -values. In Table 6, coefficients and t -values for several selected lambda and beta coefficients illustrate

the problems. All of the indicators of mass use are nonsignificant. And neither mass use nor interpersonal use have significant paths to community integration, voting or political participation.

While the first three criteria are acceptable, the lack of acceptable results on the final three criteria--criteria that indicate the usefulness of the model in predicting the original data as well as political activity--mean that a restructuring of the model is in order. Now one needs to find the problem areas in the model that could be improved through restructuring.

Problem Areas in the First Model

An examination of the residual matrix (predicted minus actual correlations) reveals several areas where prediction is considerably off, several residuals in excess of $\pm .20$. There are confounding effects in the mass media variables. Radio, movie and daily/Sunday use have several high residuals, made especially important because these three have high residuals for their relations with voting. Residence is also a problem variable having high residuals across several variables, especially with voting (.28). Some of the problems encountered in the model show up clearly if one reexamines the correlation matrix (Table 5).

First, there is a general pattern of negative relations between TV, radio exposure and media use and voting, and positive relations between newspaper and magazine use and voting. In addition, there are very weak relations between the electronic and print variables while those relations are stronger among themselves. For example, TV and radio exposure correlate with weekly paper exposure at .01, but weekly use relates to

daily exposure and magazine use at .068 and .115, respectively. This suggests a need to restructure the mass media variable in the theoretical model. A variable that assesses electronic mass media use and another that assesses print mass media use is needed. This restructuring is not meant to provide generic definitions for "electronic" and "print" media. The results merely indicate separating the mass use variable into two variables with separate indicators that are labeled "electronic" because TV and Radio are transmitted via the radio spectrum and "print" because newspapers and magazines are printed. In addition, book use may be a confounding factor. Only one of its residuals is as low as .01, and it has a relatively high standard error. Book use should be dropped as an indicator.

Second, restructuring of the quasi-mass indicators is also indicated. Newsletter and church bulletin use each had significant coefficients. And these two, along with trade journal use are highly related to each other. But the other indicator may have problems. CB radio use has the lowest t-value of any indicator in the analysis (.08). It also shows virtually no relation with any other variable in the analysis, the strongest correlation coefficient being 0.025 (with voting). This indicates that quasi-mass use could be improved as a theoretical variable if CB use were dropped as an indicator.

Third, the exogenous variable "length of residence" as measured by years of residence in the community might improve the fit of the model if it were allowed to vary as a cause of the two political activity variables. This is supported by two things: 1) there are generally high residuals for residence with other variables in the analysis,

especially for voting (.28); and 2) the correlation between years residence and voting is high (.285) relative to the other correlations. This means adding paths from length of residence to voting and political participation.

Finally, the model can be improved by eliminating the theoretical variable, interpersonal use, and its indicator, the interpersonal index. It has virtually no explanatory power. None of its betas is significant. Indeed, its correlations show every little relation with other variables in the analysis, none of the relations in excess of .063. While other theoretical variables can be improved by restructuring their indicators, interpersonal use has a single indicator; its problems lie in that single indicator. This does not mean that an interpersonal theoretical variable would have no use in the model. Just this particular measure may not be valid.

The restructuring of the model does the following:

- 1) separates mass media use into two endogenous variables: electronic mass and print mass;
- 2) restructures the indicators of electronic and print mass use;
- 3) restructures the indicators of quasi-mass use;
- 4) eliminates interpersonal use from the model; and
- 5) specifies path between residence and the two types of political activity.

The new model maintains the general causal relations developed for Figure 4, and it only eliminates one portion--interpersonal use--of the model in Figure 5. Restructuring the indicators takes into account problems encountered when trying to specify measurement of a theoretical construct.

While the fit of the model to the data may be improved with further tampering, one must consider that it should at least approximate the model originally developed. This position is a compromise between two extremes: on one hand, Maruyama and McGarvey (1980) adhere to the strict confirmatory nature of the modeling and would allow minimal tampering with the model (p. 508), and, on the other, Isaac, et al. (1980) began with all error variances fixed at zero and then proceeded to alter the model step-by-step until reaching a reasonable solution (p. 203); this still did not provide a significant chi-square.

The reconstituted model is specified in Figures 7a and 7b. Figure 7a shows the new theoretical (circles) and measurement (rectangles) models. Figure 7b contains the complete model with errors specified and in notational form. The parameters are defined in Table 7. Again, a correlation matrix will be used as the input matrix, containing only the measurement variables used in the second model. This matrix--a reduced form of the matrix contained in Table 5--is contained in Table 8.

Results of the Second Model

The second model provides a much improved fit of the data to the model. This model is an acceptable fit and, therefore, will be used for testing the hypotheses. It is an acceptable fit based on all the criteria set up to test the fit of the model. Complete results of the analysis are contained in Tables 9a and 9b.

The Second Model and the Six Criteria

Like the first model, the second was acceptable on the first three criteria. It received no error statement; so one assumes that the model

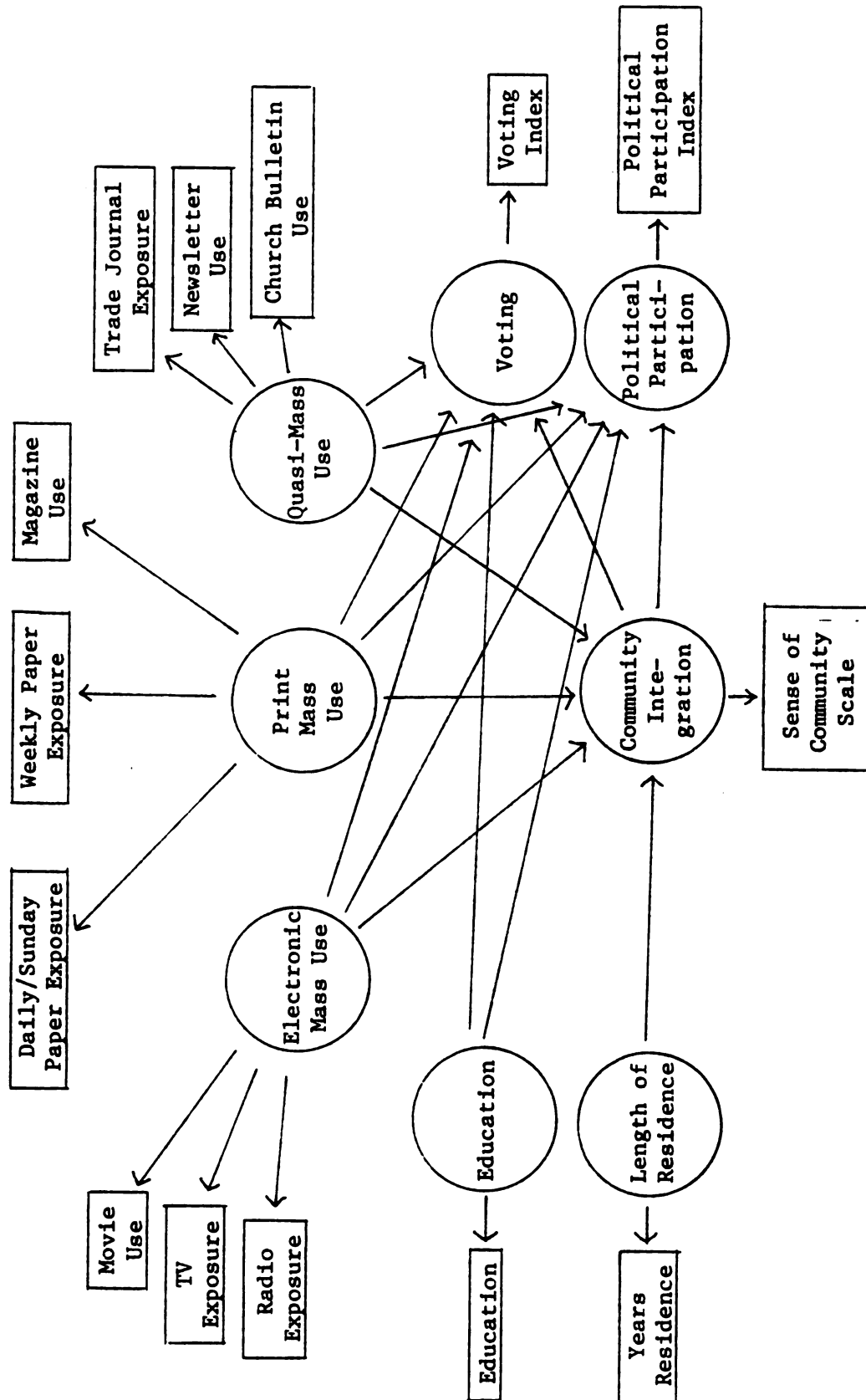


Figure 7a.--Basic theoretical and measurement model for model two

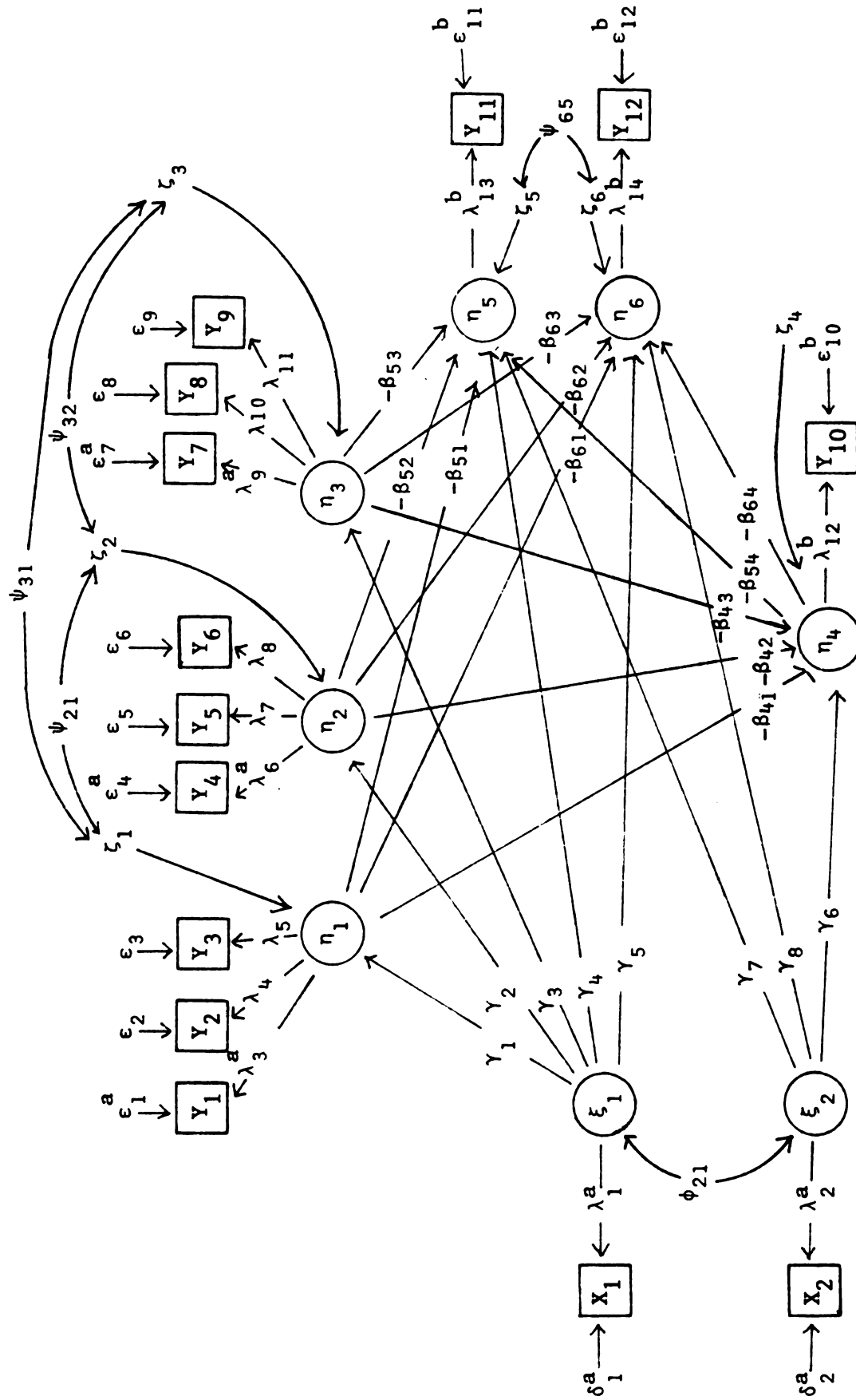


Figure 7b.---Theoretical and measurement model with notation (See Tables 1 & 7 for definitions)

^aindicator fixed at 1.0; error fixed at 0.0 ^bindicator fixed other than 1.0; error fixed other than 0.0

Table 7.--Parameters and theoretical and measurement variables for model in Figure 7b

Theoretical Model		Measurement Model	
Parameter	Variable	Parameter	Variable
EXOGENOUS:			
ξ_1	Education	X_1	Formal education
ξ_2	Length of residence	X_2	Years living in community
ENDOGENOUS:			
η_1	Electronic mass media use	Y_1	Radio exposure
		Y_2	TV exposure
		Y_3	Movie use
η_2	Print mass media use	Y_4	Daily/Sunday newspaper exposure
		Y_5	Weekly newspaper exposure
		Y_6	Magazine use
η_3	Quasi-mass media use	Y_7	Trade/professional journal exposure
		Y_8	Newsletter use
		Y_9	Church bulletin use
η_4	Community integration	Y_{10}	Sense of Community Scale
η_5	Voting behavior	Y_{11}	3-item voting index
η_6	Political participation	Y_{12}	4-item index

Table 8.--Correlation matrix of measurement model variables in Figure 7b (decimal points omitted)

[illegible]

Table 9a.--LISREL estimates for the theoretical model in Figure 7b
(t-values in parentheses)

Coefficient	Unstandardized	Standardized	Residual	Variance
ϕ_{21}	-.21(-9.39)*	-.21	ζ_1	.92(4.73)*
γ_1	.12(6.09)*	.29	ζ_2	.74(4.51)*
γ_2	.14(7.77)*	.51	ζ_3	.71(6.04)*
γ_3	.23(11.67)*	.54	ζ_4	.70(10.58)*
γ_4	.19(3.29)*	.19	ζ_5	.08(0.69)
γ_5	.02(0.22)	.02	ζ_6	.41(4.36)*
γ_6	.31(10.60)*	.31		
γ_7	.39(10.27)*	.40	ψ_{21}	.16(2.35)*
γ_8	-.08(-1.83)	-.08	ψ_{31}	-.01(-0.16)
			ψ_{32}	.35(5.13)*
$-\beta_{41}$	-.80(-3.78)*	-.34	ψ_{65}	.09(1.34)
$-\beta_{51}$	-1.78(-4.29)*	-.76		
$-\beta_{61}$	.30(1.17)	.13		
$-\beta_{42}$	.49(1.44)	.14		
$-\beta_{52}$	1.27(2.69)*	.37		
$-\beta_{62}$	1.12(2.50)*	.32		
$-\beta_{43}$	.71(3.25)*	.30		
$-\beta_{53}$	.84(2.80)*	.36		
$-\beta_{63}$	.95(2.96)*	.40		
$-\beta_{54}$	-.03(-0.35)	-.03		
$-\beta_{64}$	.19(2.45)*	.19		

* $p \leq .05$

Table 9b.-- LISREL estimates for measurement model in Figure 7b
(t-values in parentheses)

Coefficient	Unstandardized	Standardized	Residual	Variance
λ_1	1.00 ^a	1.00	δ_1	0.00 ^a
λ_2	1.00 ^a	1.00	δ_2	0.00 ^a
λ_3	1.00 ^a	.43	ϵ_1	.82(19.92)*
λ_4	.08(1.12)	.04	ϵ_2	.99(30.20)*
λ_5	.72(8.11)*	.31	ϵ_3	.91(26.58)*
λ_6	1.00 ^a	.29	ϵ_4	.92(28.30)*
λ_7	.65(5.13)*	.19	ϵ_5	.97(29.46)*
λ_8	2.18(7.89)*	.62	ϵ_6	.62(12.12)*
λ_9	1.00 ^a	.42	ϵ_7	.82(25.06)*
λ_{10}	1.10(10.82)*	.47	ϵ_8	.78(23.31)*
λ_{11}	.66(8.00)*	.28	ϵ_9	.92(28.46)*
λ_{12}	.77 ^a	.76	ϵ_{10}	.41 ^a
λ_{13}	.85 ^a	.84	ϵ_{11}	.28 ^a
λ_{14}	.58 ^a	.58	ϵ_{12}	.66 ^a

^aCoefficient fixed by program, t-values not appropriate

*p<.05

$\chi^2=497.79$; df=60; p<.05

$R^2_{\text{voting}}=.92$

$R^2_{\text{political participation}}=.59$

is correctly specified. And the first order derivatives for the fixed parameters are zero (rounded to three decimals). Although the χ^2 decreased to 498, degrees of freedom also decreased to 60 and the probability level is still $<.0001$. But once again this is due to sample size. A sample size of 200 in this case would result in a χ^2 of 54 and $p >.05$. The test of the relative improvement in the fit of the model is based on the change in χ^2 from model one to model two. That change is $999 - 498 = 501$ with change in degrees of freedom of $103 - 60 = 43$. This is a significant change in χ^2 ($p <.05$) which indicates a genuine improvement in the fit of the model to the data rather than a chance variation.

It is the final three criteria, though, that conclusively demonstrate that the new model is a major improvement and a good fit of the data. There is considerable improvement in the residuals. Only eight residuals are above $\pm .10$ and only one is above $\pm .20$. The mean absolute residual is .035 and the mean absolute correlation is .097 giving a ratio of .35, lower than that of the first model and close to that of Maruyama and McGarvey's .33.

Perhaps the most impressive change is for the explained variance in the political activity variables. Explained variance has increased dramatically to 92 percent and 59 percent for voting and political participation, respectively.

Finally, this is a model that has useful coefficients. All except one of the free indicators and most of the path coefficients are significantly different from zero. This arises from increased t-values which are related to a relative reduction in standard errors for the coefficients.

These results do not mean that there is no better model to fit the data. In fact, there are still problems with the residuals associated

with years residence; almost half of the large residuals are for relations with years residence. And changes in error specifications might yield a better fit. But these changes would involve some major changes in the theory. So for the present the second model is deemed acceptable.

Having succeeded in developing a relatively good fit for the overall model, we can now turn to examination of the results presented by the LISREL estimates. These results are contained in Tables 9a and 9b, and the standardized estimates are entered into the model in Figure 8.

Tests of Hypotheses

Because we have eliminated interpersonal use as a theoretical variable in the model several hypotheses or parts of hypotheses are not tested at this time. They are: H2c, parts of H4a, H4b, H4c, H4d, H4e, H4f. Hypothesis 2c is dropped completely. The rest are retained with the elimination of reference to interpersonal use. For example, H4e use to read: "Quasi-mass and interpersonal use are stronger predictors of political participation than is mass use;" it will now read: "Quasi-mass use is a stronger predictor than is mass use." Because we have split mass use into two parts, hypotheses that employ mass use should be read as including both electronic and print mass use.

With sufficient variance explained by the model we presume that two of the three conditions for causal relations: 1) time ordering as proposed by the theory, and 2) elimination of other factors through a sufficiently large amount of explained variance. Now we can test the third, and final, condition, existence of a relation, by examining the model coefficients.

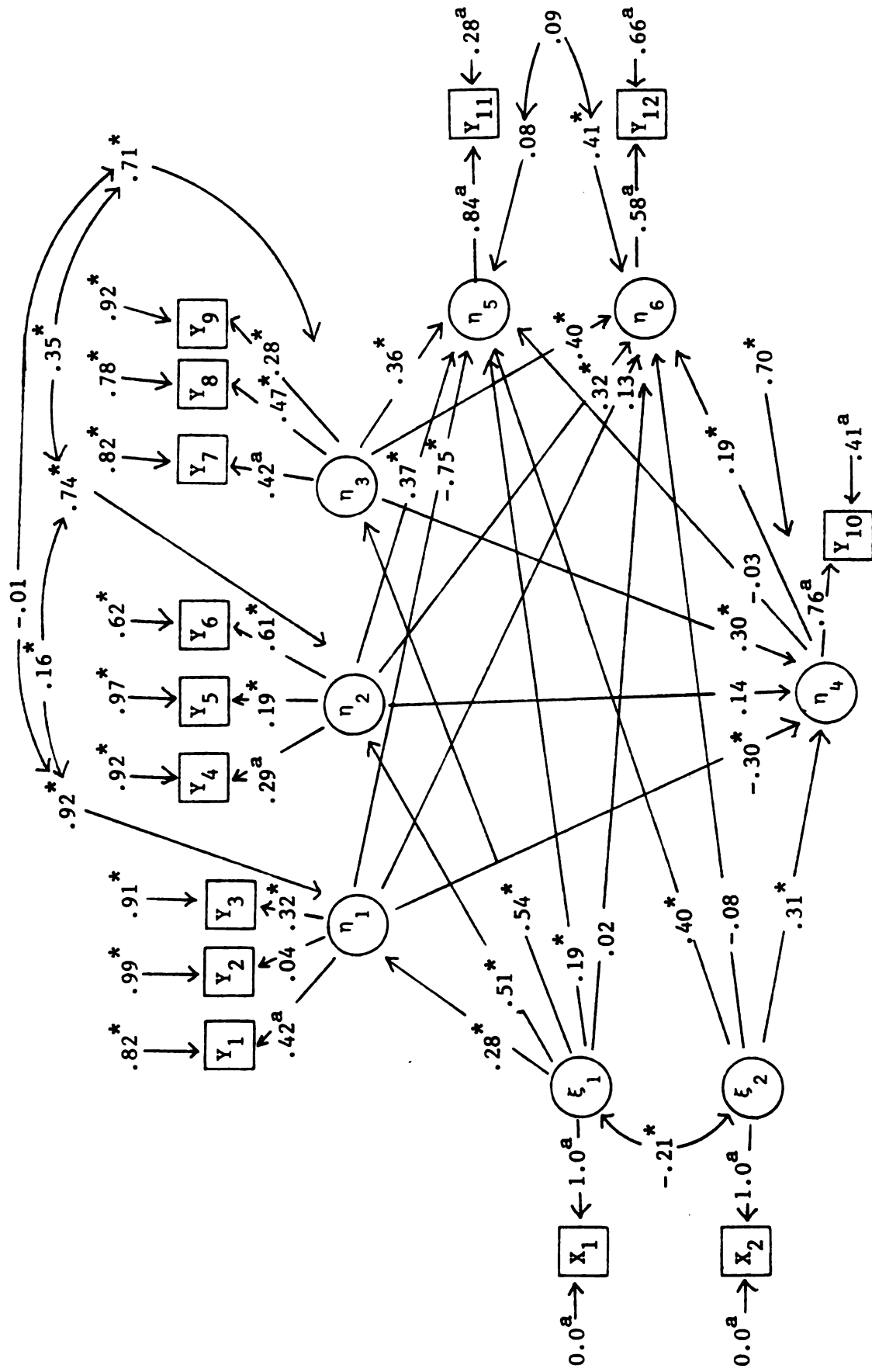


Figure 8.--Model two with standardized LISREL estimates (^avalue fixed by program; * $p < .05$)

Comparing Coefficients

Some hypotheses deal with the relative strength of the causal relations. These are important hypotheses since they attempt to show not only relations, but which media use is more important for which type of social function. Therefore, it is wise to discuss how these coefficients will be compared.

Where one coefficient is significant and another is not, the comparison is easy, the significant coefficient is the stronger. (This has been done by Acock and Scott, 1980, p. 68-69.) Acock and Scott proceed to point out the difficulty of stating that one coefficient is greater than another when both are significant. Measurement error may mean the two are the same. Keeping this thought in mind, i.e., being cautious about stating one coefficient being stronger where the coefficients are both significant and about the same absolute value, we will, nonetheless, treat the coefficient with the larger absolute value as stronger. Where the relative strength of coefficients fits the theory, the relation serves to provide further support for similar research findings. (With such appropriate caution, this is how Maruyama and McGarvey, 1980, p. 510, treated coefficients of similar strength.)

Predictors of Political Activity

H1a to H1d

These four hypotheses deal with media use as a predictor of political activity. The first is

H1a: Media use (print mass, electronic mass and quasi-mass) is a direct cause of voting.

All three are significant predictors of voting. Print mass use and quasi-mass use are positive predictors ($-\beta = .37$ and $.36$, respectively), but electronic mass use is a negative predictor ($-\beta = -.75$). The null hypothesis of H1a is rejected.

The second hypothesis states:

H1b: Media use is a direct cause of political participation.

Two of the three types of use are significant: print mass use ($-\beta = .32$) and quasi-mass use ($-\beta = .40$). However, electronic mass use is non-significant ($-\beta = .13$). The null hypothesis cannot be rejected for H1b as far as electronic mass use is concerned, but it is rejected for print mass and quasi-mass.

The next two hypotheses deal with the relative strength of one type of media use over another in predicting political activity:

H1c: Mass use (print and electronic) is a stronger predictor of voting than is quasi-mass use.

H1d: Quasi-mass use is a stronger predictor of political participation than is mass use.

All three types of media use are significant predictors of voting. Electronic mass use has the largest absolute coefficient, but it is negative. Print use and quasi-mass have virtually the same coefficient. We cannot reject the null hypothesis for H1c. However, it is clear that electronic mass use is the strongest predictor, and the fact that it has a negative sign while print use is positive suggests that this hypothesis needs some revision.

For predictors of political participation there is a problem between print and quasi-mass use. Both have significant predictors ($-\beta = .32$ and $.40$, respectively), but quasi-mass use is only slightly higher than

print use. Electronic mass use has a nonsignificant coefficient ($-\beta = .13$). Since quasi-mass is clearly stronger than electronic mass use and slightly stronger than print mass use, we will reject the null hypothesis for H1d, but we will keep in mind the closeness of print and quasi-mass.

H2a and H2b

These hypotheses predict that community integration is a cause of political activity:

H2a: Community integration is a direct cause of voting.

H2b: Community integration is a direct cause of political participation.

The coefficient between community integration and voting is nonsignificant ($-\beta = .19$). The null hypothesis for H2a is retained while that for H2b is rejected.

H3a and H3b

These hypotheses predict that education is a cause of political activity:

H3a: Education is a direct cause of voting.

H3b: Education is a direct cause of political participation.

The coefficient between education and voting is significant ($\gamma = .19$), but the coefficient between education and political participation is nonsignificant ($\gamma = .02$). The null hypothesis for H3a is rejected while the null for H3b is retained.

Predictors of Other Endogenous Variables

H4a to H4c

These three hypotheses predict relations between education and the media use variables:

H4a: Education is a direct cause of mass media use (electronic and print).

H4b: Education is a direct cause of quasi-mass use.

(NOTE: H4c was dropped because it only refers to interpersonal use.)

Education is a significant predictor of all types of media use in the model: electronic ($\gamma = .28$), print ($\gamma = .51$) and quasi-mass ($\gamma = .54$). The null hypotheses are rejected for H4a and H4b.

H5a to H5c

This final set of hypotheses deals with predictors of community integration:

H5a: Length of residence is a direct cause of community integration.

H5b: Media use (electronic, print and quasi-mass) is a direct cause of community integration.

The null hypothesis for H5a is rejected since the coefficient for length of residence is significant ($\gamma = .31$). There are mixed results for H5b. Both electronic mass and quasi-mass are significant predictors, but electronic is a negative predictor ($-\gamma = -.30$) while quasi-mass is an equally strong positive predictor ($-\gamma = .30$). Print mass use is non-significant ($-\gamma = .14$). For electronic and quasi-mass use the null hypothesis for H5b is rejected. It is not for print use.

The final hypothesis predicts quasi-mass to be a relatively stronger predictor of community integration:

H5c: Quasi-mass use is a stronger predictor of community integration than is mass use.

As predictors of community integration, quasi-mass is the strongest positive predictor. Print has a nonsignificant coefficient. But the absolute strength of electronic mass use is the same as quasi-mass, only its sign is negative. If we are looking for the strongest positive predictor of community integration we would reject the null hypothesis. Remember that mass use was expected to reduce trust in the community and have a negative effect which it did.

Other Results

Besides tests of hypotheses there are other results that need to be explored.

Only one of the indicators of any type of media use is nonsignificant, and it is by far the weakest indicator: TV exposure ($\gamma = .04$). This indicator is almost all error ($\epsilon = .99$) suggesting that it is relatively useless as an indicator of electronic mass use.

In the second model length of residence was allowed to predict the political activity variables along with education even though there was no hypothesized cause. Interestingly, both variables were significant predictors of voting, but both were also nonsignificant predictors of political participation.

Examination of the correlations of the residuals (ψ s) also leads to some interesting conclusions. Correlated error between the two political behavior variables is nonsignificant, and most of the variance in political

participation and virtually all in voting (given measurement error) is explained by the model. This suggests that indeed we have tapped independent variables. This supports the theoretical notion that voting--a private mass cultural phenomenon--is different than other types of political activity that involve public action and more interpersonal commitment.

The covariance of errors between electronic mass and print mass is significant. So is that between print mass and quasi-mass, while that between electronic mass and quasi-mass is not. This indicates that there may be some underlying, untapped relation between print and electronic and between print and quasi-mass. This underlying relation is not the same across all three since the correlated error between electronic and quasi-mass is nonsignificant. Perhaps the relation is the "massness" between print and electronic and the "printness" between print and quasi-mass (all three quasi-mass indicators are print oriented). It would be interesting to see if errors would correlate had quasi-mass included several electronic media.

One must also note the large measurement errors associated with the indicators of media use, especially electronic. The larger measurement errors may be associated with the relative precision of the measures. Remember that the coefficients are measures of reliability (Acock and Scott, 1980; Allen, 1981), and that measures with higher precision are generally accorded lower reliability estimates (Woelfel and Fink, 1980, p. 91). The electronic and print measurement indicators were measured in minutes or in numbers seen or read while church bulletin and newsletter use were measured as simply did or did not. Those more precise measures, to some extent are accorded lower reliability, i.e., lower

coefficients in the model.

Indirect Effects

Indirect effects are calculated by multiplying the standardized coefficients for the paths of interest (Acock and Scott, 1980, p. 69). Most of the indirect effects are negligible, providing coefficients less than .07. However, a few of the paths draw our interest. These are all indirect effects of education on political activity through media use.

The indirect effect of education on voting is as strong as its direct effect. Through print mass use it is .19 ($.51 \times .37 = .16$) through quasi-mass it is also .19 ($.54 \times .36$). However, the indirect effect through electronic mass use is now negative ($.28 \times -.75 = -.21$). Overall, then, education is a positive cause of voting even when mediated through print and quasi-mass use. But it can rebound to a negative effect if mediated through electronic mass media.

While there was no direct effect of education on political participation, there was an indirect effect through print and quasi-mass media ($.51 \times .32 = .16$ through print use; $.54 \times .40 = .22$ through quasi-mass use).

Summary of Results

The original model proposed in Chapter II. proved to be a poor fit of the data. A second model provided an adequate fit, requiring, however, alteration of the model: eliminating the interpersonal use variable and splitting mass use into electronic and print mass use.

Based on the LISREL analysis of the second model the following results were obtained: 1) mass media use is generally a better predictor of voting while quasi-mass use is a better predictor of political participation and community integration; 2) education is a significant predictor of voting but not of political participation; 3) community integration is a significant predictor of political participation but not of voting.

Generally, the media use variables were significant predictors of community integration and political activity. However, electronic mass use was a negative predictor of voting and community integration.

In results of the model not related to the hypotheses, there was a large amount of measurement error. In addition, correlated error suggested that there are underlying factors across the media use variables. However, the lack of correlated error between residuals of the political activity variables indicates these variables are relatively independent.

Indirect effects indicate that the media use variables are useful as mediators of the effect of education on political activity. Indirect effects through the media on voting were as strong as the direct effect of education on voting. Further, though there is no significant direct effect of education on political participation there was an indirect effect through print and quasi-mass use. This indirect effect was as strong as or stronger than some other significant direct effects.

The implication of these results will be discussed in the next chapter.

CHAPTER V

DISCUSSION

Having completed the analysis and tested the hypotheses the task now turns to an understanding of the implications of these results. This chapter will approach the results in the same order as did the theoretical chapter (Chapter II). First, we will explore the causes of political activity dealing separately with mass use, quasi-mass use, community integration and education as causal predictors. Second, causes of these predictor variables, media use and community integration, will be discussed. Third, other results and the general role of the media will be discussed. Fourth, suggestions for future research will be presented. And finally, a concluding statement will focus on media use effects as part of a general social process, and the importance of including quasi-mass media in that process.

Causes of Political Activity

Mass Media

The conclusion about the effects of mass media use on political activity in Chapter II was that mass media could be regarded as positive predictors of voting and political participation, but that their role was one of reinforcement, keeping the loyal loyal, reinforcing already held

political party or candidate biases. This general effect would be one where mass media are useful for promoting already held mass cultural beliefs in the population.

In this study print mass use was the positive predictor of both types of political activity, while electronic mass use was a negative predictor of voting and nonsignificant as a predictor of political participation. Only print mass use supports the positive effect of mass use on political activity. But this does not mean that the original theoretical notion is incorrect. Remember that many of the studies of the relation of media use to political activity used a different measure of media use than did the present study. Jackson-Beeck (1979), for example, asked respondents whether they had used TV and newspapers for political information; the present study ignored the purpose for which the media were used and focused solely on exposure. Remember also that the question of which was a cause of political behavior, exposure or purpose, was resolved tentatively on the basis of two studies only one of which was a causal analysis.

How does one reconcile the difference between previous studies and the results of the present study? How does mass media use--even TV use--produce a positive effect on political activity in one study and a negative effect in this study? On the surface it would seem simply that the difference is related to the measure one uses for media use. But this is simplistic, and does not offer a synthesis of the two results that one might apply as a single construct in future research. In order to find a way to explain these differences we must explore what could be different about exposure to electronic media when compared to the print media.

One obvious difference is that the electronic media used in the present study may be considered more entertainment oriented while the printed press and magazines are news and information oriented. This might lead us to conclude that it is the use made of a medium that determines its effect on political activity. TV use has been a positive predictor of voting when it was measured as a source of campaign information (See Jackson-Beeck, 1979). A recent study of children's socialization toward political activity by Conway, et al., (1981) tried to separate mass use--the measure was the news purpose to which the medium was put--into print and electronic components. They were unsuccessful in separating mass use, finding the two components too intercorrelated. But they also found mass use was a positive predictor of political socialization. Luckily, Conway, et al. did a path analysis that included reciprocal paths between media use and political knowledge. They found that both paths were significant predictors of political participation. This study, then, supports the few other studies that show that to a great extent political commitment leads to specific uses of media rather than specific uses being the major cause of political behavior. Keep in mind also that in the present study the measure for print was the same as for electronic: exposure. The difference was discovered even though the intent of use was not incorporated into the measure. But content can still be an important factor if intended use is not the relevant factor, but instead incidental learning through simply being exposed to a medium underlies the effect.

McPhee (1963) notes the existence of "natural learning" from mere exposure. He described a test of learning announcers' names from exposure to a radio program. It would take nearly forty exposures for the majority

of the population to know all the names. So in terms of incidental acquisition of attitude or information, exposure is a major component and should not be ignored.

The results for mass electronic and print use suggest that exposure is a useful explanatory component, but that the content difference of various media may lead to different effects. These effects would not be realized without exposure, and incremental exposure would have incremental effects (not necessarily linear).

This leads to a theoretical position that is somewhat different than positing either exposure as the only relevant measure or intended use as the only relevant measure. The relevant measure would include elements of exposure and content. But to say that print has only one content orientation would be misleading. This study used print variables that are generally thought of as information oriented, newspapers and magazines. Other mass print media, comic books or mystery novels, may not have the same orientation and may not produce the same effects on political activity. Likewise, the electronic media considered in this study were entertainment oriented, but the same effect may not have been produced had the electronic medium been teletext.

Mass media then are still to be considered causes of political activity, but the positive or negative effect is determined by the informational nature of the medium rather than the use to which the medium is put. From a measurement perspective media use should be an amalgamation of a content component and an exposure component. There are still other perspectives on the factors underlying the effects of media use. These will be considered along with the general roles of the different

types of media use after discussing other predictors of political activity and predictors of community integration.

Quasi-mass Media

The posited effects of quasi-mass media use on political activity were based on the more personal nature of quasi-mass media use, i.e., since quasi-mass allows more personal interaction it should be more useful for the type of political activity requiring more personal involvement. While this notion was supported for political participation, quasi-mass also proved to be a strong positive predictor of voting, almost as strong as print mass use.

If all types of political activity are considered social phenomena then these results support the theoretical notion that use of quasi-mass media enhances social interaction and thus encourages political activity. Notice that this differs from the reason print mass use had a positive effect. For the mass media the positive effect may be from the information acquired due to exposure to the media whereas for quasi-mass media the effect is from increased social interaction.

The relative usefulness of mass versus quasi-mass media use for each of the two types of political activity helps make the distinction between the reasons for effects from the two types of media use more clear.

Mass vs. Quasi-mass Effects

Mass use was originally hypothesized to be a stronger predictor of voting than quasi-mass while the opposite was proposed for political participation. This was based on theoretical differences in the nature

of these media. Mass media were seen as more distant, less interactive, and, therefore, more useful for the type of political activity requiring the least social interaction: voting. Quasi-mass, however, offers more interaction and is more useful for political participation.

While the results are mixed because of the difference in effects by electronic mass and print mass and the closeness of the coefficients for print mass and quasi-mass, taken as a whole the results support the postulated differences in effects of mass and quasi-mass media use. Even though negative, electronic mass use was the strongest predictor of voting, and print use had a slightly higher coefficient than quasi-mass. For political participation quasi-mass had the highest coefficient, clearly larger than electronic mass which was nonsignificant, and slightly larger than the print mass coefficient.

These results fit the general theoretical notion that voting is a private, mass phenomenon, requiring little personal commitment while political participation requires some public display of one's political beliefs. Predictors of these political activities should correspond to the personal commitment requirements of these activities, i.e., stronger predictors of voting should be those involving less personal interaction while predictors of political participation should offer more opportunities for such interaction. Such was the case in this study: the mass use variables--those with less interaction opportunities--were better predictors of voting, and quasi-mass--an indicator of more personal involvement--was a better predictor of political participation.

The effects of the different types of media use on social phenomena can be stated more generally. But this will have to wait until the results of the effects of media use on community integration are discussed, below.

Community Integration

As an indicator of how much one was involved in the community, community integration was hypothesized to be a direct cause of both types of political activity. It turned out to be only a significant predictor of political participation.

If one treats political participation as requiring more social interaction, as we have in the discussion so far, then it follows that community integration ought to be a better predictor of political participation than it is of voting. This is what the results support.

This supports a generalization that social phenomena requiring more personal interaction are better predicted by variables that allow for such social interaction. This generalization is discussed, below, where the general role of media is explored.

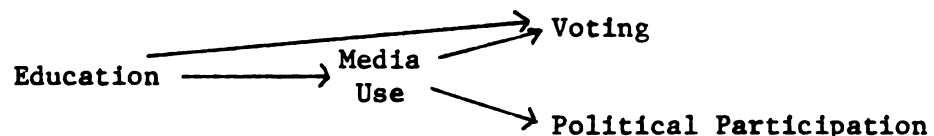
Education

The generalization made by Kraus and Davis (1976) that education was the only consistent demographic predictor of political activity was taken as the theoretical perspective of this study. The results showed that indeed education was a significant cause of voting. But other results confound the strict limitation of education as the only predictor or as a predictor of all political activity.

Education was not the only significant demographic predictor of voting. Length of residence was a significant and stronger cause of voting. Notice that the relation between education and length of residence is significant although negative ($\phi = -.21$). There is obviously a lot of covariation between these two variables. This relation might be explained through a third component. Remember that

in predicting community integration we selected residence over age which also had been shown to be a strong predictor of community integration. Perhaps for purposes of a process model age ought to be included. This might help explain variance in both education and length of residence. Still length of residence cannot be ruled out as a cause of political activity. It just never appeared in previous literature because the researchers concentrated on traditional measures of socio-economic status: age, education, income and occupation. The least that is suggested here is that other demographic predictors should be explored as possible causes of political activity.

But education still has an effect on political participation even though its direct effect is nonsignificant. It has an indirect effect on political participation through media use. The indirect effect through quasi-mass media was stronger than the direct effect of education on voting. Further, the indirect effect of education on voting was stronger than its direct effect. This underscores the importance of including media use in a model of demographic effects on political activity. The direct effects of education may not be as important as the indirect effects. This leads to a proposed model of the effects of education on political participation and voting:



Although this model has been presented by Kraus and Davis (1976) for general political activity no one has noted its importance for political participation where education has no direct effect.

Causes of Community Integration

Although it was hypothesized that length of residence would be a direct cause of community integration--which it turned out to be--the primary interest was in how different types of media use would affect community integration. From the idea that communities are social systems comes the theoretical notion that those media that allow for more social interaction would possess the greatest potential to be useful community communication channels. Indeed, it was also discussed that the introduction of mass media into a community can actually reduce feelings of belonging. The results for this part of the model show the clearest distinction among media types. Quasi-mass was the only significant positive predictor. Electronic mass use was also a significant predictor but it was negative. Print use was non-significant. This fits with our theoretical notion that the mass media would be negative predictors because they would engender less trust in the local community. Vidich and Bensmen's (1977) explanation of the mechanism for causing this lack of trust is that the mass media are imported. If the local-extralocal nature of the medium is a decisive factor it can help explain the results. Electronic media should cause the least trust since they are the least likely to be locally originated--movies and network TV programs, for example, are imported; print mass should be somewhere in the middle since some, newspapers, originate locally while others, magazines, come from outside the community; and quasi-mass should engender the most trust since church bulletins and many newsletters originate locally, and since all three indicators of quasi-mass are open to input from members of the local community.

There is little to change in the theoretical notions about the effects of media use on community integration. However, one should note that electronic mass is a stronger negative predictor while print mass just has no effect. This might be explained if we examine the general role of media in predicting social phenomena and the further perspectives one might have for measuring media use.

Measuring Media Effects

The Role of Media

The roles for the media in this study can be stated generally and simply: mass cultural phenomena that tend to maintain the anonymity of the individual are more strongly predicted by mass media; phenomena requiring more personal involvement and public scrutiny are more strongly predicted by quasi-mass media. There is, however, a limit to this generalization. Because the print and quasi-mass coefficients were so close in a couple of cases, and because the correlated residuals indicate another underlying component to media use, we must allow that mass-quasi-mass distinctions are not the only important factors in differentiating media.

Measuring Media Use

The fact that both print mass and quasi-mass measures contain a print component could explain the similarity of their coefficients in predicting the two types of political activity. One might be tempted to believe that print versus electronic was the relevant predictor rather than mass versus quasi-mass differences. One might then conclude that

print of all types (whether mass or quasi-mass) should be combined. However, the effects of mass use on community integration argue against this. For community integration quasi-mass is the stronger positive predictor; print mass is nonsignificant. Keep in mind that error with print mass is also correlated with the error of mass, and the error of electronic mass use is not correlated with that of quasi-mass.

Maybe what needs to be considered is the multidimensional nature of media use. Perhaps it cannot be identified and measured merely on the basis of its position on the mass-interpersonal continuum, or for that matter on the basis of its print-electronic orientation (or purely on the basis of its content, as discussed, above). A better measure for future studies would combine two or more of these relevant dimensions: where is a medium on the mass-interpersonal dimension? Where is it on the electronic-print dimension? Where is it on an entertainment-information dimension? Other relevant dimensions may be: local versus extra local orientation, general versus specialized media. The grouping of indicators of media might be far different if another dimension is added. One might find, for example, that radio and church bulletins are closer than radio and movies if a local-extralocal dimension is added to mass-interpersonal.

One might even venture so far as to let the population under study determine the relative clustering of media rather than through a priori (and somewhat arbitrary) definitions of the researcher. Woefel and Fink (1980) have developed a method for determining the relative positions of concepts in conceptual space. This method is called "Galileo." One could let a sample of respondents determine the distances between a set of media--TV, radio, newsletters, etc., and a set of other concepts--mass, personal, local, print, etc., and let the clustering of media in

conceptual space determine how they will be clustered for the analysis. The nearness of a cluster to the concepts then can help define the relevant characteristics that make a set of media cluster together and one set differ from another.

Whatever the ultimate relations discovered, the results of this study argue for retaining the distinctions based on the mass-interpersonal continuum, keeping exposure as a relevant element of measuring media use, but looking for other components of their measures.

Future Research

Research on the effects of media use on political activity should keep in mind the results of this study. First, future research should treat communication and political activity as a social process. The study of the relation of mass media use to voting, for example, should not be observed in a vacuum, but in relation to other variables such as those that have shown themselves to be useful in this study; quasi-mass use, community integration and education. Second, the results of this study should not be considered limiting but should suggest avenues of exploration. Though this study used exposure as the basis of measurement, it does not rule out other factors as bases of measurement. Interpersonal media should be included in future studies to explore the full range of media use. The multidimensional nature of the media use variables should be incorporated into their measure. And, of course, other indicators of the theoretical variables should be examined--this study limited itself to print quasi-mass media.

Although not directly tested in the present study, effects of new communication technologies can be inferred from the results. As discussed

in Chapter I, most of the new communication technologies arise from a need for more specialized media or in-and-of-themselves are narrower (as opposed to mass) uses of traditional mass media. For example, cable television offers the opportunity for more specialized, more local, more interactive channels than does traditional broadcast television. If these media fall into the quasi-mass part of the communication continuum then one would expect their effects to be similar to those found for the quasi-mass media in this study, i.e., they would be more useful for promoting social or political activity that involves more personal interaction. As these new technologies become more widespread and as access to them increases future research should assess the effects of these new media upon political activity along with the traditional assessment of mass media effects.

In addition to the media use predictors, a complete model of political activity needs to branch out beyond voting and voting-related activities. Political activity such as protest and revolution has been linked to differing uses of various types of media (See Reagan, 1981). A complete model would include the full range of political activity.

Of course, a major drawback of this study, and of social science research in general, is large measurement error. This is especially true of the media use indicators in the present study. More precise measures are generally considered desirable, but greater precision may alter the relations in this model by actually increasing the estimates of error since the model operates as if the coefficients of the indicators are reliability estimates (Acock and Scott, 1980; Allen, 1981). The problem encountered between reliability and precision is discussed by Woefel and Fink (1980, p. 91).

Miller (1978) has also criticized the measurement of interpersonal communication as exposure to interpersonal incidents like face-to-face encounters. He suggests that mere exposure is insufficient to measure interpersonal communication. A chance encounter for a few minutes with an acquaintance is not the same as a purposive meeting between friends. This supports the suggestion made in the previous section that mere exposure is not the only factor involved in media use.

A further criticism of using exposure as the measure of media use comes from McLeod and O'Keefe (1972). They note that assessing media exposure tells us nothing about the "why" of the exposure. But they also note the shortcomings of other perspectives: gratifications perspectives assume people know why they use media or will tell the truth if they do know; categorical approaches are limited by the fact that communication researchers cannot agree on what constitute relevant categories. The approach best suited seems to be a combination of several perspectives. But most research ignores this. See, for example, the studies noted earlier which used various definitions of political participation and media use (Welch, 1977; Jackson-Beeck, 1979).

Conclusions

The Model as Process

While it is intriguing to look for simple relations between a few variables--for example, to try to predict voting behavior on the basis of mass media use--it makes more sense to look at a host of social indicators that can lead to a host of behaviors. McLeod and O'Keefe (1972) argue that controlling for social variables, as occurs in experimental manipulations to test for communication effects on attitudes,

artificially creates a situation that inflates the importance of the observed variables relative to other possible causes. They propose that communication studies take place in the "real" world, affected by the presence of other intervening and coactive variables (as do McPhee, 1963; and Chaffee, 1972).

This study has attempted, to some extent, to reflect that "real" world by allowing the process of communication effects to take place in a model that allows such coaction and that takes into account other possible causes. The importance of doing this can be seen specifically in the change in importance of the relation between community integration and voting. The original correlation matrix (Table 5) shows that the highest correlation is between sense of community and voting. Yet when the LISREL analysis is performed the coefficient between community integration and voting is nonsignificant. When other effects are taken into consideration, as well as measurement error, what appeared to be a clear relation has faded.

Likewise, education appears from the correlation matrix to be an especially strong predictor of political participation with a correlation of .266. Yet the analysis shows a nonsignificant coefficient between education and political participation. But this does not mean that education has no effect on political participation since there is an indirect effect through print mass media use and quasi-mass use.

These two examples illustrate the importance of specifying a process model of communication effects. It helps us understand communication within a field of interrelated social phenomena.

The Importance of Quasi-mass Media

This study demonstrates the importance for communication research to include the study of quasi-mass media on its research agenda. Quasi-mass is a useful predictor of social and political activity. Menzel (1971) stated ten years ago that quasi-mass was a neglected area. It remains so today.

As new technologies reshape the nature of our communication media, transforming older broadcast television into specialized entertainment channels along side local access channels and home computer networks, and as we see expanded access to the inexpensive uses of print media--posters, flyers, newsletters--for political party use, local neighborhood association bulletins and political activist handouts, one cannot ignore the possible impact this may have on our political arena.

APPENDICES

APPENDIX A

STUDY QUESTIONNAIRE

This is not the full questionnaire used for the Media Environment Study. Only a portion of the 45 page questionnaire contained questions used to measure variables for the present study. Therefore, representative questions only are provided.

Demographics

The following questions were used to assess demographic characteristics, including sample description statistics:

First of all, how long have you lived in the <u>(CITY NAME)</u> area?		(EXACT RESPONSE OF RESPONDENT)
Do you own or rent this place	Own	1
	Rent	2
	Refused/Don't Know	8
Are you married?	Yes	1
	No	2
	Refused	8
How much formal education have you completed?	Less than 8th	1
	Through 8th	2
	Some high school	3
	High school diploma.....	4
	Some college	5
	College degree	6
	Postgraduate work.....	7
	Graduate degree.....	8
Refused/Don't Know	9	

Would you please tell me your age?

(NUMBER)

Refused/Don't Know 99

Here is a card with several categories of income on it. (HAND SHOW CARD V TO RESPONDENT). Would you please tell me the letter corresponding to the category which best represents the total annual household income here?

A	B	C	D	E	F	G	H	I	J	K
01	02	03	04	05	06	07	08	09	10	11

Refused/Don't Know..... 88

CARD V

A	\$0 = \$4,999
B	\$5,000 - \$9,000
C	\$10,000 - \$14,999
D	\$15,000 - \$19,999
E	\$20,000 - \$24,999
F	\$25,000 - \$29,999
G	\$30,000 - \$34,999
H	\$35,000 - \$39,999
I	\$40,000 - \$44,999
J	\$45,000 - \$49,999
K	\$50,000 OR OVER

Sex: (BY OBSERVATION)

Male	1
Female	2

Race: (BY OBSERVATION)

White	1
Black	2
Oriental.....	3
Hispanic.....	4
Other	5

(IF UNSURE OF RACE: ASK:)
May I ask your race?

Type of dwelling

Apartment.....	1
House.....	2
Mobile Home.....	3
Other _____	4
(SPECIFY)	

(RECORD)

Rural 1
 Within city limits 2

Media Use

Television exposure was measured by asking respondents how much television they watched on the previous day for several dayparts:

How much time did you spend watching
 TV yesterday morning before 9?

(EXACT STATEMENT OF RESPONDENT)

This question was asked of the following dayparts: before 9:00 a.m., 9:00 a.m. to Noon, Noon to 3:00 p.m., 3:00 p.m. to 6:00 p.m., 6:00 p.m. to 8:00 p.m., 8:00 p.m. to 11:00 p.m., and after 11:00 p.m. The times for these dayparts were summed to compute previous day's TV exposure.

For the previous day TV exposure the following questions was asked:

How much time did you spend watching
 TV last Saturday (Sunday) before 9?

(EXACT STATEMENT OF RESPONDENT)

This question was asked for each of the same dayparts that were used for previous day exposure, and the times for these dayparts were also summed to compute previous weekend day's TV exposure.

Radio exposure was assessed using the following question:

How much time did you spend
 listening to radio yesterday
 from 6 a.m. until Noon?

(EXACT STATEMENT OF RESPONDENT)

This question was asked for the following dayparts: 6:00 a.m. to Noon, Noon to 6:00 p.m., 6:00 p.m. to midnight, and midnight to 6:00 a.m.

of the present day. These times were summed to compute previous day's radio exposure.

For the previous weekend day the following question was asked:

How much time did you spend
listening to the radio last
Saturday (Sunday) from 6 in the
morning until Noon?

(EXACT STATEMENT OF RESPONDENT)

The same dayparts were used as in assessing previous day's radio exposure. These times were summed to compute previous weekend day's radio exposure.

Time reading a daily newspaper was assessed with the following question:

How much time did you spend
reading a daily newspaper?

(EXACT STATEMENT OF RESPONDENT)

Previous Sunday newspaper use was assessed with:

How much time did you spend
reading Sunday newspapers
last Sunday?

(EXACT STATEMENT OF RESPONDENT)

Weekly paper exposure was assessed with the following questions:

Do you read any newspapers that
only come out once or twice a
week or every two weeks?

Yes 1
No 2
Don't Know/Refused.. 8

(IF YES) How much time did you
spend during the past week
reading these papers?

(EXACT STATEMENT OF RESPONDENT)

Magazine use was computed by counting the number of magazines--both news and other magazines--reported in the following series of questions:

Do you read any weekly news magazines?	Yes..... 1 No 2 Don't Know/Don't Remember..... 8
Which ones? (CIRCLE ALL MENTIONED)	Time 1 Newsweek 1 U.S. News and World Report 1 People 1 Us 1 Other _____
(PROBE: Are there any others?)	
Do you read any other magazines regularly?	Yes 1 No 2 Don't Know 8
(IF YES) Which ones? (ASK: Any others? UNTIL NO MORE MENTIONS) (_____) (_____)	

Book and movie use were assessed with the following questions:

How many books did you read in the last month?	_____ (EXACT STATEMENT OF RESPONDENT)
How many movies did you go to, in theatres, last month?	_____ (EXACT STATEMENT OF RESPONDENT)

Quasi-mass media use was assessed with the following set of questions:

Do you read any professional journals or trade magazines that have information about your job?	Yes..... 1 No 2 Don't Know/Refused/ Not Applicable ... 8
How much time did you spend during the past week reading professional journals or trade magazines? (EXACT STATEMENT OF RESPONDENT)	
Do you read any newsletters; by newsletters we mean anything printed that carries information about organizations or associations, such as labor unions, professional associations, neighborhood groups, etc.?	Yes..... 1 No 2 Don't Know/Refused.. 8
Do you read any church bulletins or religious newsletters?	Yes..... 1 No 2 Don't Know/Refused.. 8
Do you have a citizens band--CB--radio?	Yes..... 1 No 2 Don't Know/Refused.. 8
How many hours did you use your CB last week? (HOURS ROUNDED)	

Interpersonal use was assessed with the following questions:

How many people did you talk with in person yesterday for more than a couple of minutes?	(NUMBER)
--	--

About how many personal, non-business telephone calls did you make yesterday to friends or relatives?

(NUMBER)

Sense of Community

The sense of community scale was presented to respondents in the following manner:

I am going to read some things a person might say about their community. Please indicate how you feel about the statement, whether you "strongly agree," "agree," are "undecided," "disagree," or "strongly disagree" with the statement.

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Undecided</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
I feel a part of this community	5	4	3	2	1
I do not belong in this community	5	4	3	2	1
I feel comfortable living in this community	5	4	3	2	1
I help my neighbors	5	4	3	2	1
I do not know very many people in this community	5	4	3	2	1
I talk to my neighbors a lot	5	4	3	2	1
I know my neighbors	5	4	3	2	1

Voting

The following three questions form the voting index:

Did you vote in the 1976 presidential election?	Yes.....	1
	No	2
	Don't Know/Refused..	8

Did you vote in the last congressional election in 1978?	Yes..... 1 No 2 Don't Know/Refused.. 8
Did you vote in the last local election?	Yes..... 1 No 2 Don't Know/Refused.. 8

Political Participation

The following questions from the four-item political participation index:

Have you ever tried to get people to sign petitions to get an issue on the ballot?	Yes..... 1 No 2 Don't Know/Refused.. 8
Have you ever tried to get people to sign petitions to try to get a party or candidate on the ballot?	Yes..... 1 No 2 Don't Know/Refused.. 8
Within the last two years have you given money, helped canvas or attended rallies for the Democrat or Republican party?	Yes..... 1 No 2 Don't Know/Refused.. 8
Within the last two years have you given money, canvassed or attended rallies for any other political party, independent candidate or issue?	Yes..... 1 No 2 Don't Know/Refused.. 8

APPENDIX B

LISREL MATRIX SPECIFICATIONS FOR FIRST MODEL

In the following matrixes coefficients marked with a zero or a superscript "a" are fixed values. Other values indicate free parameters. These values are the start values for the LISREL analysis.

$$\Lambda_Y = \begin{bmatrix} 1.0^a & 0 & 0 & 0 & 0 & 0 \\ .131 & 0 & 0 & 0 & 0 & 0 \\ .219 & 0 & 0 & 0 & 0 & 0 \\ .159 & 0 & 0 & 0 & 0 & 0 \\ .690 & 0 & 0 & 0 & 0 & 0 \\ .155 & 0 & 0 & 0 & 0 & 0 \\ .146 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1.0^a & 0 & 0 & 0 & 0 \\ 0 & .689 & 0 & 0 & 0 & 0 \\ 0 & .201 & 0 & 0 & 0 & 0 \\ 0 & -.011 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1.0^a & 0 & 0 & 0 \\ 0 & 0 & 0 & .770^a & 0 & 0 \\ 0 & 0 & 0 & 0 & .850^a & 0 \\ 0 & 0 & 0 & 0 & 0 & .580^a \end{bmatrix}$$

$$\Lambda_X = \begin{bmatrix} 1.0^a & 0 \\ 0 & 1.0^a \end{bmatrix}$$

$$\Theta_\epsilon = \text{diag.} \begin{bmatrix} .870 & .980 & .950 & .970 & .520 & .980 & .980 & .960 & .540 & .960 \\ .990 & 0 & .410^a & .280^a & .660^a \end{bmatrix}$$

$$\Theta_\delta = \text{zero}$$

$$B = \begin{bmatrix} 1.0^a & 0 & 0 & 0 & 0 & 0 \\ 0 & 1.0^a & 0 & 0 & 0 & 0 \\ 0 & 0 & 1.0^a & 0 & 0 & 0 \\ .036 & -.064 & -.037 & 1.0^a & 0 & 0 \\ .106 & -.019 & .036 & -.300 & 1.0^a & 0 \\ -.064 & -.117 & -.017 & -.122 & 0 & 1.0^a \end{bmatrix}$$

$$\Gamma = \begin{bmatrix} .047 & 0 \\ .262 & 0 \\ -.008 & 0 \\ 0 & .235 \\ .213 & 0 \\ .315 & 0 \end{bmatrix}$$

$$\Phi = \begin{bmatrix} 1.0 & -.206 \\ -.206 & 1.0 \end{bmatrix}$$

$$\Psi = \begin{bmatrix} .810 & .020 & .020 & 0 & 0 & 0 \\ .020 & .700 & .020 & 0 & 0 & 0 \\ .020 & .020 & .990 & 0 & 0 & 0 \\ 0 & 0 & 0 & .940 & 0 & 0 \\ 0 & 0 & 0 & 0 & .840 & .020 \\ 0 & 0 & 0 & 0 & .020 & .840 \end{bmatrix}$$

APPENDIX C

LISREL MATRIX SPECIFICATIONS FOR MODEL TWO

In the following matrixes coefficients marked with a zero or a superscript "a" are fixed values. Other values indicate free parameters. These values are the start values for the LISREL analysis.

$$\Lambda_Y = \begin{bmatrix} 1.0^a & 0 & 0 & 0 & 0 & 0 \\ .081 & 0 & 0 & 0 & 0 & 0 \\ .811 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1.0^a & 0 & 0 & 0 & 0 \\ 0 & .538 & 0 & 0 & 0 & 0 \\ 0 & 1.691 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1.0^a & 0 & 0 & 0 \\ 0 & 0 & .200 & 0 & 0 & 0 \\ 0 & 0 & .666 & 0 & 0 & 0 \\ 0 & 0 & 0 & .770^a & 0 & 0 \\ 0 & 0 & 0 & 0 & .850^a & 0 \\ 0 & 0 & 0 & 0 & 0 & .580^a \end{bmatrix}$$

$$\Lambda_X = \begin{bmatrix} 1.0^a & 0 \\ 0 & 1.0^a \end{bmatrix}$$

$$\Theta_\epsilon = \text{diag.} \begin{bmatrix} .833 & .990 & .890 & .892 & .969 & .691 & .700 & .772 & .899 \\ & .410^a & .280^a & .660^a & & & & & \end{bmatrix}$$

$$\Theta_\delta = \text{zero}$$

$$B = \begin{bmatrix} 1.0^a & 0 & 0 & 0 & 0 & 0 \\ 0 & 1.0^a & 0 & 0 & 0 & 0 \\ 0 & 0 & 1.0^a & 0 & 0 & 0 \\ .494 & -.212 & -.500 & 1.0^a & 0 & 0 \\ 1.537 & -1.366 & -.096 & -.045 & 1.0^a & 0 \\ -.064 & -.117 & -.017 & -.122 & 0 & 1.0^a \end{bmatrix}$$

$$\Gamma = \begin{bmatrix} .118 & 0 \\ .191 & 0 \\ .227 & 0 \\ 0 & .219 \\ .188 & .207 \\ .315 & .200 \end{bmatrix}$$

$$\Phi = \begin{bmatrix} 1.0^a & -.206 \\ -.206 & 1.0^a \end{bmatrix}$$

$$\Psi = \begin{bmatrix} .153 & .020 & -.029 & 0 & 0 & 0 \\ .020 & .070 & .062 & 0 & 0 & 0 \\ -.029 & .062 & .176 & 0 & 0 & 0 \\ 0 & 0 & 0 & .589 & 0 & 0 \\ 0 & 0 & 0 & 0 & .198 & .020 \\ 0 & 0 & 0 & 0 & .020 & .420 \end{bmatrix}$$

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