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Education, Available Time, and Use of Mass Media

When media use scores are adjusted to remove the effects of role involvement, the correlation between education and media use is positive, even for radio and television. This finding alters some earlier concepts about differences in use of print and broadcast media.

► Throughout the history of communication research, education has been a primary concern in research on communication behavior. The better educated have been found to attend to more media,¹ to read different magazines,² to select different broadcast programs,³ to learn more about public affairs,⁴ and to be less susceptible to cer-

tain kinds of persuasive communication.⁵ In almost any study of relationships, the investigator can expect to find that the number of years of schooling (the usual index of education) is related to some of his key communication variables.

A common finding has been that the more educated person uses the print media more and the broadcast media less than the less educated person.⁶ The finding has been reinforced by the developmental patterns of media use

formed Public," *Public Opinion Quarterly* 13: 105-14 (1951); Merrill Samuelson, "Some News-Seeking Behavior in a Newspaper Strike," Ph.D. thesis, Stanford University, 1960, p. 39.

⁵ Carl Hovland, Irving Janis and Harold Kelley, *Communication and Persuasion* (New Haven: Yale University Press, 1953), ch. 4.

⁶ Lazarsfeld and Kendall, *op. cit.*; Malcolm MacLean, "Mass Media Audiences: City, Small City, Village and Farm," *JQ* 29:277 (1952); Cornelius Dubois, "What Is the Difference between a Reader and a Viewer?" *Media/scope* 3#10: 46-51 (October 1959); Jack Lyle, "Impact of a

¹ Paul Deutschmann, "Use of Mass Media 'Yesterday' in Lansing, Michigan," Communications Research Center, Michigan State University, September 1960, mimeo.

² Paul Lazarsfeld, "Audience Research," in Bernard Berelson and Morris Janowitz (eds.), *Public Opinion and Communication* (Glencoe: Free Press, 1953), p. 339.

³ Paul Lazarsfeld and Patricia Kendall, *Radio Listening in America* (New York: Prentice-Hall, 1948), pp. 136, 139; S. Watson Dunn, "Qualitative analysis of listening in radio class programming," *JQ* 29:175-80 (1952).

⁴ Ralph Nafziger, Warren Engstrom and Malcolm MacLean, "The Mass Media and an In-

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found among children.⁷ Use of television peaks at an earlier age than use of the print media and declines relatively in the higher grades; children of lower intelligence (who might be said to acquire less "education" from their schooling) continue heavy television use after their brighter peers turn to the print media.

The consistency of this negative relationship between education and use of the broadcast media suggests that educating people may in some way diminish their orientation toward the broadcast media.

Lewin's "life-space" concept,⁸ how-

medium; Lewin might have conceived of the media as regions in life space through which the person could gain access to content.

Increased orientation or not, the fact remains that more educated persons do not on the average use the broadcast media as much as less educated persons do. (See Table 1.)

However, *behavior does not necessarily follow orientation*. That is, most of us would enjoy doing more fishing or traveling or letter writing than we for one reason or another actually do.

So we have the possibility that, while orientation toward the broadcast media

TABLE 1
Correlations of Time Spent Attending Each of Certain Media with Education and Age

	TV Hrs./Wk.	Radio Hrs./Wk.	Daily Paper Hrs./Wk.	Sunday Paper Hrs./Wk.	Magazine Hrs./Wk.	Book Hrs./Wk.
Education	-114	042*	017*	107	223	222
Age	-101	-198	286	073	-072	-051

*The correlation between Age and Education is -.324. When Age is controlled for (partialled out), the correlation between Education and Radio Use is negative, a relationship also found by Lazarsfeld and Kendall (*op. cit.*, p. 134). On the other hand, controlling for Age beefs up the correlation between Education and Daily Paper Use to near significance. (Correlation of .138 is significant at $p < .05$; $N = 203$ adult males.) Decimal point is omitted before all correlation coefficients in tables.

ever, provides a theoretical basis for predicting the contrary—that orientation toward any medium (including the broadcast media) should increase, instead of diminish, with education. The acquisition of knowledge enlarges the life space and hence increases the likelihood that any particular stimulus will fall within the interest span of a person. Orientation toward a medium is a direct function of orientation toward the stimuli (content) available through the

may grow stronger with more education, as Lewin's theory seems to suggest, other influences that also grow stronger with education may override this orientation to a degree that hides its effects.⁹

To see more clearly how education affects orientation to a medium, we need to identify and allow for some of these other education-generated influences on use of the medium.

► This brings us to the question of what we refer to when we use the term, "education," and what we measure when we count years of schooling.

With the satisfactory completion of successive years of schooling, a person accumulates three things:

⁹ Lazarsfeld and Kendall (*op. cit.*, p. 7) referred in passing to such an interaction between "interest" and "opportunity" as affecting patterns of media use, without, however, explicitly relating either to education.

Double Newspaper Merger," *JQ* 39:151 (1962); Lloyd Bostian and John Ross, *Mass Media and the Wisconsin Farm Family* (Madison: University of Wisconsin Research Bulletin 234, January 1962), pp. 21-22.

⁷ Hilde Himmelweit, A. N. Oppenheim and Pamela Vince, *Television and the Child* (New York: Oxford University Press, 1958), pp. 12, 30-31; Wilbur Schramm, Jack Lyle and Edwin Parker, *Television in the Lives of Our Children* (Stanford: Stanford University Press, 1961), ch. 6.

⁸ Ernest Hilgard, *Theories of Learning* (2d ed.), New York: Appleton-Century Crofts, 1956), pp. 263-66, 271, 284.

- 1) knowledge,
- 2) skills and
- 3) certificates of achievement that carry formal status.

The knowledge a person acquires, whatever its quality, relevance and integrity, can only result in an expansion of his life space. Even a poorly motivated student under mediocre teaching is likely to learn more than he would in alternative nonschool environments.

He obtains some training in a considerable variety of skills, of which the most relevant to media use would seem to be decoding skills (language usage, listening and reading).

Each additional year adds to the student's competence through formal training and incidental exercise in skills. Further, advancement into higher education reflects promise of superior performance as compared with others who are screened from the advancing group.

The level of these skills is critical to the media choices of many. Attention to any medium requires certain skills in decoding. Doob¹⁰ reports that the interpretation of even such faithful representations as photographs must be learned, that Africans not previously exposed to photographs often failed to recognize them as pictures.

Lazarsfeld in the late 1930s found reading skill important in the choice of radio or print for keeping up with the news and suggested that at some critical level of skill, reading became a more efficient way to take in information than listening.¹¹ Converse at the Michigan Survey Research Center has recently estimated that limitations of skill still somewhat inhibit 60% of adult Americans from reading.¹²

Important as knowledge and skills may be, the formal recognition of their achievement has consequences that may

be of equal moment. Each additional diploma or degree opens the door to a higher level of occupation, income, and social status.¹³

Nevitt Sanford¹⁴ suggests that a college degree entails more than access to the goal occupation:

... education that is frankly vocational or professional does not merely offer training for the work that lies ahead but it often inculcates at the same time an appropriate ideology or pattern of tastes, attitudes, and values. Finally, there is much evidence that in the United States today the kind of culture that is acquired in a liberal arts college is highly important to success in the more prestigious professions, not so much because the culture prepares for the work to be done as because it makes possible the associations and styles of life that go with these professions.

Here, in the roles that education brings with it, we should find the influences on media use that override and hide the increase in orientation toward the broadcast media which we predict should come with more education.

To sum up at this point:

1) Communication researchers have generally found that people with more education use the print media more and the broadcast media less than people with less education.

2) From Lewin's concept of "life space," we would predict that orientation toward any medium would increase with education, because education expands the life space and hence the likelihood that any particular stimulus will fall within the interest span of a person.

3) Education also brings with it roles that demand time and affect media use. (For correlations reflecting these role effects on media use, see Table 2 on the next page.)

Thus, any investigation of the relationship between level of education and mass media use needs to have controls for available time.

¹⁰ Leonard Doob, *Communications in Africa* (New Haven: Yale University Press, 1961).

¹¹ Paul Lazarsfeld, *Radio and the Printed Page* (New York: Duell, Sloan, Pearce, 1940), p. 139.

¹² Philip Converse, "Information Flow and the Stability of Partisan Attitudes," *Public Opinion Quarterly* 26:592 (1962).

¹³ Patricia Salter West, "Social Mobility among College Graduates." In Reinhard Bendix and Seymour Lipset (eds.), *Class, Status and Power* (Glencoe: Free Press, 1953), pp. 465-80.

¹⁴ Nevitt Sanford (ed.), *The American College* (New York: Wiley, 1962), p. 34.

TABLE 2

Table of Correlations Between Time Spent Attending Each Medium and Each of the Other Activities Requiring Time

	<i>Job- Connected Hrs./Wk.</i>	<i>Hobby Hrs./Wk.</i>	<i>No. Orgns. in Which Active</i>	<i>No. of Dependent Children</i>	<i>Hrs./Wk. Attending Other Media</i>
TV Hrs./Wk.	-275	070	-064	-043	090
Radio Hrs./Wk.	073	065	023	026	150
Daily Paper Hrs./Wk. ...	-265	008	-017	-118	160
Sun. Paper Hrs./Wk.	-147	055	-007	-188	310
Magazine Hrs./Wk.	-094	170	-016	-117	240
Book Hrs./Wk.	-106	-059	-041	039	140
Total Media Hrs./Wk. ..	-204	078	-039	-042	...
Education	262	-052	195	119	078

(N = 203 adult males. Pearson r of 138 is significant at $p < .05$.)

► In this study, we elected to control available time by statistically adjusting the time each individual spent attending each medium to cancel out the influences of certain roles that demand time. This yielded an index of orientation toward each medium. Then we correlated each index with years of schooling. Where such a correlation was positive, we said that orientation toward the medium was strengthened by education. When such an education-orientation correlation was more positive than the correlation between education and actual use of the medium, we said that the education-generated roles reduced use of the medium below the potential use that orientation would support. In this way we were able not only to determine whether or not orientation toward the broadcast media is strengthened by education, but also to obtain an indication of how the use of each medium is affected by certain role involvements.

A similar adjustment and comparison was made to determine whether the amount other media are used affects the time given to each of the media.

The data used in this analysis were:

1) A measure of the antecedent condition, education: years of schooling.

2) Measures of involvement in roles: hours per week spent on job-connected activity; hours per week spent on hobbies; number of organizations in which

active; and number of dependent children.

3) A measure of the use of each medium: hours per week spent attending television, radio, daily newspapers, Sunday newspapers, magazines and books, respectively.

The data were collected by interview from adult males in Redwood City, California. (Women were excluded to avoid a probable source of confounding interactions.) The respondents were selected systematically by name from telephone-book address listings in areas selected to cover the range of housing types and rental levels. Of 268 persons selected, seven were found to be deceased and one to be female; of the 260 remaining, 203 (78%) were interviewed, 10 (4%) refused, 22 (8%) had moved, and 25 (10%) were never at home when an interviewer called.

The ungrouped data (except for years of schooling, which were coded in the usual seven groups) were punched into cards and the Pearson r computed between education and each of the other measures. A scatter diagram was produced for each of the correlations with education, as well as for the relationship between each role-involvement measure and each medium-use measure.

The individual medium-time scores (as hours per week spent watching television) were adjusted by a part-cor-

relation method¹⁵ to remove the influence of the four roles.

These adjusted scores were then correlated with education level. The new Pearson correlation coefficients from the adjusted scores were inspected and compared with the unadjusted-score coefficients to determine the size and direction of the change resulting from the adjustment. (See Table 3.)

The scores were then further adjusted to remove from time given to each medium the influence of time given to the other five media. The correlations with education of these scores were computed and compared with the corresponding earlier correlations. (See Table 3.)

¹⁵The part-correlation adjustment here was made by expressing each medium-time score as a deviation from its array mean in the scatter diagram between medium time and each (in turn) of the other activities requiring time (such as the roles and attention to the other media). This served to eliminate the influence on time spent attending the medium of time spent on other activities.

The part-correlation adjustment may be conceived of as a covariance adjustment based on array means rather than on the regression line. Or it may be considered as "partialling out" the influence of the third variable from only the dependent variable. Since education is antecedent in time to the other activities requiring time, it could not logically be adjusted for their influence.

The part correlation adjustment may be made by formula using the Pearson intercorrelations if linearity can be assumed in all cases. [See McNemar, Quinn, *Psychological Statistics* (3d ed.),

Findings and Discussion

► After the media use scores were adjusted to remove the effects of role involvement, the correlation between education and media use was always positive, even for television, where the unadjusted result showed a negative relationship. Radio, daily newspapers and Sunday newspapers also showed a gain with the role-involvement adjustment; only magazines and books did not.

Since the division of the role effect was not between the broadcast media and the print media, some other media characteristic relevant to roles seemed involved. An apparent possibility is specificity of content.

When one tunes in television or radio or picks up his newspaper, he orients to an assortment of contents among which he makes more or less casual selections. On the other hand, when one reaches for a magazine or a book, he orients to a relatively more specific and homogeneous content. It might be said that there is more diversity of content within a single newspaper than there is among newspapers, but more diversity among books or magazines than there is within a given book or magazine.

(New York: Wiley, 1962), pp. 167-68.] Pronounced curvilinearities led to our choice of the array means as a basis for the adjustment.

TABLE 3
Changes in Correlation with Education of Time Spent Attending Each Medium After Part-Correlation Adjustment for Role Involvement (RI)* and for Time Spent Attending the Other Media (TSOM)**

	Of Original Scores <i>r</i>	Of Scores Adjusted for RI* <i>r</i>	Of Scores Further Adjusted for TSOM** <i>r</i>	Increment over RI Adjustment	Net Increment over Original
TV Hrs./Wk. . . .	-114	024	+138	094	+208
Radio Hrs./Wk. . . .	042	113	+071	059	+017
Daily Newspaper Hrs./Wk.	017	106	+089	069	+052
Sunday Paper Hrs./Wk.	107	151	+044	127	+020
Magazine Hrs./Wk.	223	218	-005	197	-026
Book Hrs./Wk.	222	206	-016	230	+008
Total Media Hrs./Wk.	078	165	+087	...	+087

*Role Involvement, indicated by measures of Job-Connected Hours/Week, Hobby Hours/Week, Number of Dependent Children, and Number of Organizations in Which Active.

**Time Spent Attending the Other Media.

Clearly, however, the time demands of role activities reduce the amount of time that the more educated man might otherwise be inclined to spend viewing television and, to a lesser degree, listening to radio and reading newspapers.

Only television showed a second gain from the adjustment removing the influence of other media use. Apparently, demands on the time of the more educated man are such that he must choose between watching television or attending to some other medium, whereas the less educated man seems better able to satisfy his wants for both television and other media.

At this point we can infer:

- 1) That orientation toward any mass medium progressively increases with level of education, as predicted from Lewin's "life space" concept.
- 2) That roles associated with education preempt time that the more educated man would otherwise be inclined to spend in mass media use, particularly of television, radio and newspapers.
- 3) That use of media other than television further preempts time the more educated man would be inclined to spend viewing television.¹⁸
- 4) That the medium orientations of the less educated man and role demands on his time are at a level that permits their satisfaction with less competition and less mutual displacement.

Inspection of the scattergrams involved in the part-correlation adjustments enabled us to determine the direction of the influence exerted by each role involvement on the use of each medium. (Except for interactions produced by curvilinearities and the negative correlation between education and hobby time, the directions and relative magnitudes of role influences on use of

each medium are approximated by the correlations in Table 2.)

It was apparent that potential television use by the more educated men was most depressed by job-connected activities, with all other activities except hobbies also competing with television for time.

The radio use-education correlation gained strength from the elimination of an interaction involving hobby time. The more educated men tend to spend time on either hobbies or radio use, while the less educated were more likely to spend time on both or on neither.

Newspaper reading gets strong competition from job-connected activities and child-rearing, particularly among the more educated.

Apparent effects on use of the other media are of smaller magnitude and often confounded with orientation to the medium. But enough indications are present to pose questions for further investigations of the relationships between education and media use.

For instance, Sunday newspaper use shows a gradual increase with education, reaching a plateau with high school graduates and throughout college, then dropping off among those with postgraduate work. Little effect is apparent from either role involvement or time preempted for other media. This seems consistent with the suspension of most everyday demands on Sunday, but does not provide an explanation for the lighter use of the Sunday paper by the most-educated.

Radio use climbs to a peak with the completion of high school, holds almost on a plateau through some college, and drops off about three hours a week with the completion of college, at which level it remains among men with graduate work. The modest gain from the adjustment for role involvements seems hardly adequate to account for the lower use of radio by college graduates. It is tempting to lay this to substitution of print by more-educated and presum-

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¹⁸ Lazarsfeld and Kendall, *op. cit.*, anticipated this possibility (p. 5): "From time to time there have been suggestions that the mass media might compete with each other for their audiences; but when actual data have been available, they have indicated that the media tend to complement, rather than compete, with each other. It is true, of course, that television may change this situation in years to come."

and that although there have been a number of significant improvements, English teachers by in large are continuing to do things in the same old ways with no recognition, or very little, that improvement is necessary or desirable. He then delineates the freshman English courses at Dartmouth to identify the kind of instruction he is going to analyze. The courses are not, strictly speaking, English Comp courses, but a number of themes are assigned in each term to provide material for writing criticism and instruction. Classes, Kitzhaber suggests, are small enough and meet often enough to permit optimum teaching. He further reports that the stated objectives and tactics in the teaching of writing are consistent with what is considered "good" by most teachers of English.

The analysis itself was made on the basis of a 20% random sample of freshmen in the fall term of 1960, from whom three themes in each of the two terms were selected for analysis. From a preliminary survey of the papers an error list was constructed which allowed reliable evaluation of the students' papers. The papers were then carefully read by a panel of expert investigators, and a schedule of errors for the six themes was laid out. Part of the analysis was intended to find out whether a decrease in errors resulted from the instruction. The results show that by the end of the first two terms the number of errors had diminished, although it was not shown that the diminution was statistically significant. By the end of the sophomore year, the number of errors had returned almost to the original level, and by the end of the senior year, the number of errors was definitely greater in all categories than at the beginning of the freshman year. Kitzhaber shows that the outstanding area of error was in word use, but again makes no statement as to the significance of the differences between areas.

The last chapter of the report, on recommendations, indicates an optimum

class size of 20, with two sections per instructor. It further indicates the desirability of exempting unusually well qualified students from the regular instruction, but indicates that all ranks of teachers should be involved with the freshman instruction. The recommendations continue through class scheduling, curriculum design, writing instruction after the freshman year, and preparation of teachers. There is no direct recommendation for further research.

Kitzhaber's book is a report of a research study; as such, it is a valuable contribution and will prove to be of good use to many teachers and administrators. As a research study, however, there may be some areas open to question. Kitzhaber seems in several places to extend his conclusions far beyond the data he has collected and speculates as to the causes of the data. If he were to suggest such causes as material for further research, one could not complain. This is not the case. However, for any teacher interested in the writing of his students and how to improve it, the report will be useful. It should be required reading for all teachers of writing.

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Mass Media Use and Available Time

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ably more-skilled readers, but the positive correlations of radio use with magazine and book use (.196 and .110) weaken the case for this explanation. The explanation may lie in some undiscovered interaction involving age, which shows a definite negative association with radio use, even in this group which excludes teen-agers. (See Table 2.)

Finally, it should be interesting to identify the factors in role involvement that apparently facilitate the use of magazines and books at a level that orientation alone could not account for.