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ILLINOIS AGRICULTURAL ECONOMICS STAFF PAPER

Series S. Rural Sociology

LITERACY, PRIMARY EDUCATION, AND RURAL DEVELOPMENT:
SOME QUESTIONS AND SOME TENTATIVE ANSWERS

Frederick C. Fliegel

August, 1980

80 S-17



Department of Agricultural Economics
University of Illinois at Urbana-Champaign
305 Mumford Hall, Urbana, IL 61801


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LITERACY, PRIMARY EDUCATION, AND RURAL DEVELOPMENT:
SOME QUESTIONS AND SOME TENTATIVE ANSWERS*

Frederick C. Fliegel
Department of Agricultural Economics
305 Mumford Hall
University of Illinois
Urbana, Illinois 61801

*Paper prepared for presentation at the Seminar on "Mass Communication and Modernization of the Traditional Sectors," sponsored by the Department of Sociology, Universidad Austral de Chile, Valdivia (Chile), September 2-4, 1980.

LITERACY, PRIMARY EDUCATION, AND RURAL DEVELOPMENT: SOME
QUESTIONS AND SOME TENTATIVE ANSWERS.

INTRODUCTION

Social scientists with an interest in rural development have tended to assume that non-literacy is dysfunctional, that development is deterred in absence of literacy and, more broadly, in absence of widespread availability of at least primary schooling. There is no question but that high levels of literacy or high levels of education correspond with relatively high levels of development, almost without regard to how development might be indexed. I am taking as given that a society which ranks high in the percentage of its population literate will tend to rank high on most measures of social and economic development. The type of question which I wish to discuss in this paper is not concerned with cross-national correlations. It is of a different order: to what extent is literacy functional in bringing about development; to what extent do investments in education cause the kinds of changes in a society which are subsumed under the heading of development? Increases in the literacy rate may cause certain other kinds of changes, or increases in literacy may be the effect of those changes. Alternatively, literacy may simply be an element of the broad complex we define as development, without important causal ties to other aspects of development. It is the question of linkages between literacy or education and other aspects of development which I wish to explore.

My reasons for examining the role of literacy in development are several and can be stated briefly. I contend that we, as social scientists, have tended to assume that literacy is functional in development and that, in so doing, we have simply gone along with the conventional wisdom of our era which places a high value on education and therefore rationalizes it as useful in achieving a range of desired ends. I further contend that we have typically been quite vague about explicating the theoretical rationale for the hypotheses we pose concerning literacy and education, i.e., we have tended to be atheoretical in our research. And finally, I contend

that we have tended to ignore the empirical results of our own research which in many cases have not lent substantial support to our hypotheses.

In the following pages I will attempt to lay out the assumptions that I contend we make, review some of the research that has a bearing on those assumptions, and attempt to resolve some of the inconsistencies that I think hamper our approach to research on development. In laying out the argument I will draw most heavily on my own areas of research because I am most familiar with them. As a result, the focus will be largely on rural society, on agriculture, and on farmers, because I have concentrated on the diffusion of agricultural innovation and related topics in my research. Part of the discussion will be at a broader, societal level, and I will attempt to tie the broader and more specific themes together.

DEFINITIONS AND ASSUMPTIONS

For the present purpose it is useful to treat literacy and assorted levels of education as part of the same variable. Non-literacy can be treated as the zero point on an index with years of formal education, or more simply, schooling, marking the higher levels of the index. From that perspective, literacy comprises all non-zero values of the index. The foregoing is admittedly crude but it serves the useful purpose of permitting one to discuss literacy and at least the primary levels of schooling without constantly making distinctions. As a matter of fact, it is also true that formal education beyond the primary grades is quite uncommon in the rural areas of most developing countries, thus broad divisions of a population into categories such as literate versus non-literate, or some education versus no education are often about as far as one can meaningfully go in measurement.

Development can be defined in a variety of ways and no effort will be made here to limit the term to a specific meaning. Rather, the content of the term will vary with the focus of the research being discussed. For example, the availability and adoption of modern agricultural technology is presumed to be part of and useful in indexing the process of agricultural development. In general I am using the term development here with the intent of including the usual kinds of indicators of productivity, well-being, and so on that are treated in the literature.

Assumptions

It was stated at the outset of this paper that non-literacy is assumed to be disfunctional in the development process. The preceding point can be illustrated rather easily, though not necessarily proved because the reasons that we, as researchers, give for including measures of literacy and/or education in our studies are not necessarily stated. If we don't formally state propositions for testing we can't easily be proven wrong. The very fact that we almost invariably include measures of literacy or education (or both) in our research designs suggests that we regard the variable as important. I would be hard pressed to find a survey or case study done by a rural sociologist which did not include literacy or education as a variable. We are accustomed to using such variables as major descriptors of a study population. We typically describe such a population in terms of numbers, age, sex, occupation, perhaps marital and family status, and almost certainly literacy or level of education.

Beyond sheer description, however, we include measures of literacy or schooling in our research because we believe that the measures will help us to explain whatever phenomenon we are concerned with. The familiar term "laggard" in diffusion research (Rogers, 1958) was coined to designate a type of farmer who was slow to adopt improved technology, and an important defining characteristic of the type is relatively low education or, depending on the context of the study, non-literacy. My point at the moment is that the term laggard, as used in the literature today, has gone beyond the heuristic purpose for which it was intended and has come to be a label for one who is backward, uneducated, and, by implication, even stupid. The laggard is not only described in terms of low educational status but assumed to lag behind because of low educational status.

It can be argued that we, as researchers, include literacy and education in our study designs because we share a widely held belief that education is good, that it is in fact a cure for many of the ills of society. When we read accounts of elections in a developing society, for example, it is fairly standard for the news story to point out the actual or expected voter turnout, often very high, and to take notice of the fact

that some given percentage of the voters are not literate, a percentage which also is likely to be high. The implicit message is that the results of the election, whatever they may be, are not what they might have been had literacy rates been higher. When we read accounts of the struggles of marginal farmers or landless laborers we will typically be told that their level of education is low or that most are non-literate. The implication is that part of their problem, a reason for their marginal status, is the lack of education. When we read accounts of most types of crimes, we will often find reference to the criminal's level of education and that level will usually be relatively low. The implication is that a lack of education is a contributing factor in crime. Much the same can be said for a variety of other social problems. Whether the focus is on beggars in the street, pregnancies among unmarried teenage girls, or public drunkenness, it is at least assumed that those involved in the problematic acts have little or no education. In fact it is even further assumed that the relative absence of education is a contributing factor in the problematic behavior.

What does the above commentary on supposed links between problematic behavior and a lack of education prove? The statements prove nothing in a formal sense, nor were they intended as proof. My intent was to make a series of statements which most would consider plausible in order to illustrate what I think is a widely held belief, that an absence of education is implicated in a wide range of social and personal problems. The other side of the coin, of course, is that education is a cure for many societal ills. Education is believed to be good, in general, and specifically good with reference to the achievement of a range of desired ends. These desired ends tend to be the polar opposites of those behaviors and states of being we call social problems. I subscribe to the belief that education is, in general, good, but I have difficulty with the host of derivative assumptions which attribute desired outcomes to the causal influence of schooling. I am contending that it is our shared belief in the value of education that is responsible for our general practice of including literacy and/or education as variables in our research designs, and also for our general tendency to simply assume causal links wherever any kind of relationship with an educational variable is encountered.

Theoretical Bases for Assumptions

If one were to formally specify the reasons for supposed linkages between schooling and development, one could probably not improve substantially on a statement provided by Lionberger (1960). This statement, which I will quote in part, refers specifically to the diffusion of agricultural innovations but with minor adjustments could apply to most kinds of developmentally relevant behavior. It was published in 1960, as part of a comprehensive review of the already extensive literature on diffusion and adoption, but prior to the time that this research tradition was extended to the developing nations of the world. Because of the context, diffusion studies done for the most part in the United States, the reference is to level of education rather than literacy.

Lionberger said:

"The assumption is that schooling facilitates learning, which is in turn presumed to instill a favorable attitude toward the use of improved farm practices. Be that as it may, the relationship between years of schooling and farm practice adoption rates is likely to be indirect, except in cases where persons learn specifically about new practices in school. Where this is not the case, education may merely create a supposedly favorable mental atmosphere for the acceptance of new practices. Since favorable orientations may be gained outside the schoolroom, correlation between years completed and adoption of farm practices is not always high ... as with other variables associated with the adoption of farm practices, clear-cut relationships are hard to establish because years of schooling is related to other factors likely to condition adoption rates, as, for example, income and age of the farm operator." (Lionberger, 1960: 97-98)

I have re-read the above statement a number of times over the years in connection with studies of the diffusion process and I have repeatedly wondered why the statement wasn't taken more seriously in the research literature. Several points in the statement strike me as important in specifying at least the beginnings of an understanding of the role of schooling in the development process. First, it is a fact that correlations

between years of schooling and measures of adoption are not only "not always high" but more nearly moderate to low. At best, only modest fractions of the variability in adoption behavior can be explained by differences in education, and I think we find it easy to ignore that fact in view of our belief that schooling, literacy and education are generally good. Second, it is doubtful that any diffusion researchers have placed much emphasis on direct learning about improved agricultural technology in school, if for no other reason than that agricultural technology has changed dramatically and repeatedly over the last generation or so, substantially precluding the possibility that a given sample of farmers could have learned about current technology in school even if they had vocational training, which is of course not the case for farmers in most developing societies. Third, and finally, if direct learning about improved technology is implausible, that means that the impact of schooling is indeed probably indirect. It has taken 20 years since Lionberger wrote to even begin to map out what the indirect impact of schooling on developmentally relevant behavior may be.

In the following pages I will briefly review two areas of research, both dealing with the possibly indirect influences of schooling on the rural development process. The first area of research is that directly concerned with diffusion of agricultural innovations. Here the focus will be on disentangling schooling from other status variables such as income or wealth, and on tracing the possibly indirect linkage of schooling through such variables as media participation to adoption. The second area of research deals with what Lionberger calls "mental atmosphere." One suspects that Lionberger was deliberately vague in choosing that term but the general idea is that schooling shapes attitudes in particular ways and that these appropriately shaped attitudes, in turn, contribute to acceptance of innovations and other behaviors conducive to development. The extensive and currently controversial literature on modernity, or modern values, is most appropriate here. Though modernity studies have seldom focused on rural populations and diffusion of technology, the essence of modern values is the "mental atmosphere" referred to by Lionberger. I will draw conclusions from both lines of research to the effect that the impact of schooling on development is at best indirect, and possibly an effect of development rather than a cause.

LITERACY, SCHOOLING, AND ADOPTION

When diffusion researchers turned their attention to the spread of improved technology in the developing world, starting approximately in the 1960's, their attention shifted from years of schooling as a variable to literacy. The existing research on literacy as related to development, at that time, depended heavily on cross-national correlations and argued fairly explicitly for a causal link between literacy and development. Golden (1955), for example, analyzed the relationship between literacy rates and indicators of development and concluded that literacy was not only a necessary condition for development but that increases in literacy constituted a sufficient cause of economic advance.

Lerner's widely read "The Passing of Traditional Society" (1958) is certainly among the most influential treatments of the role of literacy in development of that time. Lerner used data from a large number of nations, and found substantial correlations between literacy rates and degrees of urbanization, participation in elections, and media usage (1968: 57-58). Lerner went considerably beyond bivariate correlation results in discussing the developmental role of literacy (1958: 60-65) but lacked the data to test more complex hypotheses. The dominant impression left by the work is that literacy has a pervasive, transformative effect on people. Several years later Lerner (1963: 327-350) characterized literacy as having a centripetal effect, a term which captures some of the rather general influence attributed to literacy in discussions of development of that early period.

Research during the 1960's built on the earlier work and soon began to introduce some qualifications to the broad notion that literacy is the fundamental personal skill which "underlies the whole modernizing sequence" (Lerner 1958: 64). For instance, Schramm and Ruggles (1967) pointed out that correlations between literacy and other indicators of national development were not the same in different regions of the world. This led them (Schramm and Ruggles, 1967:75) to question why urbanization appears to be the prime mover in some situations, while GNP and literacy stand out in others? Kamerschen (1968) found that Golden's (1955) conclusions regarding the role of literacy might hold for the less developed nations, but that the pattern

of correlations with literacy was much weaker for a subsample of more developed nations. In this way, early assumptions about cause and effect were starting to be questioned and arguments for more narrowly specified causal arguments were being advanced.

A shift away from direct causal arguments and toward specifying an indirect relationship between literacy and development becomes evident in the sample surveys which started to come out during the 1960's. Many of these studies focused on agricultural development and they attempted to pinpoint the presumed transformative effect of literacy on the individual farmer, especially the particular consequences related to agricultural development. Bose (1961) concluded that non-literate Indian farmers were not particularly disadvantaged in adoption of modern technology if they participated in local organizations such as cooperatives. Similar results were reported by Fliegel (1966) for a sample of Brazilian farmers, and for another Indian farm sample as well (Fliegel, 1967). These studies and others (e.g. Neurath, 1960; Roy, et al., 1969; Fett, 1971) highlight the fact that although literacy definitely can benefit farmers, developmentally relevant information can be transmitted in a variety of ways so that non-literates can achieve the same ends. Conversely, however, the educational process can also transmit information and perspectives which are not conducive to development, as Armer and Youtz (1971) demonstrated with African data for non-farm samples. The African data drew attention to the importance of curriculum content, suggesting that some curricula are essentially designed to maintain the status quo. Other studies (e.g. Keyfitz, 1965) also began to question the utility of investment in education in absence of concurrent efforts to assure productive use of the skills acquired, thus questioning the general belief that education is unequivocally good.

The detailed research results of the 1960's, sketched out above, plus the modest impact of intervention in the development process with literacy training programs (Roy, et al., 1969; see also Kapoor and Roy, 1975), tended to dampen hopes that literacy might be "the" key to development. In addition, the fruition of research on agricultural inputs which came to be known as the Green Revolution tended to draw attention

away from human resource investment as a lever in agricultural development. At this time the policy emphasis in many developing countries shifted from transforming the individual farmer and his attitudes to introducing new technologies in what has become known as "package programs." Research on the role of literacy continued, generally from the perspective that literacy and education are part of a larger set of variables involved in the development process.

Analyses of survey data during the late 1960's and 1970's directed explicit attention to the fact that those individuals who owned or controlled more physical resources were also more likely to be literate and have a higher level of education. The task of disentangling separate effects of an array of status-related variables was pursued, with results tending to show that literacy (or education) did not have a pervasive transforming effect on individuals, but did contribute indirectly by facilitating access to appropriate sources of information. The work of Roy et al. (1968: 96) demonstrated the absence of a direct effect of education on adoption of agricultural practices. A later analysis of the same data set (Shingi et al., 1973) was able to trace out some of the indirect effects. Villaume's (1979) study is the most comprehensive treatment of the role of literacy in agricultural development known to me. Villaume (1979) analyzed survey data from two large samples, one from Brazil and the other from India, and traced out the direct and indirect effects of both literacy and level of education on adoption, concluding that their effects on adoption are largely if not entirely indirect.

In brief, the most recent cross-sectional survey data do not support the notion that literacy has a general, transformative effect on individuals. According to these studies, literacy can be viewed as one of a set of human resource variables, representing a skill which, at least indirectly, can foster development purposes. What these studies demonstrate is that farmers who have more economic resources also tend to have more schooling and that it is higher economic status rather than schooling which seems to have a direct, positive impact on adoption of technology. On the other hand, other things equal, farmers with more schooling are somewhat more likely

to have contact with change agents and the mass media, to belong to cooperatives, and so on, and schooling seems to have a moderate indirect influence on adoption of technology through such organizational and media contacts.

This brings me to the last study which I want to mention in this section, a study of which I am co-author and which was reported only a few weeks ago at the 5th World Congress for Rural Sociology in Mexico (Barnes, et al., 1980). The studies I have mentioned thus far are largely sample surveys and they necessarily deal with the relationship between literacy and development at only one point in time. One can not determine from such studies whether increases in literacy over time have a positive effect on adoption of technology or other indicators of development. If one is to deal formally with questions of cause and effect it is of course essential to be able to include the time dimension. I briefly mentioned literacy training experiments (e.g. Roy, et al., 1969) which, with a follow-up study to determine the effect of literacy training do include a time dimension. To the best of my knowledge, the few literacy experiments have not shown that significant changes result from increases in literacy. More studies which can trace out changes over time are clearly desirable and it is against that background that I want to discuss the paper presented at the World Congress.

The study in question is based on census data from India, for the period 1961 to 1971. The unit of analysis is the District and there are over 300 non-metropolitan districts in the nation. Data from the Indian census make it clear that rural literacy increased substantially from 1961 to 1971 and that volume of agricultural production increased markedly as well. Furthermore, the data make it clear that districts with high literacy rates also have high rates of agricultural production per unit of land, and, conversely, the districts with low literacy are less productive. Such results are directly analogous to the results based on statistics for samples of nations that Lerner (1958) and others have used to suggest that literacy plays a causal role in the development process. The data from Indian districts make it possible to pose a more pointed, causal question, however: do those districts which show above average increases in rural

literacy from 1961 to 1971 also experience above average increases in agricultural production? Does raising the literacy level of the agricultural work force result in increased production, in other words. Without going into detail on how the data were analyzed, the answer to the question is no. Those districts with average or below average increases in literacy rates tended to show above average increases in production from 1961 to 1971. Conversely, those districts which were highly productive to begin with, but did not increase production very much during the decade, showed above average increases in rural literacy from 1961 to 1971. The study concludes that high productivity has the long-run effect of increasing literacy, presumably by making it possible to invest more in schools and schooling. Increases in literacy are the result of development, in other words, not the cause.

On that note I will end this discussion and turn to the next topic. Thus far I have reviewed some studies which argue that literacy is a direct cause of development, later studies which make it clear that the relationship is probably indirect, at best, and one study which turns the equation around with literacy as a possible effect of development. Much more research on direct or indirect causal linkages will have to be done before we really know what's going on. In the next section I want to dwell briefly on the "mental atmosphere" theme which Lionberger specified as a possible mechanism via which schooling might be influential in the development process.

LITERACY, SCHOOLING, AND MODERNITY

I mentioned earlier that the term "mental atmosphere" is vague and I will not attempt a comprehensive definition here. The general notion is that literacy and schooling affect peoples' attitudes, and that these altered attitudes influence behaviors which further the development process. Any impact of literacy on development is thus by definition indirect. The points at issue are the link between literacy or schooling and certain types of attitudes, and the further link between such attitudes and certain behaviors. The adoption of improved farm practices can serve as an example of behavior conducive to development.

I have chosen to discuss the "mental atmosphere" theme in terms of what Inkeles calls the modern values syndrome (Inkeles and Smith, 1974)

because the latter is comprehensive. Some might argue that the modernity syndrome is so comprehensive that it becomes meaningless. I am aware of controversies in studies of modernity but they don't have a direct bearing on the present discussion, in my opinion.

Research on the diffusion of agricultural innovations has made use of a variety of attitude measures, without marked success I might add. In my own research I have attempted to measure empathy, achievement motivation, secularism, attitudes toward science, credit orientation, planning orientation, attitudes toward deferred gratification, fatalism, and at least a few others. There is precedent in the diffusion literature for those I have listed and more. The objective in all cases was and is to assess some aspect or subset of what I am here calling a "mental atmosphere" favorable to adoption and, more broadly, development. Rather than attempt to deal with a range of attitude measures, it is convenient, in the present context at least, to lump them all together and talk about a modernity syndrome. There is a risk in dealing with modernity and adoption in the same context and that is that students of modernity have largely ignored agriculture. I will attempt to bridge the gap between these two research traditions, one allied with industrial sociology and the other with rural sociology.

Modernity studies depend heavily on Kahl's (1968) work with Brazilian and Mexican data, and the six-nation study by Inkeles and Smith (1974) which included data from Chile and Argentina as well as four others. These authors, as well as some others, attempted to construct cross-nationally valid, pan-cultural measures of modernity. They did so by first defining subsets of attitudes such as secularism (or religiosity), achievement motivation, and so on, much the same kinds of themes I mentioned earlier in connection with diffusion research. Modernity studies have stressed the inter-connections among these subsets, however, in order to produce comprehensive, multi-item measures of the presumed underlying theme, modernity.

I am personally convinced that something one can call a modern values syndrome can be measured and that this can be done with a single set of items, or questions, in most if not all societies of the world. Whether

the syndrome as a whole or some subset of the larger set, such as religiosity or achievement motivation, is the critical ingredient for analytic purposes doesn't particularly concern me. I think that the choice of a general or specific measure depends on the task at hand, and for present purposes I prefer to think of modern values as a comprehensive syndrome. Whether any such syndrome has much in the way of predictive utility is quite another matter; that concerns me a great deal. The fact is that most of the so-called modernity literature has been concerned with the existence of a modern values syndrome and with antecedents of the values as measured. The question of consequences, the "so what" question, remains largely open. I will come back to that topic shortly.

The first point I want to make with reference to modern values is that there is a strong link between the syndrome and schooling or literacy (e.g. Inkeles and Smith, 1974: 283). It is safe to say that, regardless of the particular measure of modern values, literate respondents will score higher than the non-literate, and respondents with more schooling will score higher than those with less schooling. The same point can be documented in terms of the particular study I want to discuss here, one in which I was involved (Fliegel, 1976; Sofranko, Fliegel and Sharma, 1976 and 1977; Sofranko, Fliegel and Pletcher, 1976; and Fliegel, et al., 1979). That study, which centrally involves farmer respondents, also shows a substantial and direct linkage between literacy/schooling and scores on a modernity index. I am taking as given, then, that something one can call a modern values syndrome exists, that it can be viewed as an operational definition of the "mental atmosphere" referred to by Lionherger (1960) as an antecedent of adoption of improved agricultural technology, and that it is directly linked with literacy/schooling. In the remaining paragraphs I intend to establish, first, a link between modern values and adoption, and second, assess the nature of that link. I will conclude that simple correlations aside, and the plausibility of a causal link aside, it is unlikely that an apparently favorable "mental atmosphere" has much utility in explaining adoption behavior.

The modernity study in which I had a part involved data from four

countries: Brazil, India, Ghana, and the United States. Modern values were measured via several closely related multi-item indexes. The items were intended to specify content in four areas: achievement/ascription, openness to new ideas, universalism/particularism, and independence/dependent. I will not attempt to defend the content areas other than to say that the items themselves and the content areas they represent closely resemble those used by other researchers in the area. Evidence available from this study to show that modern values are linked to adoption of improved agricultural technology is limited, but nevertheless permits one to make the point that they are linked. Data from Ghana and India show that farmers who rank high in modern values are more likely to have adopted a range of items of improved technology (Sofranko, Fliegel, and Sharma, 1976), just as one would expect.

The main purpose of the study I am describing was not to account for adoption of farm practices, but to test some propositions about eventual cultural convergence. How that purpose relates to literacy and development is probably not obvious but I will try to make the connection. The basic notion behind the convergence theme is that certain processes taking place on a world-wide scale, particularly industrialization, are leading to an erosion of cultural differences over time, i.e. a convergence of cultures is taking place. Some writers use the term Westernization to refer to the end product, a term which strikes me as too narrow, and one can use even more narrow terms such as Coca-Colaization to describe the results. I prefer the bland term convergence to make reference to a process and to deal with end results in terms of hypotheses rather than pre-judgments. Another key idea in discussions of cultural convergence is that modern production systems, such as factories and all they entail, have become increasingly uniform over time on a world-wide basis, that these production systems, or factories, have an influence on workers which is directly analogous to that of schooling, and that the effect of both schooling and later work experience is to create a "mental atmosphere" which sustains and furthers development.

Now, the final point which I wish to make is the following: if one can construct a measure of modern values which is valid in different

societies, and if one can show that schooling and adult socialization in the work place produce similarly high scores on that measure of modern values in those different societies, then the stage is set for tracing out the consequences for development of this presumably favorable "mental atmosphere" on a world-wide scale. Up to a point, the study in which I was involved found exactly what we had expected. The appropriate kinds of socialization experiences apparently produced similarly high scores on the value index and lesser amounts of such experience resulted in similarly low scores in the different nations. Farmer respondents, generally with little schooling, scored low in all countries and workers in highly rationalized production systems, such as oil refineries, who also tended to have considerable schooling, scored high in all nations. The unexpected result, however, was that the detailed value profiles of the oil refinery and factory workers from the different countries, were not more like each other across nations than the value profiles of farmers across nations. The convergence hypothesis was not supported. Respondents with similarly high value scores in different nations did not, in fact, achieve those high scores by responding to the same items in the same ways. In fact, if anything, farmer respondents in the different nations, who scored low in modern values, were more like each other across nations than urban factory workers (Sofranko and Fliegel, 1977). Farmers, whose "mental atmosphere" was demonstrably less conducive to development, were more likely to respond similarly to the same items in the different nations, than workers in several industrial settings who scored high in modern values.

What all of this means in the context of this paper is that whatever the syndrome of modern values may be, it is unlikely to have much predictive utility in different settings. The "modern man" exists but will not necessarily think like other modern men. I am taking the reasoning one step further: literacy and schooling may well produce a "mental atmosphere" which on the surface appears conducive to development. But, as Weber (1947: 117) reminded us years ago, a purposively rational action involves not only a rational choice of means for given ends, but also a consideration of secondary results of action alternatives and a weighing

of the relative importance of different possible ends. Schooling may well result in a certain kind of "mental atmosphere," but it is not at all clear that specific behaviors furthering development will follow from the attitudes induced by schooling. A variety of somewhat different behaviors may follow, some appropriate to development and some not. My own conclusion, until further research on the topic is done, is that the indirect influence of literacy and schooling through attitudes to adoption of improved technology and development generally, is quite possibly so diverse as to be practically non-existent.

CONCLUDING STATEMENTS

I have reviewed two kinds of research, in both cases attempting to raise questions about the specific function of literacy and primary schooling in rural development. I conclude from the review that there is no evidence that literacy transforms people to make them receptive to developmental change, nor is there strong evidence that literacy plays an important role in linking the masses with the development process. Development may have a causal bearing on literacy, in fact, rather than the reverse. Finally, I conclude that literacy and schooling may well induce an apparently modern "mental atmosphere" but that such attitudes are not likely to have much predictive value. "Modern man" is not a robot; the behavior of "modern man" may be even less predictable than the behavior of the stereotypical "traditional man," whose behavior we don't understand very well either.

My basic intent in this paper has been to raise questions about easy causal assumptions in our research. In the process of doing so I have tried to challenge societally accepted notions about literacy and education as a cure for societal ills. I want to end this paper by making a few statements about why I think literacy and education are good. Schooling may not be a cure for much of anything but that does not mean that it should not be fostered.

First, if society places a high value on literacy, then the opportunity to become literate should be widely available. To become literate is to gain status. If the non-literate is regarded as a lower order of human being, then some schooling can be viewed as a human right, and the question

of specific behavioral consequences need not even be considered. Second, and more positively, given the undoubted need for schooled people in any society, the availability of schooling for the mass of people enhances the pool of talent on which the society can draw. That does not mean that schooling is a sufficient cause of upward mobility, but that universal schooling widens the pool of trained talent available. Third, it is not impossible that schooling can have direct, vocational impact, but it may be that traditional curricula are inappropriate. With reference to agricultural development, for example, I am sympathetic to the argument that arithmetic skills may be more immediately useful in modernizing agriculture than the conventional approach through reading and writing (Belloncle, 1980). Farmers typically have a wealth of informally acquired knowledge of their craft, sometimes more than the change agents who try to influence them. But it may be very directly useful to those same farmers to have better skills for evaluating yields, yield improvements, costs, and returns, the kinds of calculations which are central to modern agriculture. Fourth, and finally, schooling can appropriately be treated as one aspect of quality of life. Schooling can be treated as a consumption item rather than as a production input. That last, broad argument has the additional advantage that it does not imply that schooling needs to become so institutionalized in a society that specific school credentials become mandatory for moving into many positions. Our great, and possibly ill-founded faith in the value of education can be carried so far as to actually stifle developmental change if we insist on specific school credentials for job placement (Collins, 1979), in other words. On that note I end.

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