EDUCATION, LEARMOMG, AND POPULATINC CHANGE

By

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It has been well established in the demographic literature that the variable called "education" has a significant relationship to several population variables. Higher levels of education typically are associated with lower levels of childbearing, more birth control, and greater spacing of children (Simur, 1977; Westoff and Ryder, 1977; Cochrane, 1979). Likewise, the higher the educational attainment the higher the life expectancy and the lower the infant mortality (Benjamin, 1975). Additionally, greater amounts of education have been related to more frequent, especially long-distance, migration, although there are some notable exceptions (Kunz, 1975; Kosinski, 1975). Education has also been linked to other dimensions of population, such as age at marriage, marital status, population distribution, and other population characteristics.

It is commonplace to include educational indicators in most demographic analyses, but the meaning of the education variable used is not often considered. Hence, on both conceptual and methodological grounds, it may turn out that the analysis is misspecified and we are drawn to unwarranted conclusions.

The discussion to follow will, therefore, focus on three aspects of the problem: (1) Statistical measures of education and their limitations; (2) difficulties in interpreting research findings using conventional educational indicators; and (3) a reformulation of the concept of education in population studies.

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Statistical Measures of Education.--The types of educational indicators usually found in demographic research are school enrollment or attendance rates or ratios, literacy rates, and measures of years or levels of schooling. Apart from the fact that statistics of these types are often poorly collected, inadequately evaluated, and rarely adjusted for known or estimated deficiencies, they each have limitations as measures of education. School-going indicators will reflect the current educational effort and may not reflect at all the past situations that have prompted demographic behaviors among adults. Furthermore, mere attendance or enrollment in schools does not indicate the content of educational programs or their quality. Literacy is simply the ability to read and write in some language and, although its correlations with population phenomena have often been demonstrated, it taps only the minimal level of educational attainment and thus fails to reveal the successive degrees of attainment that are reached by many in a population. Years or levels of schooling overcomes the basic shortcomings of the other types of educational indicators, but it suffers from frequent failure to differentiate mere calendar years of going to school from years of achievement or the acquisition of specified levels of knowledge gained. Also, it is difficult to include in any quantitative measure of schooling the several kinds of schooling which do not fit into the normal graded educational track (such as technical training or adult education).

Differences in statistical measures of education, either in examining a population group over time or in comparing populations, are affected by the stage of educational development of a country or group. During periods of educational expansion, some population categories are likely to show greater gains than other population categories, the latter catching up as educational expansion reaches its upper limit. The subsequent narrowing of differentials may have little relationship to real educational differentials but instead be a

function of the limits of the statistical indicator. For instance, if the literacy gap among groups becomes closed, does it tell us anything about differences in higher educational attainments? If completion of secondary school reaches universal levels, do inequalities in higher education become the more meaningful indication of education? If university attainment were equal among groups, could it be that unmeasured elements of such education (quality of schooling, specializations of curricula, more or less prestigious institutions attended) become the real differentiators? (Nam, 1971)

Interpreting Educational Indicators.--Whatever indicator of education is used, measures of association with population variables require us to determine if the relationship is real or spurious and, if real, what attributes of education are being reflected.

Spurious relationships can be ruled out if we control our analysis on intervening variables. (Age at marriage sometimes explains a substantial part of the education-fertility association.) Cause-effect relationships may act in both directions. (Some women do not work because they are getting more schooling, whereas some women work because they need funds to continue their schooling.)

When we determine that the educational variable has a real effect, we must interpret that finding in terms of the underlying educational factors. Is education meaningful in its own right, that is, does the content of education received influence the demographic behavior? If so, is it particular items of knowledge gained, or sharper cognitive and analytical skills obtained, or better reasoning ability, or a different set of values on which to base decisions? Or perhaps education is a proxy for a given level of living, or it orients persons to certain types of interests which are more or less compatible with various population events.

Reformulating the Concept of Education.--The difficulty in trying to unravel the intricacies of education-population relationships can be minimized if we examine the concept of education and reformulate it according to its critical components. In this connection, we would do well to shift our focus away from producers of education per se and toward recipients of education and the contexts of their educational experiences. So many of our educational indicators are tied to the educational systems of an area. We are less aware of lines of educational transmission from other sources to the individual.

The major argument to be presented here is that the educational approach to affecting population changes can be enhanced considerably if we focus more of our attention on the recipients of education-information-communication effort or, more broadly, on the actors in the drama which involves birth, death, and residential movement. It is these actors who engage in population behavior, and their knowledge base goes beyond that which is provided by organized educational sources. It is, therefore, most appropriate to talk about aspects of population-related learning, how and where it is acquired, and the relevance of each aspect for influencing demographic change (Poffenberger, 1971).

If one pursues this approach, it is seen clearly that learning which is relevant to population behavior takes many forms, comes through different channels, and occurs over the whole life cycle of the individual. It would be useful to have a typology which recognizes these aspects of population-related learning and, for this reason, certain critical distinctions need to be made.

First, part of what we learn throughout life is specifically concerned with population matters. Part of what we learn in our every-day experiences is not specific to population-related behavior, but is indirectly related. And, obviously, part of what we learn is neither directly nor indirectly relevant in the population sphere. If we focus on implications for population

actions, we can see, then, that a meaningful distinction can be made between population-specific learning and population-relevant learning. Such learning as is not at all relevant to population is outside of our area of interest.

A second major distinction can be made according to whether the population-specific or population-relevant learning which takes place is structured learning, in the sense that it has been planned for and organized, or is unstructured learning, in the sense that it is spontaneous or perhaps, haphazard. Although structured learning would, by definition, always involve agents of education or communication who attempt to reach the individual with information, by no means are informational agents absent from unstructured learning.

In the following discussion, we will explore facets of population learning which emerge from a consideration of the intersection of these two dimensions, and then reflect on the importance of two other dimensions within each category. By combining the first two dimensions, it appears that learning which is meaningful for population-related behavior can fall into one of four types or categories:

Type 1) Learning which is population-relevant and structured

Type 2) Learning which is population-relevant and unstructured

Type 3) Learning which is population-specific and structured

Type 4) Learning which is population-specific and unstructured

Within each of these categories, particular sources of awareness emerge which contribute to the total population learning of the individual.

In the first category, we can observe that formal and nonformal processes of education are at work. For example, the routine kinds of education offered in the regular school systems cover subjects and ideas in several disciplines (e.g., mathematics, social sciences, natural sciences, etc.) which acquaint the student with the world around him/her and, in the process, help

him/her to see the relevance of population change. Nonformal education, in the form of specialized courses outside of the regular schools (e.g., adult or continuing education) can provide the student with a structured learning environment in which population-relevant knowledge is transmitted. While this category does not encompass learning about population processes, per se, it does deal with learning which helps the student to attach meaning to population information which is acquired.

In the second category, we can see that informal education which is not population-specific (that which is learned in everyday interaction with others) enables the individual to receive and internalize values, attitudes, and norms of behavior that may be relevant to later population-related actions. It can also shape the personality of the individual in such a way as to make the person more or less receptive to certain ideas related to population.

In the third category, we are talking about learning which is structured and specific to population. Much of what is included in educational programs for family planning and health, and some in social science courses within regular school programs, falls within this category. But we have also witnessed, in recent years, a systematic effort to introduce or expand population-specific content into the regular (formal) school curriculum. The term "population education" has been applied to this attempt, although forms of structured population learning are also offered in nonformal educational settings as well.

In the fourth category, we take account of unstructured population-specific learning. Much of what is learned in the population sphere does not come from formal or nonformal instruction but, rather, emanates from the day-to-day contacts which people have with each other. Selected persons are prime sources of such learning, persons whom behavioral scientists have

labeled "significant others" in an individual's life. It is not unreasonable to assume, although it needs to be determined empirically, that a substantial proportion of the knowledge, values, attitudes, and norms of behavior relative to population are learned in this manner (through what we now call population socialization). What is most critical about this category, however, is that this type of learning is a kind about which we are not readily conscious and which cannot be systematically incorporated into our learning schemes.

If we accept this framework as a means of detecting the nature of population-related learning in its different forms, it then becomes possible to examine the relative importance of each category in equipping individuals with the basis for population behavior.

In addition, there are two factors which are of special significance in understanding these several categories of population-related learning. One is the stage of life at which population learning is experienced, and the second is the sources of such learning.

Population-related learning is a life-long experience. From the day we are born to the day we die, we are exposed to influences of demographic importance. Nevertheless, it is obviously true that some types of learning are more frequent and intensive at some ages than at others. Structured learning is more common among young people, particularly among those of normal school ages. Unstructured population learning looms most important at the pre-school and early school ages, when the child is beginning to form definite notions of what is socially significant. Again, it remains for future research to determine the variability here. While I suspect that there are universal patterns in this regard, cultural variables and situational factors undoubtedly have important effects.

While population behavior results from decisions which are largely made by individuals for themselves, these individuals are influenced by others with whom they have social relationships. For this reason, agents of population learning are indeed quite important. What are the various sources of population learning for the individual? Which agents have the greatest influence? Do some agents have greater influence in some of the categories of the framework than in others? A perusal of the framework suggests that the traditional school exerts most influence in the first category (structured population-relevant learning), some in the third category (structured population-specific learning), and none in the others. Family members are crucial with regard to categories of unstructured learning. The influences of friends, co-workers, and other community members are also felt in these categories. Government has had its impact largely in reference to structured learning.

Empirical Evidence for the Components of Population Learning.--Numerous studies have been conducted that include conventional measures of education and population phenomena. Cochrane (1979) has divided those concerning education and fertility into aggregate studies and those using individual data. Within the former, she has classified the research by the measures of education and fertility used and the form of statistical analysis.

Aggregate studies involving cross-national comparisons generally reveal the traditional inverse relationship between education and fertility but there are a few exceptions which seem related to level of development or culture of the country. Cross-regional (within country) studies permit greater specification of areas and characteristics. Here, one discovers more variation in findings involving nonlinear associations between the two variables, stronger inverse relations in urban than rural areas, differentiation between the sexes

in the relationships, and a stronger inverse relation in longitudinal than cross-sectional analyses. Few of these studies were conducted in the least developed countries.

Studies using individual data show somewhat different results. Persons with a small amount of education often have higher fertility than those with no education. The education of women is more likely to be inversely related to fertility than that of men.

When additional variables are included in the analysis, the simple associations of education and fertility are modified. Thus, education is seen to affect fertility indirectly through the proportion of a population which is married or the age at marriage, infant and child mortality, the perceived cost of children, the economic benefit of children, the time cost of having and rearing children, communication between husband and wife, and birth control.

All of these studies treat education as if it was an indication of the formal schooling processes. None attempt to parcel out the channels of learning that are associated with the education measured or those which are unmeasured.

On the assumption that the effects of general education are limited because it includes very little instruction about population information itself, several academic scholars and many governments (some with United Nations support) have devoted resources to advancing population education as a means of altering population conditions. Population education, in the sense most often intended in this approach, is designed to "help people understand the nature - and particularly the causes and consequences - of population events. It is directed at people - as individuals or as members of groups, as decision-makers or potential decision-makers within their families, as citizens within a community, as leaders within a society and

as policy-makers within a nation" (UNESCO, 1978). It encompasses teaching about population in both formal school systems and nonformal school situations. It includes demographic education as well as family planning education. Population education, so defined, is population-specific and structured. Its aim is to increase a person's sensitivity and awareness of population phenomena as they are interrelated with other phenomena.

After nearly two decades of small-scale programs of population education in various parts of the world, UNESCO has attempted, through its ISCOMPE project, to give structure to the field. An outgrowth of that project has been a monograph (UNESCO, 1978) which comprehensively, yet succintly, spells out the several elements of the population education process (conceptualization, materials preparation and testing, teacher training, program implementation, and evaluation).

The population education movement has gained momentum, and yet the agenda for further development is enormous. One has only to review the accomplishments briefly to know that many problems remain which are in need of substantial investigation. Vast improvements are required in the production of teaching materials which are demographically accurate, socially meaningful, culturally acceptable, and pedagogically effective.

Agencies whose responsibility it is to endorse instructional program content and materials must be persuaded that the school curriculum needs to include learning about population as much as, if not more than, most of the topics now treated in the curriculum. There is also a definite need for organized programs of population instruction in a variety of settings outside the school system in order to reach the many people, especially in developing nations, whose formal schooling is limited. It is important, in this regard, that a special effort be made to complement in-school population education

with out-of-school teaching of the subject to parents of the students who are in a position to either reinforce or contradict learning in the school situation. Special problems in teacher training exist because those teachers already in instructional programs were not themselves trained in population education, and the somewhat controversial aspect of the topic and the newness of some of the instructional methods which are recommended place a severe burden on teachers to adapt to the new regime.

Above all, the oft-neglected element of evaluation should be emphasized much more in population education activities. This includes not only evaluation of approaches, materials, teacher preparation, and student instruction but, most importantly, evaluation of the effects of population education on the knowledge, attitudes, values, and decision-making skills which these programs are designed to influence. Before huge investments can be made in furthering population education efforts, there needs to be greater assurance than now exists that such education has a significant impact of the kinds intended. The evidence of effects to date is unsubstantial, being based on a few small-scale studies. Yet, it may be the case that true evaluation can be concluded only after studying impacts on individuals and groups over several stages of the life cycle as time proceeds.

Although population education itself is a Type 3 learning process, it serves to create a more receptive population learning environment in informal contexts. Hence, it is not easy to divorce population education from the range of Type 4 learning situations. The latter are certainly more subtle and much less likely to be viewed as prominent inputs to population learning. It is probably fair to say that scholars who are specialists in informal learning processes have almost completely ignored population subject matter in their studies, and population educators have not been sensitive enough to

what of relevance goes on outside the school or non-school educational forums. If, after appropriate evaluation, the independent effects of population education turn out to be smaller than what its advocates believe, it can be attributed less to the ineffectiveness of programs and more to the powerful forces which shape learning in the family, within peer groups, and in other small groups and institutional settings.

We should not be surprised that Type 4 learning is relatively unstudied and its importance relatively unrecognized. The problem of capturing the essence of informal learning is indeed difficult. Information transfers are frequently tacit and based on actions and words which even the most sophisticated research methods cannot interpret and convert to analytical data. Moreover, allusions to population themes can appear in conversations, performances, or other forms of symbolic communication which are concerned mainly with other subject matter areas. Researchers have made few successful attempts to acquire such information during the process of its creation, relying instead on collecting reports of past behavior and inferring origins and contents of past population-specific transactions from interviews, surveys, and various secondary data sources.

The concept which best indicates the scope of Type 4 population-related learning is that referred to as "population socialization." The topic is sometimes defined to include all forms of population-related learning, but it may be more fruitful, for both research and implementation reasons, to restrict the term to cover the unplanned ways in which persons learn about population facts, attitudes, values, norms, and behavior. It deals with all points in the life cycle but necessarily focuses more attention at the younger ages when cognitive and affective processes are being formed and when socialization, as in other subject areas, is seen to have its greatest

effects. It also recognizes that individuals become oriented to population matters through many agents of socialization.

The potential influence of the mass media on the formation of population ideas has generated several studies of population communication through television, radio, books, motion pictures, newspapers, and magazines. More emphasis has been placed on the content of the offerings than on the reception they have gotten or on the learning consequences, but growing awareness of these sources promises to aid in sensitizing sponsors and producers of media programs and products to their responsibilities in this regard. Both types of unstructured learning may be involved here.

The population socialization literature has begun to proliferate with conceptualizations and researches for varying demographic topics and widespread areas of the world. The first systematic treatment of the topic took place at the East-West Population Institute in Hawaii in 1974 with the conduct of a Population Socialization Conference. Many countries of the Asian and Pacific area were represented, and invited guests included some persons who had already been working in the new field and others who were first being exposed to it and who had skills which would contribute to advancement of relevant research. The Conference report concluded that:

> "Understanding (population socialization) would improve design of programs to effect population changes that would accelerate social and economic development. Research in this area must necessarily focus on both the agents of socialization and the socializees in diverse settings, with separate attention to the traditional, transitional, and modern sectors within and across countries"(East-West Population Institute, 1974).

Participants in the Conference who were methodological experts recommended experimental studies, longitudinal surveys, case studies of groups, and cross-cultural comparisons. Sampling of socialization situations, as well as of individuals, was advised. There was agreement that the subject matter not be confined to fertility-related behavior but be concerned with a wide range of behavior related to the entire population processes of a society.

Not a great deal of progress has been made since the Conference in generating research projects of this kind or in publication of relevant articles or books. Some elements of the subject have appeared in recent population textbooks and several papers of interest have been presented at professional association meetings.

One review of the literature concerned with fertility socialization of young people in the U.S. showed that essentially three approaches had been used in the past (Gustavus, 1975). The first is a correlational approach in which factors in the child's environment are related to family size preferences or the sex composition of families from cross-sectional data, and inferences are made about causal connections. The second approach is referred to as the "conscious sources" approach in which youngsters are asked where and how they got their family size ideas. A third approach is the complementary or parallel interview strategy in which data are simultaneously gathered from youth and their parents and/or peers. Findings from studies employing these approaches indicate that children and youth do, in fact, think about fertility matters at an early age and their ideas on such matters conform closely with those of their mothers and of various categories of the population to which they belong (e.g., race, sex, social class).

A special issue of Population and Environment, sponsored by the American Psychological Association's Division on Population and Environmental Psychology, included a section on population socialization in which a guiding framework and illustrative pieces of research should help draw attention to the area (Philliber and Nam, 1980). A topical organization for population socialization is outlined that emphasizes research questions having to do with content areas and agents of socialization. Three of the studies extend the fertility socialization literature by examining various facets of the fertility-decision formation process. Generational effects and group characteristics are observed to exert important influences on that process.

Propositions about socialization effects are also tested in research studies on the residential mobility orientations of children and youth and on mortality expectations of young adults. The first of these points out that:

> "...Children and youth are very much 'population actors' in at least three senses. First, they exert influence on adults who make demographic decisions, both through expressing their opinions on relevant population conditions and through being considered by parents and other adults in terms of how decisions may affect them. Second, they are, in fact, decision-makers in demographic areas. They are capable of producing babies while they are teenagers; they may leave home, or otherwise relocate from previous residences, while they are still at a young age; and they are determiners of their own health and mortal risks from infancy onwards. Third, children and youth are forming ideas about population matters at those ages which they

will carry with them into adulthood, and only strong alternative influences which challenge the views they were socialized into are likely to reshape many of those ideas" (Lyons, Nam, and Ockay, 1980).

The research reported reveals that residential mobility expectations can be linked to earlier moving experiences, kinship ties, and a variety of other social contexts and active experiences. In the other article, subjective life expectancy of college students is found to be related to experiences with death of persons close to them. If research on fertility socialization is in a formative stage, then research on mortality socialization and mobility socialization are in an embryonic state. Better conceptualizations and methodologies and far more empirical research is required on all aspects of population socialization before any reliable generalizations can be put forth.

Conclusion

The main point of this paper has been to indicate that past programs concerned with linkages between education-communication and population processes have placed major emphasis on instruction about population and, in so doing, have ignored a number of ways by which individuals learn about population. The framework suggested here for viewing population learning makes distinctions between population-relevant and population-specific learning and between structured and unstructured learning. The four types of learning, which a cross-classification of these two distinctions shows is possible, can be further elaborated according to stage of the life cycle at which the learning takes place and the particular agents of learning which are involved.

Consideration of this framework in evaluating present efforts to inform people about population determinants and consequences signifies that too little theoretical attention has been paid to unstructured forms of population-related learning, and there has also been a general failure to identify contextual and facilitating characteristics of individuals and groups and structural conditions independent of specific population information.

Research designed to discover the effects of education on population processes is lacking in similar respects. The "education" variable which is normally included in these studies may reflect a combination of variables--acquisition of population-specific knowledge, acquisition of population-relevant knowledge and skills, possession of a broader base of knowledge and skills which have no necessary connection to population, as well as indications of other personal and group phenomena that are effective determinants of demographic changes. When our research discloses an association between "education" and population variables, how can we decipher the findings in order to attach meaning to it? It would seem that this can best be done by introducing variables into the research which tap each of the types of population-related learning and spurious factors. This approach would have the advantage of not only estimating the relative effects of each type of learning but of suggesting which types offer the best possibility for future effectiveness and under what conditions.

Such broad research needs to be supplemented by surveys and evaluation studies that would help us to determine the impacts of various direct interventions (e.g., family planning communication, school-based population education) on population-related knowledge, attitudes, values, norms, and behavior.

Needless to say, the difficulties that will be encountered in embarking on, and achieving, this kind of comprehensive research intelligence on learning and population change will tax the ingenuity and fortitude of students of the area. Small group conferences and workshops are needed to provide improved conceptualization and methodology, and replicative studies in different countries and among various population groups will be important. The outcome should be a better knowledge base for making education and communication a more effective means for insuring desirable demographic and socioeconomic changes.

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*The fundamental ideas discussed in this paper were first presented at a seminar at the Population Studies and Research Institute, University of Nairobi, Kenya, March 1978, and later introduced in a workshop on methodology for the comparative study of women's education and fertility conducted by the Population Division, UNESCO in May 1979.

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