



VOLUME I

A Compendium of Publications Relating to
SOCIO-CULTURAL ASPECTS

UNIVERSITY OF MINNESOTA/EXPERIMENTAL CITY PROJECT
study of the concept of an experimental new city in the 250,000 plus population range
in which technological innovations could be demonstrated and tested. 1969.

EDUCATION

Minnesota Experimental City Workshop Report

As a first step in projecting the possible nature of an educational system for the Minnesota Experimental City (MXC), attention needs to be given to the identification and exploration of fundamental issues, potential capabilities, and problem areas. Only then can educational planners translate structures (organizational and physical), materials, technological equipment, and personnel training programs into an operational educational system. This report does not present a design for an educational system. Rather, it discusses problems, present capabilities, and potentials which need to be studied in relation to the concerns expressed in other MXC workshops which need to be applied to education. Knowledge of the interrelationships of the various segments should provide some assurance that the emerging plans for education are meshed with other systems.

A serious problem for the planner is his discomfort with the "arrogance" of suggesting, a priori, the potential features of the educational system of the Experimental City without a full understanding of the concerns of other workshops and without knowledge of the decision-making structure and personnel to be involved in implementing plans for the system. Underlying the issues discussed here is a concern for providing a planning climate that places minimum restrictions on those who must develop and implement detailed operational plans. The insistence on leaving planning options as open-ended as possible attests further to the importance of discussing fully the general issues at this point in the planning process.

The present report seeks to identify general constraints under which further planning must be conducted--limitations placed by governmental and accrediting agencies and their staffs, relationships with institutions outside the Experimental City, and the like--without committing planners to certain kinds of technologies, facilities, and approaches that would limit alternatives open to the new system.

A basic assumption of the entire report is that the educational system must be considered a key system in the City, strongly affecting and affected by other systems in the society. In view of the frequently haphazard ways in which education is interrelated with other systems in present urban life, the possibility for planning appropriate interactions between systems was seen as one of the most exciting opportunities in the project. The next stage clearly should include the study of the other workshops and the framing of a set of goals

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(consistent with those concerns of those other workshops) which can be used by the educational planners to refine statements of objectives functionally related to other systems.

I. Goals and Objectives

Important questions center around the need to define more clearly the goals of the Minnesota Experimental City in general, and the goals of the educational system in particular. Tempering an explicit statement of educational goals is the knowledge that such goals cannot be fully defined until the overall goals of the Project and several of the workshop areas are better understood. This is particularly true in connection with what material and personnel inputs might become features of the MXC. The nature of those inputs will depend heavily on the kinds of goals identified. Additionally, a certain risk attaches to goal definition performed prior to the establishment of a legitimate democratic structure that can exert an influence on decision-making. In this connection, a critical problem is differentiating between the goals of the advance management and those of the Experimental City when that City becomes a reality. Specifically, the extent to which development project goals might prejudice the options for the goals of the City's democratic governing structure must be taken into account in considerations of the nature and dimensions of the educational system.

Within that framework, the following convictions regarding goal definition are summarized.

- °The various systems in the Experimental City must agree on some basic, minimal goals before the goals of the educational system can be further refined.
- °Building a new city provides special opportunities not available in existing cities to interrelate the educational system with other city systems. The educational system, must be an open one, with the capacity to provide programs relevant to life in both the City and other environments.
- °Goals must be phased over a substantial period of time. Since every system in the City cannot achieve all potential innovations immediately, each, including the educational system, should provide enough flexibility to allow for innovations to develop at appropriate times and an orderly transition from one stage to another. In this sense, the project might be more aptly named the "experimenting city," a city undergoing continuous evaluation, with change as a main feature of its society.

A. Interrelationships Between City Systems

Once a set of minimal goals for the City has been defined, work can begin on establishing the more specific objectives of the various systems which comprise the Experimental City. That these objectives might be developed cooperatively, without the constraints of problems

that hamper joint efforts in existing urban situations, is certainly an enticing prospect. Anticipation of compatible and conflicting objectives should enable planners to make rational, functional plans with minimal obstruction from the historical accidents that make urban problems so difficult to solve.

The educational system also needs to relate more closely to other systems than is typical in the case of established urban areas. For example, the kind of social organization built into the City will have an impact on how the educational system socializes the population for that organization. Studies have demonstrated a correlation between the type of social organization in communities and certain programmatic approach and structural arrangements in the schools. A joint discussion of objectives must be the starting point. It is recognized that educators have not maintained a particularly good record of defining workable objectives within education, let alone relating those objectives to other systems, but the opportunity to plan cooperatively from the outset may contribute to more effective coordination in the MXC.

The MXC offers a unique opportunity for joint planning and could become one of the first examples of what can be done with closely integrated systems. At the same time, however, the inter-relationships between systems involve an extremely delicate balance. Changes in one system inevitably produce changes in others; it is difficult to define the extent to which concurrent manipulations outside the school system must be made to produce the desired change. Furthermore, advanced communications systems (a consideration for the Experimental City) may well accelerate encounters between the City's various systems. In certain areas the educational system will be expected to anticipate or lead developments in other systems.

The educational system could respond passively to the current needs of the industrial component of the society, gearing much of the program to the production of a particular type of personnel need. Or the educators could gear programs to certain kinds of technological research and development thrusts in anticipation of future needs. The educational system would then be highly responsive to the needs of several other systems, but it would not serve a leadership function.

A superior approach would consider the possibility of an educational system serving as an actively involved agent of change. It is clear that education cannot be simply a service function conforming to the needs of other systems. The interrelationships that emerge must be multi-directional, with each system shaping and being shaped by the objectives of others. A climate in which changes in one system influence other systems in an orderly manner is seen as a desirable objective.

B. The Concept of a "Learning Society"

The entire concept of education in the Experimental City can be significantly broadened by expansion from the "preparation for life" concept which has guided much of the present educational approach to that of a "learning society," as has been espoused by various individuals, including Robert Hutchins. In the past schools have

emerged primarily for economic or political reasons. It now seems possible to talk about a life of learning in a city geared to human learning and renewal--a kind of communiversity in which learning activities are provided for all age levels, though special needs of children and youth for education must always be recognized.

Today's programs are geared almost entirely to the child, the adolescent, and the young adult, and are aimed primarily at preparation for college, for jobs, and for social existence. Open programs that would make learning opportunities readily available to "students" of all ages and interests may well provide a more responsive contribution both to individuals and their environment. The whole concept of "student" can be broadened to include all who wish to take advantage of learning activities, whether in the home, in schools, on the job, or in recreational facilities and other community settings.

The development of such an open educational system would have far reaching implications for educational planners; it would require reassessment of the ways in which we evaluate student progress, develop and present materials, locate school facilities, and define needed manpower. The present system, for example, is structured around the notion that the student must amass a certain number of school years, course credits, and training experience before the educational institution pronounces him ready for entry as a mature and responsible member of society. Attempts to provide continuing education beyond that point meet with varying degrees of enthusiasm unless additional education is prerequisite to further vocational advancement.

In a learning society, the school building itself will likely be dramatically changed as the educational program moves increasingly into the community. The City would provide the raw material for the curriculum. Students would no longer identify the school only as a place--at least not a single place where they regularly follow a given schedule. If the City indeed is expected to provide raw material for shaping the curriculum, the place of learning should simultaneously expand to include the entire community. Major developmental work is required immediately if the Experimental City is to become a learning society. Much of the technology is already available, but the necessary philosophy and programmatic aspects need considerable study. How the educational system can balance the decentralization inherent in the learning society concept with the necessary "preparation for life" and socialization functions that should be maintained is presently an unanswered question which requires thorough probing.

II. Assumptions, Responsibilities, and Constraints

A. Relationships to the Present Social System

Educational planning must take advantage of those opportunities which the development of an entirely new city can provide while at the same time recognizing that the system cannot be planned in a

vacuum. Whatever its potential, the City must still be grounded in the larger society of which it is a part. Its people will generally come from existing urban areas and consequently can be expected to bring with them the traditions, strengths, and shortcomings of existing cities. The present is very much influenced by the past, and the stored knowledge, values, and ethics already present in such a population must be confronted in the restructuring process. Failure to recognize this could result in programs that fail to meet, or possibly even defeat, their own objectives. The objectives of the people who live in the City will most certainly not always match the objectives of the planners. Flexibility and adaptability must be guiding characteristics of projected structures and systems whether they be related to education or other areas of life.

B. Controls and Policies Exercised By Governmental Agencies.

In the field of education, attempts to assure some measure of minimum quality have led to legal restraints, certification standards, budgetary controls, and the like. Planners and officials from the various levels of governmental agencies will have to cooperate closely to provide some guarantees that programs of the Experimental City are given the kind of flexibility they should have without conflicting directly with the intent of those standards set by legislative or other deliberative bodies. In most cases, little conflict is anticipated in the establishment of objectives. Nonetheless, considerable discussion will certainly be needed to work out operating details, particularly if the avenues used appear to conflict with existing controls. Good communication can help to settle the great majority of these questions.

State laws, for example, require a certain number of days' attendance for elementary and secondary school children. If education is to be aimed at the learning society mentioned earlier and if students spend a significant amount of their time learning from a telecast in their own homes, a different pupil accounting system will have to be developed which defines attendance in other units or terms. If the teaching faculties are to include people from business or industry who will conduct in-plant programs, some accommodations will have to be made on how such persons are "certified" to teach. Questions of this type will be numerous.

C. Influences of Non-Governmental Institutions.

By comparison, the restrictions on planning placed by governmental agencies are probably less formidable than the influences of educational, industrial, and professional interests outside the City. Though these institutions may well be interested in innovations, their present operations are tied to policies, procedures, and requirements which cannot easily be changed, even for the convenience of a single experimental city. At the same time, since the Experimental City is to be an open system, one which is capable of constant interaction with outside systems, the interests of those outside systems must be considered realistically. The City must be capable of continuously exchanging people with outside systems. Persons educated in MXC will, for example, leave to take jobs or continue their education outside, and the City must be expected to prepare them for an orderly transition to these

outside opportunities. Conversely, new people will be moving into the new MXC environment. The system, education in particular but not exclusively, must be capable of receiving them and taking into account the kinds of training and backgrounds new residents bring with them. The commitment to an open social system, then, will act as a major constraint on the degree to which internal programs can depart from educational programs outside.

Current institutional restrictions result from long-standing policies and procedures not easily susceptible to change. College entrance requirements are usually defined in terms of present secondary school programs and, for the most part, do not easily take radical innovations into account. The same could be said about accrediting agency requirements. It is quite possible, for example, that the Experimental City could provide an education that taught a student how to think well, to be humane, and to express himself effectively; but under present requirements--unless his school system is accredited and unless he has the appropriate number of high school credits in the proper subjects or can satisfactorily perform on tests in these fields he may not be able to leave the City for further advanced education. This is not to say that planners must always passively accept these kinds of requirements as unchangeable. Rather, requirements of this kind cannot be ignored. Again good communication with control agencies of this kind can frequently yield exceptions which make innovation possible without damage to the individual.

D. Responsibilities and Constraints Dictated by the Experimental City Environment.

Beyond the requirements established by outside governmental and non-governmental agencies, the unique possibilities inherent in the City will assuredly produce a whole new set of policy questions. We now know enough about some of the policy questions introduced by data banks, for instance, to predict that a host of serious ethical considerations will accompany the development of a centralized computer complex that could service a variety of public and non-public systems in the City. This is but one example. Interaction between the planners and the eventual governing structure of the Experimental City will be needed to work out these considerations. Those negotiations too will be highly complex and delicate, requiring careful planning and interchange of information.

Another crucial question (and one in which much responsibility will rest with the educational system) is the development of an appropriate balance between the rational, scientific control of systems and the maintenance of democratic values. The Experimental City affords the possibility of designing a carefully integrated, controlled set of systems--an "instant triumphalism" achieved by eliminating, in the planning stage, the potentially troublesome variables and developing only those aspects that work predictably and logically. Such a prospect, to be sure, may be enchanting to those who are working on present problems and are faced with the frustrations caused by factors which simply cannot be controlled in an existing city. The prospect is also frightening. How does an educational system develop people who can function in a logically controlled, interactive set of social, economic, and technological

systems and, at the same time, maintain individual identity, individual creativity, and individual rights? In brief, how can the "Orwellian" consequences of a rather highly technologically sophisticated system be avoided? These questions too have not yet been adequately probed or answered.

III. Research, Development, and Training Ramifications.

A. The Student Population

As mentioned earlier, it is projected that the educational system will have to be geared to a much greater range of students than the range found in the typical school system today. The Experimental City concept certainly would provide opportunities for the learning society approach, with diverse educational opportunities available to all citizens. The emphasis at this point, of course, is on leaving as many alternatives open as possible. Whether citizens, especially adults, will be willing to take advantage of the programs made available remains a question. With the likely increase of leisure time and the potential interaction between the education system and other social and industrial systems, it is possible that new incentives for continuing education will have to emerge or be developed.

Granting the possibility that a much larger portion of the inhabitants of MXC will opt to continue education, innumerable questions arise in educational planning. More flexible kinds of facilities, materials, and personnel will obviously be required. New programs will demand new ways of evaluating and categorizing "students." The entire educational system, in short, will have to be redirected to more diverse audiences, hopefully with the goal of humanizing the outcome and providing for a still greater variety of individual differences.

B. Intellectual and Interpersonal Behaviors.

Discussion of the kinds of intellectual, interpersonal, and physical behaviors which might be produced certainly cannot take place without relating to the goals and objectives of the City and the systems which will operate therein. Specific behaviors cannot be anticipated until much more detailed information is available from the other systems. At this stage in the planning process, we can deal only with general matters.

We know that the development of an Experimental City will require skills, talents, and attitudes that the educational system will be expected to provide, frequently through cooperative programs with the industries and social organizations of the city. When industrial training requirements become better known, programs can be planned to meet them.

For "general" education, however, where the concern is not preparation for specified skills, the issues become even more complex. To what degree, for instance, will the educational system be concerned with transmission of factual information as compared to the shaping

of attitudes or to the development of problem-solving capabilities? To what extent should the learning process center on individual or individualized instruction as compared to the socialization function? How much emphasis should be directed toward learning how to get along with others in a society that will be almost incredibly complex? The following comments from the workshop illustrate the difficulties in dealing with some of these questions.

The definable "knowledge transmission" skills and understandings are being taught with greatly increased efficiency and effectiveness, and this trend will likely continue. A host of technological devices, programs, and systems to provide these learning skills is currently available, and many more are becoming economically feasible. As technological aids are increasingly utilized in the learning process, the role of the teacher can be expected to change from that of the purveyor of information or direction of skills to that of "manager of the learning process." With the teacher as manager, diagnosis of individual levels of achievement, learning styles, and characteristics assume increased importance. Prescriptions to move the student-learner to new levels of achievement follow such individual diagnosis. Two important issues are embedded in this potential circumstance:

Who is to choose the specific objectives of knowledge application and individualized instruction?

Will technological aids or managing of the learning process, even though on an individualized basis, essentially deteriorate into a dehumanizing process?

The American taxpayer traditionally has more readily supported the educational systems knowledge building function than its socialization tasks. Difficult questions revolve around identification of socialization areas appropriate for the family, the school, and the community. Nonetheless, the greater efficiency and effectiveness with which knowledge can be acquired suggest that schools can at long last turn more of their attention to social and interpersonal learnings. As more and more people spend their lives serving others, it becomes especially important to define what kinds of socialization learnings are wanted and needed and to understand the effects of the environment on the choices that are made. It is in the interpersonal learnings area that suitable kinds of technology and approaches need to be defined. For example, Glaser, reporting upon an experiment at the Oakleaf School in Pittsburgh, found teachers ill-equipped to deal with social learnings even when technological aids drastically reduced the time required to operate in the "presentational mode."

C. Potential Material Inputs: Buildings, Technological Equipment, Curriculum Materials.

On a general level, many questions regarding material inputs for the educational system can be handled relatively easily. With respect to physical facilities and technological equipment, the primary task

facing planners is to decide on kinds of programs and specifications (including specifications phased over a period of time) with which construction and equipment people can work. Implications for the appropriate material inputs are found in answers to such questions as: Will several institutional functions be linked together in a high-quality multi-purpose communication system? Do people need to be brought together to learn factual information or interpersonal skills? For what categories of learners will learning experiences be organized? What are the impacts of flexible, ungraded scheduling, team teaching, and teaching machines on physical facilities? Once basic program objectives can be explained, the technological personnel can be asked to design facilities and equipment appropriate to the task.

D. Potential Human Inputs

The educational system visualized most certainly will use a highly varied "teaching staff," drawn both from inside and outside what we label the education profession today. Included will be professional educators from all levels and subject areas, para-professionals, teacher aides, technicians of many kinds, industrial training personnel, and numerous categories of other support personnel. At all levels, these people will have to be prepared for the unique work that will be encountered in the Experimental City. Many will have to be trained prior to the time the City becomes operational for it must be recognized that teachers and other educational workers, too, bring into the new system their past and immediate experiences. These experiences must be considered in training programs. Any number of special training needs can easily be projected if the educational system is indeed to be considerably different from present systems.

Of particular concern is the need for the personnel who will man the educational system to have full opportunity to participate in planning activities. Whatever the level of sophistication the planning achieves, the teacher (or other support personnel) makes most of the actual choices at the classroom level. Hence, it will not pay, for example, to install highly sophisticated computer capability in every classroom unless teachers are able and willing to make appropriate use of it. There is some persuasive evidence that teachers who participate in actual curriculum development and planning are more likely to incorporate the results of such endeavors in their actual teaching.

Planners cannot, however, assume that the roles of all educational personnel will be the same for the MXC as they are currently. New roles would seem inevitable in the kind of system envisioned, and each will require new approaches to training. For example, today's teacher of factual information may be more heavily involved in interpersonal learnings; he may become more of a diagnostician; he may become a trainer of other teachers. Or, a new class of education professional may well arise with primary responsibility for selecting and developing technological applications. New roles will emerge as the educational system interacts with industry, possibly resulting in the increased use of joint appointments between private companies and public schools.

E. Diversity of Programs.

An "experimental city" should not limit educational programs to any single approach. Not only is diversity critically important to the research and development objectives of the MXC project, but, more importantly, diversity of programs will be required to meet the differing and changing needs of the people who will be living in the city. The kinds of diversity needed for MXC could be achieved in a number of ways, including simultaneous experimentation with several approaches to a particular subject area, competing educational subsystems, and maintenance of private and parochial schools in addition to the public system.

Undoubtedly the body politic will demand certain kinds of learning from the schools. Diversity can be achieved, however, in the areas beyond the scope of society's unyielding demands.

Finally, experimentation should be encouraged to the extent it gives information about the learning process. But the diversity of the population to be served suggests that no single technological application will be best for all. Such a conclusion suggests the wisdom of building alternative systems with quite different components.

IV. Assessment and Evaluation; Continuous Change; Governing Structures.

At this point in time and in the foreseeable future, the likelihood of finding the proper approach to the teaching of social studies, for example, is rather slight. If anything has been learned from the curriculum development activities of the 1960's, it is that even the most carefully researched and developed curriculum materials must be continually reassessed, the content revised, and often the entire approach modified. Especially in the public school system of the Experimental City the flexibility required for this feedback, reassessment, and revision cycle must constantly be reinforced. Both the planners and the eventual governing structure which becomes responsible for the educational program should consider reassessment and revision a top priority need.

Obviously assessment and evaluation presuppose suitable measurement criteria. These can only be established after the objectives of the educational system have been made explicit, a process which is premature at this stage of planning.

The attitudes which favor continuous assessment and change must be fostered both within the education profession and in the supporting community. These supportive attitudes obviously are critical to the operation of all systems within the City. With a shifting input and outgo in population, they cannot be guaranteed. Attitudes, however, will not constitute the only requirement for assessment and change; mechanisms that facilitate this process must be developed, including both organizational structures which encourage experimentation and the financial support which will allow educators to utilize the best expertise available. The process may well require staff training and retraining resources within the educational system; it will

also necessitate the capacity to organize and reorganize resources on the basis of past experience. Most existing schools have far too few such procedures built into their organizations.

The attitudes, the facilities, and the funds can only be discussed in generalities until there exists an established governing structure. At this point we can only stress the importance of experimentation and flexibility. How this will be implemented will depend largely on the kinds of decision-making structures developed. Will education, for instance, be governed by a school board similar to present systems? Will financial support be provided through the same kinds of taxation we presently have, or will education--the learning society--require different structures and different kinds of support? Planners will not know appropriate limits within which they can operate until some of these questions are resolved.

V. Future Work

Throughout this report, many of the next steps have been implied. The effective planning of a complex educational system for the Experimental City is most certainly a massive task--one requiring considerable time and money. A logical next step leading to the design of the City's educational system would be the systematic delineation and evaluation of the more promising alternatives which have potential to contribute to the proposed organizational framework. High priority should be given to those areas of concern which can provide data for a number of planning decisions. For example, knowledge of the educational components affecting human resource development throughout man's life cycle could be an important determinant for the proposed educational system.

One preliminary investigation, certainly, should attempt to define the concept of the learning society more closely. Specification of this concept would have implications for almost any future developmental tasks and would contribute importantly to the refinement of objectives and goals of the educational system. Such a study would necessarily require investigation of the ways in which the educational system ought to be interrelated with other systems.

While it can be argued that the planning task is made somewhat easier by the fact that planners need not be hampered by a spectrum of inherited limitations that typically impinge upon educational planning in existing cities, the argument is not completely valid. True, MXC planners will not inherit all the usual physical limitations; but they will have to operate within the philosophical, sociological, and political context currently affecting education. In addition, the prospect of "starting from scratch" also means that the planners face a considerably more complicated task. They must plan, in detail, many factors which present planners often cannot consider, simply because the realities of existing cities make planning in these areas too unrealistic. For example, educators might feel that a high speed transit system directly linking educational facilities would be most desirable, but the implementation of such a plan in most cities would be of questionable feasibility. In the Experimental

City, however, such a system might well be feasible and would thus require detailed planning. Dozens of similar questions will have to be faced as MXC planners find such open opportunities in all areas.

These, and other considerations presented throughout this report, suggest that planning for the Experimental City's educational system presents new challenges and opportunities for the planning process. Workshop participants agreed that a massive planning effort will be required, but that the opportunity to plan an educational system without oppressive restrictions from inherited problems is most enticing. We like to say that education should be the key to the improvement of society; the MXC gives us the opportunity to plan it that way.