

Transportation Education: Educating Tomorrow's Transportation Planners

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Many recent studies on the deterioration of the public infrastructure in the United States have concluded that an effective planning process is an essential element of a government's response to meeting capital investment needs. In at least one instance, a study further concluded that "if planning is to assume a central role in influencing public capital investments, it is important to ensure that the people doing the job have experience of how agencies operate and understand the day-to-day problems faced by those managing public programs and facilities" (1). The purpose of this paper is to examine, within the context of a changing political and fiscal environment of transportation decisions, these and other planning skills desired by transportation organizations. In the first section of this paper recent studies of the changing nature of transportation planning are reviewed. This section concludes with several propositions on what, in general, appear to be the likely characteristics of transportation planning in the future. In the second section these propositions are related to the desired skills of transportation planners.

REEXAMINATION OF TRANSPORTATION AND TRANSPORTATION PLANNING

During the past 5 years, many transportation professionals have begun to reexamine the purpose and characteristics of transportation planning. In part, this reexamination has occurred because of Altshuler's argument that "urban planning is a public activity whose theories and preoccupations at any moment in time closely reflect the government programs and political moods which are currently dominant or which have been in the recent past" (2). Given the changing federal role in transportation programs, coupled with dramatic improvements in analysis capability due to the evolution in computer technology, it is not surprising to observe serious efforts in defining the likely characteristics of future transportation planning. Several of these efforts will be described in the following paragraphs.

TRB CONFERENCE ON URBAN TRANSPORTATION PLANNING IN THE 1980s

Periodically, transportation professionals gather under the auspices of the Transportation Research Board to discuss the future of urban transportation planning. Such a conference was held in 1981 and, given a new administration, played an important role in reshaping federal transportation planning regulations (3).

Some of the important conference observations on the characteristics of future urban transportation planning included the following:

1. Non-federal decision makers will likely play an increasingly important role in determining planning process and product requirements. Thus, there will be a greater concern among regional transportation planners for meeting the short-range, perceived needs of local communities.

2. Planners will become increasingly concerned with issues such as system rehabilitation and cutback management in older cities and managing continuing growth in newer cities.

3. The regional transportation planning process will become more concerned with corridor, subarea, and project planning.

4. Economic, fiscal, and pricing issues will become more central in urban transportation planning. Related to this was the need for more sophisticated analysis tools and a better theoretical understanding of general system relationships.

In one workshop, conference attendees also concluded that a wide variety of skills--communications, negotiations, design, brokerage, conflict resolution, consensus building, education, and coordination--will be required of planners to meet the demands they will likely face. Such a broad skill mix was considered essential to the success of planning efforts in metropolitan areas.

Study on the Role, Functions, and Effectiveness of Metropolitan Planning Organizations

In 1974 the federal government required each major urban area to establish a metropolitan planning organization (MPO) that would coordinate the regional transportation planning process for the urban area. Although MPOs are structured differently from one city to another, they often possess important transportation planning capability for urban areas, and thus their overall role and function are an important concern in this paper.

A 1983 study on the roles and effectiveness of MPOs revealed several interesting observations on the current status of MPOs (4). First, the more the MPO was oriented toward local and regional leadership and governmental units, the more effective it was in serving the region with appropriate regional planning services. Second, an important function for MPOs in the 1980s was considered by Tomazinis et al. (4) to be the exploration of "strategic" future directions for the region; for example, choosing targets for regional economic development, assessing future risks facing a region, and working together with the public and private sectors. Third, MPOs will likely become more involved with the implementation planning of regional projects that require the coordination of numerous governmental units. Finally, and somewhat redundant to the first observation, MPOs will likely increase their orientation toward the localities they serve to meet local ad hoc regional planning needs and developmental objectives.

Rebuilding America

An increasing concern with the deteriorating infrastructure in the United States has spawned numerous studies designed to identify the most cost-effective means

of meeting infrastructure needs. In one of the latest studies, entitled Rebuilding America: Planning and Managing Public Works in the 1980s (1), a great deal of attention is focused on the importance of strategic planning, the purpose of which is to assess an organization's strengths and weaknesses as they relate to anticipated threats or opportunities in an organization's environment. Strategic planning, as discussed in this study, has four important aspects that warrant special attention.

1. Planning is a continuous process of setting broad objectives, devising appropriate policies, and communicating decisions.

2. The management of the flow of information is a central element of the planning process, as is the communication of information to different constituencies.

3. Planning is an alchemist's amalgam of science and art, and thus a planner must avoid an overreliance on sophisticated planning and economic models.

4. Establishing a strategic planning process is difficult because it requires busy managers to set aside time to think and to write.

The important aspect of this study is that it recognized the need for a strategic planning process to handle the issues related to rebuilding America's infrastructure and did not emphasize at all the more traditional systems planning approach.

AASHTO Session on the Evolution of Transportation Planning

In March 1984, the Standing Committee on Planning of the American Association of State Highway and Transportation Officials (AASHTO) conducted a session on the evolution of transportation planning (5). Although much of the discussion at this session focused on the history of "tactical planning," that is, the planning that produced today's transportation system, several participants argued that the future of planning was most likely to be in the area of strategic planning. Strategic planning was defined at the session as "planning that takes what we have and seeks to build something an order of magnitude more productive out of it" (6). Indeed, in at least one state, Pennsylvania, the strategic planning concept has become the central theme for the agency's structure and management.

The preceding four studies represent only a few of the numerous efforts that have been made to reexamine the planning process and to define its likely future. These studies, along with my own experience and research in transportation planning, lead to the following propositions that will guide subsequent discussion on the desired characteristics of transportation planners.

Proposition 1: Is There a Growing Distinction Among Many Planners Between Strategic Planning and Systems Planning?

Transportation planners have traditionally focused on systems planning, that is, how best to develop, operate, and manage a transportation system. In numerous transportation organizations, professionals are now becoming more concerned with the ability of the organization to meet the challenges of the future and to prepare for a changing environment. This is not to say that strategic planning and

systems planning cannot exist together in an organization. Rather, in these organizations, the task of supporting the strategic planning process has been given to the planning departments, thus requiring a new perspective on the role of planning within the agency.

Proposition 2: Regional Transportation Planning Agencies (MPOs) Are Becoming More Concerned About Satisfying Local Community Needs Than Meeting Federal Planning Requirements

With cutbacks in federal planning funds and regulations, regional transportation planning agencies are becoming increasingly concerned about being "relevant" to local communities. This has shifted resources (financial and personnel) away from long-range issues to shorter term, more pragmatic problem-solving approaches. In Massachusetts, for example, many regional planning agencies are conducting traffic engineering studies in constituent communities to show visible products of the planning effort, and the state is urging the agencies to become more involved in local implementation issues.

Proposition 3: Rapid Computer Analysis Capability Is Making Planning More Relevant to Decision Makers

For many years, transportation planners either relied on cumbersome computer models that took a long time to produce results or on overly simplistic models that were not believed. With the rapid evolution in microcomputer technology, planners now have the capability to analyze problems and produce results quickly. It appears likely then that microcomputer-based planning will become a predominant form of planning in the years ahead.

Proposition 4: An Increasing Focus on Rehabilitation and System Maintenance Will Create Increasing Pressure for Implementation-Sensitive Planning

In its heyday, transportation planning played an important role in developing today's transportation systems. Today, many of these systems are in need of repair and rehabilitation, and the important issues are more related to effective implementation than to system development. A good example of this type of planning can be found in the rather extensive planning efforts that have preceded the reconstruction of major urban expressways in Boston, Chicago, Philadelphia, and Pittsburgh.

Proposition 5: There Are Many Planning Processes in an Urban Area That Require Alternative Styles of Planning

Traditionally, transportation planning has been viewed as a systems-oriented, analytically based framework for solving transportation problems. Today, an increasing number of transportation professionals are viewing planning as a decision-oriented process that provides necessary information to those who make

decisions. Such decision-oriented planning must exhibit flexibility in problem solving and a sensitivity in understanding constituent concerns.

TRANSPORTATION PLANNERS TO MEET THE CHALLENGES OF THE COMING DECADE

Perhaps the most important proposition discussed earlier with regard to its impact on the desired characteristics of planners is Proposition 5; that is, effective transportation planning requires alternative styles of planning and, thus, transportation planners who exhibit flexibility in planning approaches. The literature is full of articles on what planners should be, with each article most often based on an implicit view of the appropriate form of the planning process (7,8). And, more recently, there has been sufficient interest in the issues relating to planning that serious consideration is being given to providing greater planning exposure to civil engineering students (9,10).

Although interesting from the perspective of debate, these "ideal" planners cannot possibly represent a single image of effective planners because different organizations view the desired planner in different ways. If the premise is accepted that a major purpose of transportation planning is to provide information to those who make decisions, then the different decision-making frameworks and styles that exist in a variety of organizations mean that an effective planner in one organizational setting might produce disastrous results in another.

Even with this basic premise that there is no set of characteristics for the ideal planner, several attributes of an effective planner can be identified. No attempt will be made here to relate these attributes to required courses or training opportunities because some might be difficult to teach or might be better acquired through experience.

An effective transportation planner is one who

1. Understands the decision-making process. There are several important aspects to this characteristic. Not only should a planner understand the broader decision making and policy-making structure within which decisions are made, but the planner must be aware of how the organizational environment and culture can influence these decisions. This sensitivity to organizational behavior is probably one of the most critical deficiencies in transportation planners. Another important aspect of this characteristic is for the planner to understand how planning information is used in the public decision-making process.

2. Defines the problem and identifies a problem-solving approach in an appropriate manner. Defining the problem in terms of its important characteristics and its relationship to other policy-related variables is more an art than a science. And yet, planners who can define problems in the most comprehensive and intelligent way produce more useful information for the decision-making process. After the problem has been defined, an effective planner can determine the appropriate scale and scope of analysis, including the level of sophistication needed in the analysis methodology, once again tied closely to the requirements of the decision-making process in terms of the type and timeliness of information desired.

3. Understands implementation concerns. After a decision is made to proceed with a program or project, substantial obstacles can hinder effective implementation. These obstacles can range from organizational delays to political and

community opposition. It is important when evaluating decision-making options, therefore, that implementation feasibility be an important evaluation criterion. Of equal concern is to incorporate into this evaluation an assessment of alternative implementation strategies, if it appears that serious obstacles are likely to arise in program or project adoption.

4. Uses the most appropriate analysis methodology and techniques. Similar to the second point listed earlier, the use of the most appropriate methodology and technique requires an understanding of the underlying assumptions, basic theories, and capabilities of the methods to be used. With particular regard to planning sensitivity to the often short time frame associated with decision making, the intelligent choice of analysis techniques can determine whether the results of the planning effort will be used in reaching a decision. Given the rapidly changing environment of computer technology, it does not appear unthinkable that a basic prerequisite for becoming a planner in a transportation organization in the near future will be demonstrated familiarity with the use of microcomputers.

5. Incorporates basic community (or organizational) values into planning efforts. One of the serious problems with defining planning as producing information for decision makers is that decision makers can sometimes focus on narrow and myopic concerns (especially as an election draws near). In addition, decision makers are often unable to articulate exactly what type of information they need to reach a decision. In both instances, it is essential that the planner not only provide the information desired (in the latter case, the best guess of what is desired), but also the information needed for the decision makers to understand clearly the consequences of their decision and the relationship to community (or organizational) welfare. In some sense, this attribute suggests that an effective planner acts as a social conscience for the clients he or she serves.

6. Communicates information. The basic product of planning is information. If such information cannot be communicated in an understandable form, then the planning effort has been unsuccessful.

CONCLUSIONS

With the changing political and technological environment of transportation planning, it appears likely that the types of planners desired by transportation organizations will change as well. Although it is unrealistic to describe the characteristics of an ideal planner (given different organizational expectations), there are several characteristics that merit special attention. An effective planner is an individual who understands decision making, can define the problem and problem-solving approach in an appropriate manner, understands the barriers and consequent strategies in implementation, is familiar with analysis methodology and techniques, incorporates basic values into planning efforts, and effectively communicates information.

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