RECOMMENDED DATA FOR THE FIRST STEP IN EXTERNAL ENVIRONMENTAL SCANNING FOR PUBLIC SCHOOLS

by

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ABSTRACT

Title of Dissertation: Recommended Data for the First Step in External Environmental Scanning for Public Schools

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Environmental scanning, a part of strategic planning, begins with the collection of information from the broad social, economic, political, and technological climate surrounding an organization. The purpose of this study was to improve the guidelines for the first step in external environmental scanning by developing a checklist of suggested data public school personnel might consider. Through a modification of both Q-sort and Delphi techniques, 10 representatives of school districts across the nation who have experience in scanning (Practitioners) and 6 persons widely recognized for their contributions to the development of scanning literature and practice (Experts) scored the degree to which they would recommend 90 original test items and 4 items submitted by participants. Based on the final results, a suggested checklist of 68 items was constructed. Predictably, the majority of these 68 items concern population descriptions, budget patterns, socio-economic factors, and social issues. Most of the rejected items

relate to housing, transportation, and economics. The same ten items scored highest in all three rounds. Nine of the items identify population size and composition or specific statistics on education enrollment and attainment. The tenth item was "number of single-parent families". No definitive explanation was reached as to why this issue was recommended over other equally popular and significant ones. Although consensus increased with each round, the group means continued to differ on 33 items. The disagreement in scores is most likely attributable to differences in perspective and in criteria used for recommending items. The study led to three major conclusions. First, the recommended checklist offers valuable assistance to scanners, especially novices, but it also has limitations. Scanners must adapt the checklist to their own situations and they must progress beyond any suggested list to explore new indicators of opportunities and threats. Second, environmental scanning is still in the developmental stage even among experienced school systems. Finally, participant comments indicate a lack of rapport between Practitioners and Experts which could hamper efforts to adapt scanning to public schools. Despite these difficulties, continued implementation of external environmental scanning is strongly recommended.

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RECOMMENDED DATA FOR THE FIRST STEP IN EXTERNAL ENVIRONMENTAL SCANNING FOR PUBLIC SCHOOLS

Chapter I

Introduction

Planning is neither a new nor uncommon activity in public school systems. However, the planning models traditionally used place little emphasis on information about the social, economic, political, and technological changes occurring outside the organization (Mecca & Adams, 1982; J. Lewis, 1983; Morrison, Renfro, & Boucher, 1984). Current literature on planning stresses the increasing importance of these external factors and the need for collecting information about the external environment (e.g. Kotler & Fox, 1985; McCune, 1986; Shane, 1987). In All One System: Demographics of Education--Kindergarten Through Graduate School, Harold Hodgkinson (1985) urges public school leaders to give greater attention to changes in the environment in which their school systems operate declaring that demographic and social changes "will change the system faster than anything else except nuclear war" (p. 1). Brooks (1982) contends that information about environmental changes "should underlie all public school planning" (p. 24). The process for collecting such information is commonly

called external environmental scanning (Aguilar, 1967; Morrison et al., 1984).

Statement of the Problem

Both as a concept and a practice, external environmental scanning is relatively new for public schools. The first step in the process calls for a broad scan of the external environment to detect factors and trends which indicate potential threats to or opportunities for the organization. This scan should be wide-ranging and include data not already routinely collected by the school system. Educational planners turning to the literature for guidelines for this first step will find two kinds of help, both of which are limited in their usefulness. The first kind of help can be found in the majority of sources which suggest only the categories for consideration such as social, economic, political, and technological trends (e.g. Cope, 1981b; Espy, 1986; Renfro & Morrison, 1983b). Although these categories give some direction for organizing the scan, they do not indicate specific data to be gathered.

This lack of specificity is due, in part, to the recognition that environmental scanning should be specific to the organization, the planning project, and the time frame. Although it is true that data critical to one organization may be of little importance to

another, those without training or experience in environmental scanning need suggestions for what data to collect in order to avoid limiting the search too severely or becoming frustrated by the vast array of potential data (Ansoff, 1984; Cawelti & Valiant, 1985; McCune, 1986). Determining the significance of the information collected is a later step in the process.

The second kind of help, suggestions for specific data to be gathered, is less frequent. The most extensive seems to be the External Scanning Data Checklist in McCune's Guide to Strategic Planning for Educators (1986). The list contains over one hundred items, but suggests both at the beginning and the end that the list may not be complete. There is no ranking of the importance of the items and no indication of where to begin. Novice scanners may find such a list overwhelming or too extensive for local resources and expertise, especially in their first effort.

The question which still remains unanswered, then, is: what specific data should be gathered in the first step of external environmental scanning by a public school system? School systems may need two kinds of answers to this question. First they may need a broad list similar to McCune's of specific data which school systems and experts experienced in environmental scanning

recommend be included. Second they may need a narrower list of the most highly recommended items either as a way of beginning or as a way of reducing the task. This study, therefore, seeks to answer the following research questions:

What specific data items should be included in a checklist for the first step in external environmental scanning by a public school system?

Specifically:

1. What data items do practitioners and experts experienced in environmental scanning recommend be included in such a checklist?
2. Of these items, which are the ten most highly recommended?
3. Do practitioners and experts differ in their recommendations?

Background to the Problem

External environmental scanning is the process of examining the environment outside an organization in order to identify factors which affect the organization currently or which will affect the organization in the future (Espy, 1986). The function of the environmental scan is to provide data and insights which assist members of the organization in making informed, effective decisions in long range planning.

Recognition of the significance of the external environment originated largely from the open systems theory developed in the 1960s, predominantly by Katz and Kahn. This theory argues that organizations, including school systems, are open systems dependent on interaction with their environments and that changes in the external environment often determine the future, if not the survival, of the organization (Thomas, 1974; Kast, 1980; Hambrick, 1981).

Open systems theory is also the basis for the strategic planning movement of which environmental scanning is a part. Defined by Goodstein, Pfeiffer, and Nolan (1986) as "a systematic effort by an organization to deal with the inevitability of change and to attempt to envision its own future" (p. 4), strategic planning differs from traditional planning in two significant ways. First it demands analysis and monitoring of external demographic and socio-economic factors which influence planning (i.e. environmental scanning, assessment, and monitoring). Second it is a continuous, flexible process which anticipates and adapts to changes in the environment.

The origin of what is currently identified as the organizational strategic planning process generally also

dates to the 1960s, particularly to the pioneering efforts of General Electric (McCune, 1986). Although in 1973 Mintzberg was lamenting that the state of the art was still relatively unsophisticated and primitive, some form of strategic planning was being practiced by increasing numbers of both large and small businesses. By the late 1970s the model was being adopted by public agencies, and in the 1980s strategic planning appeared both in the literature for and the practices of institutions of higher education as well as public school systems. By 1986 McCune reported that large numbers of school districts were engaged in some form of strategic planning. Continuing current interest in strategic planning for public school systems is evidenced in part by the amount of time devoted to sessions on strategic planning at the March 1989 conventions of the American Association of School Administrators (7.5 hours) and the Association for Supervision and Curriculum Development (over 9.5 hours).

Though several models for strategic planning exist, these models differ more in formality or amount of detail than in true content. A synthesis of the models would include eight activities:

1. preparation - sometimes called "planning to plan"

2. environmental scanning - generally broken down into two parts, internal and external
3. mission statement - a concise statement of the basic purpose of the organization
4. goals and objectives - the broad ways in which the organization plans to accomplish its mission and the specific acts planned to accomplish the goals
5. implementation plans - action plans detailing steps to be taken to achieve each objective
6. contingency plans - alternative plans based on potential scenarios
7. implementation and monitoring - translating plans into actions and continuously checking progress
8. evaluation - a thorough, formal appraisal of progress usually done annually

Although the order presented above is the usual order for engaging in each activity of the process, activities may be occurring or reoccurring simultaneously.

All of the models agree that one of the earliest activities is external environmental scanning, the collection of a database of information about the environment in which the organization operates. Growing out of the strategic planning movement, environmental

scanning was initially utilized by corporations. More recently, first institutions of higher education, then public school officials have realized that data from the external environment is "essential for the wise policy-making needed to build effective educational systems for the future" (Coates, 1980, p. 14). Although there is some consensus concerning the need for external environmental scanning, guidelines for assisting public school systems to begin this process are still inadequate.

Significance of the Study

This writer first became aware of the inadequacy of existing guidelines for environmental scanning by participating in the data collection efforts of two Maryland school districts (Poole, 1987; Poole, 1988). The first major problem was to determine what data to collect. Charles Stubbart (1982) reports that this is a common frustration. Several other sources warn that it is easy to be overwhelmed by the amount and scope of available data (e.g. DeNoya, 1980; Cawelti & Valiant, 1985; McCune, 1986). There is very little specific direction in the planning literature, and what direction there is does not seem to be supported by systematic research. Even McCune (1986), who offers perhaps the most specific guidance through the lengthy list of

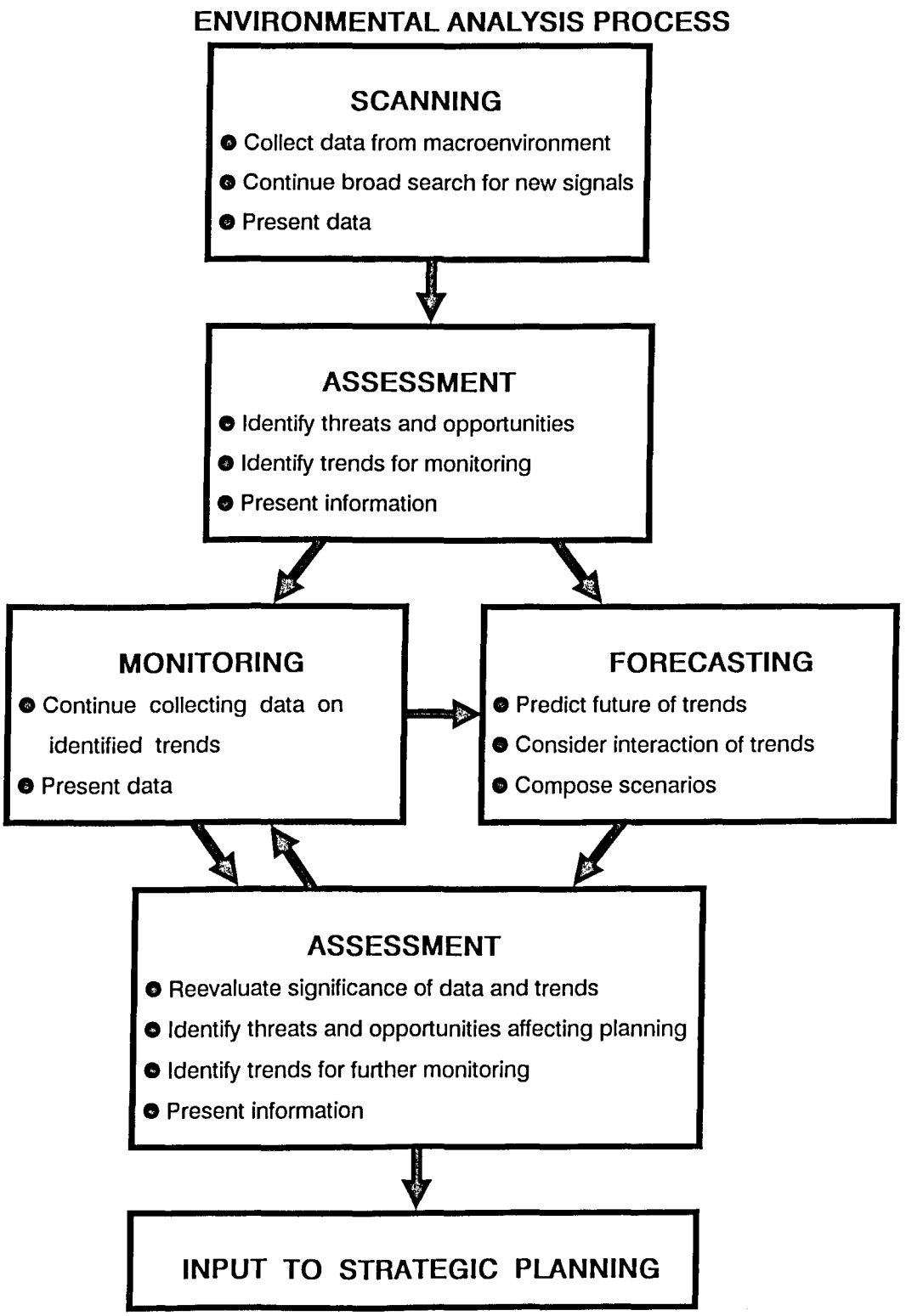
possible topics in her External Scanning Data Checklist, does not indicate any research to support the inclusion of these items.

The second major problem was to decide which items should be included even in a limited scan. A broad database is useful as background, but planning committees usually need to focus on a limited number of items (Morrison et al., 1984; Cawelti & Valiant, 1985).

Several techniques have been developed for assisting planners to identify those issues which seem most important to their specific organization or school system. Most of these techniques such as assessment matrices (Lozier & Chittipeddi, 1986); cross-impact analysis; trend extrapolation; Delphi (Morrison et al., 1984); ED QUEST (Mecca & Adams, 1982); and SPIRE (Klein & Newman, 1980) present problems for beginning scanners. They often may be time-consuming; require specialized training; require the use of consultants; or depend upon an already limited list of significant data, trends, and issues. In most instances these techniques are intended as later steps in the environmental analysis process, following an initial environmental scan (see Figure 1).

What seems to be missing from the literature are studies to determine whether school systems and experts experienced in external environmental scanning concur on

Figure 1: The External Environmental Analysis Process



data to be included in the first step in scanning and whether there is also consensus as to which data are most highly recommended. The purpose of this study was to address both the problem of what specific data to collect and the problem of how to limit the scope of the scan by developing two lists: one a broad listing of specific data recommended for inclusion in external environmental scans by public schools; the second, a shorter list of the ten most highly recommended items. This research not only fills a gap in the existing literature, but also offers assistance to public schools engaged in external environmental scanning, particularly those trying to initiate the process.

The review of the literature suggests a further contribution of the current study. At present, there is no definitive source on environmental scanning for public education. In fact, the majority of the literature relative to the topic is from sources in other fields. One purpose of the analysis and integration of the literature presented in Chapters II and III, therefore, is to provide a thorough and useful synthesis of the literature for educators.

Design of the Study

The research questions were addressed through a modification of both Q-sort and Delphi techniques.

McCune's External Scanning Data Checklist, which is itself adapted from a similar list published by the United Way of America (1985b), was modified based on suggestions from the literature and from personal experience to include 90 items of specific data which might be gathered in an external environmental scan (Appendixes A and B). These items were printed on 3"x 5" cards and sent to two groups of subjects.

The first group of subjects, Practitioners, consisted of representatives from 10 school systems experienced in environmental scanning. Appropriate school systems were identified from the literature and from the Association for Supervision and Curriculum Development's 1985 High School Futures Planning Network and 1987 High School Futures Planning Consortium. The second group, Experts, consisted of 6 experts on environmental scanning. For the purposes of this study, experts were defined as those persons who are frequently cited as knowledgeable sources in the literature on environmental scanning, who have contributed to the literature on environmental scanning in education, who have stressed the importance of information from the external environment in long range educational planning, and/or who have served as consultants to school systems engaged in strategic planning.

In Round I, subjects were asked to sort the cards according to the degree to which they would recommend that each item be included by any public school system in a scan conducted during the first step of environmental scanning (Appendix C). Cards were provided for respondents to add additional items to the list.

Following Round I, overall and group mean scores were computed for each item. In Round II, all 90 item cards were reprinted showing the individual subject's score and the mean score for that subject's group. If the two scores differed, a response blank was also printed on the card. Subjects were asked to review the results and reconsider their rankings. Respondents could change the individual score on any item. During Round II, respondents were also asked to score the four new items submitted during Round I (Appendix D).

The results from Round II were used to recompute group and overall means for each item. New cards were printed only for those items on which the group means differed. In Round III, unlike Round II, subjects were given the overall mean, the mean from both groups, and their own individual score for each item. They were asked to review the overall means, compare the group means, reconsider their individual scores, and rescore or comment on any item (Appendix E).

The final overall means were used to compile both the checklist of recommended items and the shorter list of the ten most highly recommended items. Differences between the group scores were noted.

Definition of Terms

Data - items of specific information; facts; statistics (Cope, 1987).

Environmental analysis - the entire process of collecting environmental information, evaluating the significance of the information, and predicting future developments; includes scanning, monitoring, forecasting, and assessment (Fahey & Narayanan, 1986).

Environmental assessment - evaluating the relationships among data and the implications of current and potential changes for organizational management (Fahey & Narayanan, 1986).

Environmental monitoring - the continuous and detailed tracking of specific issues or trends which have been identified as significant to the organization (Coates, Coates, Jarratt, & Heinz, 1986; Fahey & Narayanan, 1986).

Environmental scanning - the process of examining the broad environment of an organization in order to gather information on changes and potential changes

which might create opportunities or pose threats for the organization (Morrison et al., 1984; Fahey & Narayanan, 1986; McCune, 1986).

Experts - for the purposes of this study, those persons who are frequently cited as knowledgeable sources in the literature on environmental scanning, who have contributed to the literature on environmental scanning in education, who have stressed the importance of information from the external environment in long range educational planning, and/or who have served as consultants to schools or school systems engaged in strategic planning.

External environment - everything outside the organization (Kast, 1980).

Forecasting - predicting the future direction of environmental changes (Fahey & Narayanan, 1986).

Issue - an environmental change which is considered to have important implications for an organization (United Way of America, 1985b; Fahey & Narayanan, 1986).

Macroenvironment - the general external environment; those social, economic, political, and technological factors affecting all organizations (Fahey & Narayanan, 1986)

Practitioner - for the purposes of this study, a representative of a school system which has conducted an environmental scan as part of a long range planning activity.

Strategic Planning Process - a flexible, cyclical, future-oriented technique for long range planning. Models of the strategic planning process generally include most or all of the following activities: preparation, environmental scanning, developing a mission statement, setting goals and objectives, developing implementation plans, developing contingency plans, implementing the plans and monitoring progress, and formal evaluation. Strategic planning differs from traditional long range planning by monitoring external changes and by continuously adapting long range plans based on the effects of those changes on the mission statement, goals, and objectives of the organization (Steiner, 1979; McCune, 1986).

Trend - a directional tendency in data measured or estimated over time (Neubauer & Solomon, 1977; United Way of America, 1985b).

Limitations of the Study

Most significantly, the concept of environmental scanning adopted in this study restricts the process to

the collection phase and considers assessment of the impact of data and issues to be a later phase. The lists to be developed, therefore, are suggestions of what to include in and how to limit the first step of the search, not evaluations of the influence of the items on the future of schools in general or of any particular school system.

Three other factors also limit this study. The first limitation is posed by the state of development in strategic planning and environmental scanning. Much of the literature and many of the models upon which this study is based come from the business sector. What remains comes predominantly from higher education or non-profit organizations. Consequently, the applicability of the literature and the models to public school systems might be questioned. However, the literature supports the assumption that the processes used successfully in other fields are applicable or can be adapted to public school systems (e.g. Steiner, 1979; J. Lewis, 1983; Morrison et al., 1984; McCune, 1986).

A second limitation concerns the sample of practitioners. The decision was made to follow the example of Lenz and Engledow (1986) and limit the study to public school systems known to have attempted some type of environmental scanning activities. Inexperienced

school personnel could offer only speculative responses. Although McCune (1986) reported that large numbers of school systems have begun strategic planning, identifying specific school systems proved difficult. The sample selected, therefore, consists of those cases which could be identified and who were willing to participate, rather than either a random sample of practitioners or a random sample of all school districts. It must also be noted that 3 of the 10 school systems participated in the planning networks coordinated by the Association for Supervision and Curriculum Development and, as a result, received some similar guidance in developing and executing the various phases of strategic planning including environmental scanning. This guidance has not been considered prejudicial because the materials from the Association are compatible with the United Way and other popular references and because members of the networks designed and conducted their own scans.

The third limitation would complicate any effort to create a checklist of data to be gathered during environmental scanning. Despite the experience of others, the choice of data and especially the determination of which data is important depends largely upon the specific organization and upon time. The final choice of data to be used in planning must be situation-

specific (Aguilar, 1967). Recognizing this, however, does not reduce the value of tapping experience to develop lists of items to consider when making that choice.

Organization of the Study

The report of the background, construction, implementation and conclusions of the study has been structured as follows. Chapter I serves as an explanation of the topics under consideration, an introduction to the research questions, and an overview of the study. The quantity and nature of the relevant literature suggested that the review be divided into two chapters. Chapter II reviews the literature from the broad contexts of which environmental scanning is a part: systems and environmental theory, strategic planning, and descriptions of future schools. Chapter III reviews the literature specific to environmental scanning. In Chapter IV, details of the design of the study are given. Chapter V presents and discusses the results of the study; Chapter VI summarizes the study, considers possible conclusions, evaluates the usefulness of the study, and offers recommendations.

Chapter II

Review of Literature From the Broad Contexts

Introduction

Although the basic research questions for this study concern recommendations for specific data to include in the first step of external environmental scanning for a public school system, the relevant literature is not limited to either environmental scanning or public school systems. Environmental scanning is closely linked with strategic planning and both have their basis in open systems and environmental theories. Furthermore, environmental scanning, either conscious or unconscious, underlies many of the forecasts for schools of the future. Therefore, the literature review has been divided into two chapters. Chapter II explores the literature from the three large contexts most relevant to environmental scanning: the theory base, strategic planning, and descriptions of future schools. Chapter III examines the literature specific to environmental scanning.

The origins of the theory base, strategic planning, and environmental scanning are all found in the 1960s. Consequently, only literature from the last three decades has been reviewed. Articles and books describing, explaining, and promoting strategic planning and

environmental scanning comprise the bulk of the literature. Since these topics first found voice in literature addressed to corporate management, much of the literature reviewed comes from the business sector. While the business concepts and models often need adaptation, most authors agree that they are applicable to non-profit and, specifically, educational organizations (e.g. Cope, 1981b; J. Lewis, 1983; Fahey & Narayanan, 1986). After detailing similarities and differences between business organizations and those in the not-for-profit-sector, Steiner (1979) listed ways in which the business experience is relevant. Similar comparisons and suggestions can be found in Ansoff (1979), Allison (1984), Duckworth and Kranyik (1984), and Valentine (1986). Among the differences frequently noted between profit and non-profit organizations is a greater emphasis on politics and a lesser emphasis on economics among the non-profits. The most significant similarity, particularly for the current study, concerns the increasing influence of the external environment on both types of organizations. In fact, public organizations tend to be more dependent on external factors, but less prepared to deal with changes in the environment:

> In a short space of time the historically quiescent environment of the not-for-profits has become highly

> turbulent. Because of the speed and the magnitude of the transition, the not-for-profits have an even greater difficulty of adjusting to the new climate than even the most conservative business firm (Ansoff, 1979, p. 31).

Consequently, the need for research seeking to improve environmental analysis is particularly strong for non-profit organizations.

One of the major problems encountered in surveying the literature is the semantic entanglement described by Steiner in 1969. The vocabulary of both strategic planning and environmental scanning has become increasingly diverse and conflicting. One purpose of Chapters II and III, therefore, is to sort out the meaning, relationship, and relevance of selected terms. This problem will be discussed more specifically in the following sections. Explanation of further limitations of the scope of the literature review also will be given in each section.

Theory Base

General and open systems theory

The theoretical basis for both strategic planning and environmental scanning is found in general systems theory, particularly in open systems theory (Cope, 1981b; Thomas, 1974). Bertalanffy gives himself credit for

introducing general systems concepts as early as the 1940s even though he did not publish his General System Theory until 1968. Drawing from biology and physics, general systems theory views the organization as a combination of interacting parts which form a complex whole (Kahalas, 1976). It seeks to examine these interactions and to study the behavior of the organization holistically (Ackoff, 1970).

Within general systems theory, organizations are classified as either closed or open systems. A closed system is entirely isolated from its environment; an open system interacts with its environment and is dependent upon it. Bertalanffy was also among the first to fully recognize the importance of the relationship between an organization and its environment (Emery & Trist, 1965), but the most significant source on open systems theory is Katz and Kahn's The Social Psychology of Organizations (1966). Katz and Kahn contend that "we cannot understand a system without a constant study of the forces that impinge upon it" (p. 27). They describe the interaction between an organization and its environment as a cycle of input, throughput, and output. Inputs into the organization include information about the environment and about the organization's relationship to it. In an open system, "changed inputs from the environment are one

of the most important sources of organizational change" (p. 451). Though Katz and Kahn do not specifically describe the process of environmental analysis, they recognize the need for a mechanism to monitor, reduce, and interpret the informational input.

Discussions of the open systems theory foundation for strategic planning and environmental scanning primarily in corporations can be found in Ackoff (1970) and in Fahey and Narayanan (1986). Kahalas (1976) relates the theories to public sector organizations which he perceives as more open systems than private organizations. Among the most valuable discussions of the theory base for educational planning are those in Cope (1981b, 1987), Gray (1982), Hanson (1985), McGrath (1972), and Tanner and Williams (1981).

Environmental theory

Understanding the theory base for strategic planning and especially for environmental scanning requires an examination not only of the literature on open systems theory which tends to focus on the organization, but also a review of the work of theorists who have concentrated on the interaction between the organization and the external environment, and of those who have developed theories concerning the environment itself. In 1962, Alfred Chandler "ushered in a new perception of the

relationship between a firm and its environment" (Ansoff, 1979, p. 197). Studying how firms responded to major discontinuities in their environments, Chandler concluded that the success and the survival of an organization depends upon its ability to align its behavior with environmental conditions. While others studied the behavior of the organization, Emery and Trist (1965) chose to concentrate on the environment. Describing their work as an extension of systems theory, Emery and Trist argued that "a main problem in the study of organizational change is that the environmental contexts in which organizations exist are themselves changing, at an increasing rate, and towards increasing complexity" (p. 21). In what is now regarded as a seminal article, they proposed classifying the external environment according to four types or causal textures: (1) placid, randomized environment which is stable; (2) placid, clustered environment in which the survival of the organization becomes critically linked with what it knows of its environment and in which strategy emerges; (3) disturbed-reactive environment in which organizations must make and meet competitive challenges; and (4) turbulent environment in which external forces place greater pressure on the organization, factors in the environment change rapidly, there is a great increase in

relevant uncertainty, and organizations must recognize their interconnectedness with other organizations. Emery and Trist perceived the four types as a series of steps each of which increases the influence on the organization of the external environment. In relating these concepts to educational administration, Hanson (1985) specified some of the variables which determine the level of the environment from placid to turbulent: changes in technology, shifts in market demand, governmental action, increased competition, shifts in values, levels of economic prosperity, and changes in demographic characteristics. The current environment is definitely a turbulent one, so much so that this turbulence has become the topic of popular literature (e.g. Toffler, 1970; Naisbitt, 1984).

Expanding on the work of Emery and Trist, Igor Ansoff has been developing theories concerning the environment for three decades (1965, 1975, 1979, 1984, 1988). Ansoff (1984) defines environmental turbulence as "changeability in an environment characterized by the degree of novelty of challenges and the speed with which they develop" (p. 486). Like Emery and Trist, he conceives of environmental turbulence as a series of levels, but his classification system has five steps: stable, reactive, anticipatory, exploring, and creative.

Ansoff recognizes the escalation of environmental turbulence in the twentieth century and attributes this escalation to four trends: growth of novelty of change, growth in the intensity of the environment, increase in the speed of environmental change, and growth in the complexity of the environment. Furthermore, Ansoff (1979) hypothesizes that at the same time that the turbulence has increased, the time required for organizations to effectively respond to environmental changes has also increased. This lag is due, in part, to a lack of knowledge about changes in the environment. Ansoff studied both the amount of knowledge organizations have concerning their environment and the way they receive and process that information. He describes the levels of information an organization has about changes in its external environment as states of knowledge ranging from a sense of turbulence without identifying the source to an understanding of the full impact of a specific change. For strategic planning to take place, Ansoff (1975, 1979) contends that an organization must have at least reached the state at which enough is known to examine the possible and probable impacts of an event or trend. The significance of the work of Ansoff, and of Emery and Trist, is perhaps best summarized by Fahey and Narayanan (1986) who note that "the critical implication

flowing from this recognition of turbulence is the need to institutionalize environmental analysis" (p. 1).

Fahey and Narayanan's Macroenvironmental Analysis for Strategic Management (1986) provides a thorough examination of the theory base for environmental scanning. They review theories concerning systems and the environment and observe that the study of the relationship between organizations and their external environments has followed one of three theoretical streams: attempts to conceptualize environments and how they change, examinations of how environments affect organizations, and examinations of how organizations go about understanding or analyzing environments. The complexity of the environment and of changes taking place in it led Fahey and Narayanan to continue the efforts of Emery and Trist and Ansoff to develop theories concerning the macroenvironment itself, independent of the immediate context of an organization. Most important to the present study is their assumption that an understanding of concepts of the environment promotes more effective environmental analysis.

As decision makers in organizations, particularly in corporations, began to apply the concept of open systems and to recognize the vulnerability of the organization to its external environment, they sought techniques for

understanding the environment and for incorporating information about the environment into organizational management. This led to the development of the strategic planning process.

Strategic Planning

Development of strategic planning

The concept of strategy most likely began with the Greek military nearly 2500 years ago (Steiner, 1969; Cope, 1987). The strategic planning process, however, has developed only over the last few decades. As with open systems theory, strategic planning has its origins in the 1960s. Chandler's Strategy and Structure (1962) is generally the earliest source cited (Cope, 1981b; Keller, 1983), but it is Ansoff's Corporate Strategy (1965) which has influenced most subsequent writing on strategic planning (Cope, 1987). Steiner (1969) and Ackoff (1970) also helped to establish the basic concepts of strategic planning.

The first efforts to apply strategic planning in the business sector were initiated by General Electric in the 1960s (Keller, 1983; McCune, 1986). International Business Machines (IBM) also began to experiment with strategic planning early, establishing a specific strategic planning group by 1969 (Steiner, 1969; Simmons, 1988). After evaluating and revising its early

experiments, General Electric introduced formal corporate strategic planning in 1970 (Wilson, 1974). Progress in both the study and practice of strategic planning continued somewhat unevenly. Steiner observed in 1969 that few companies had initiated formal strategic planning activities and in 1970 Ackoff introduced A Concept of Corporate Planning with the caution that "we do not yet understand corporate planning well enough to prepare a handbook on it" (p. 1). Mintzberg echoed these sentiments in 1973. By 1975, however, Ansoff described strategic planning as a well-developed technology and in 1978 Royce enthusiastically announced that "strategic planning is fast becoming the number one topic in corporations across the country" (p. 40).

Although strategic planning was a popular topic in the 1970s, actual practice of the process was still highly developmental (Irwin, 1978). The majority of both the literature and the practical application of strategic planning has occurred within this decade. By 1986 Patterson, Purkey, and Parker could state that the "literature has converged into a solid conceptual framework under the heading strategic planning" (p. 58) and McCune reported that most businesses were practicing some form of strategic planning. Extensive reviews of the history of strategy, corporate long range planning,

and strategic planning can be found in Ansoff (1979), Cope (1981b), and Pfeiffer (1986).

While business began experimenting with strategic planning in the 1960s, governmental and other public agencies did not adopt the process until well into the 1970s. In his 1976 survey of literature on strategic planning, Hofer observed that not much research had yet been done for the non-business sector. Even as late as 1986, Bryson, Freeman, and Roering concluded that "strategic planning as a subject of research--and as a public sector activity--is simply too new to say anything conclusive about" (p. 79). The most extensive literature on the practical application of strategic planning to non-profit organizations has been produced in the last few years by the United Way of America.

The application of strategic planning to educational organizations is even more recent and has an even smaller body of literature, nearly all of which has been published in the past decade. Colleges and universities began to apply the strategic planning process in the early 1980s. In a survey taken in 1985, Meredith found that out of 196 institutions of higher education questioned, only 24 did not consider themselves engaged in some kind of strategic planning activities (Cope, 1987). One of the earliest and most influential texts on

strategic planning for higher education is Keller's Academic Strategy (1983). Other major literature in this area has been produced by Cope (1981b, 1985, 1987) and by Morrison et al. (1984).

Public school systems have been among the last to consider strategic planning. In 1969 Chase reviewed the poor quality of what little educational planning existed before 1960, described numerous on-going long range planning projects, and suggested that "it is possible that the most significant development in education during the next decade will be the emergence and widespread adoption of new concepts and new technologies of planning" (p. 41). Dede was even more emphatic in his condemnation:

> Historically, most educational planning has been characterized by narrow, limited visions of possible directions. As a result, school systems are widely perceived as among the most backward of the institutions in our society and demands are frequently made that educators move from a preoccupation with the past to a focus on the future (Dede & Allen, 1981, p. 362).

By 1983 James Lewis found in a nationwide survey that of 40 states responding, 14 now mandated some form of long

range planning for local school districts. The results of additional surveys, however, indicated that very few districts did more than a perfunctory job of fulfilling these mandates and that little of this planning would be considered strategic planning, a term Lewis described as new to public education. In 1986 Beach and McInerney mailed questionnaires to 375 public school superintendents selected randomly nationwide. Their study sought to determine what planning activities and what planning models were in place. From their responses they concluded that current practice was more a composite of planning models than an example of any one in particular. It is important to note, however, that the strategic planning process as described in most of the literature was not one of the specific models described in their study. In order to encourage school systems to consider strategic planning, the Association for Supervision and Curriculum Development initiated a High School Futures Planning Network in 1985 which was followed by the High School Futures Planning Consortium in 1987. Both of these two year programs have helped school systems understand and implement strategic planning.

Throughout his attempts to examine long range planning in education, Lewis (1983) complained of the

lack of studies focusing on educational planning. This problem was also noted by Beach and McInerney (1986). There are even fewer studies dealing specifically with strategic planning in educational institutions. One of the earliest is McNeight's 1980 dissertation analyzing comprehensive strategic planning in urban public school districts. Findings from questionnaires sent to educational administrators in 89 urban districts indicated that the planning process was not well coordinated throughout the management system of most districts. Respondents indicated that insufficient training in planning was a major constraint.

The lack of planning expertise was also cited as a significant factor in Valentine's 1986 study. Using a combination of questionnaires and interviews, Valentine sampled 11 of the 24 school districts in Maryland to determine whether the Paine and Anderson model of strategic planning could be applied to public school systems. She concluded that "at present, and under present conditions, effective strategic planning is not likely to occur in school systems in Maryland" (Valentine, 1988, p. 412). In discussing this conclusion, however, she emphasized the need to change "present conditions" and her belief that although the Paine and Anderson model was inappropriate, the strategic

planning process offers potential advantages for school systems. Her recommendations for issues which need to be addressed by top level managers in school systems included improvements in knowledge of and skills in planning, development of a strategic planning model specific to school systems, and environmental scanning.

The entire body of literature on strategic planning in public education is not only small, but limited to the past few years. McCune's Guide to Strategic Planning for Educators (1986) is described by Cope (1987) as the first monograph on how to plan strategically for grades K-12. Although the number of books, articles, and studies concerning strategic planning in education has been growing, many recent books on public school administration do not even address the topic (e.g. Rebore, 1985; Holt, 1987; Sergiovanni, Burlingame, Coombs, & Thurston, 1987). In order to study strategic planning and the application of the process or any part of it to public school systems, it is still necessary to place heavy emphasis on the literature from the business sector.

Definition of strategic planning

Believing in 1969 that there was at that time "no generally accepted meaning of planning and plans" (p. 5), George Steiner attempted to fill this gap with his Top

Management Planning. Still considered a major text, Steiner's book contains one of the earliest cases for strategic planning, which he defined as the "process of determining the major objectives of an organization and the policies and strategies that will govern the acquisition, use, and disposition of resources to achieve those objectives" (p. 34). Nearly twenty years later, William Simmons (1988), who headed IBMs development of strategic planning, summarized the process as "an attempt to look ahead to where you want to be, coupled with a program to get you there" (p. 18).

Regardless of the wording of the definition, most expanded definitions of strategic planning include several characteristics. Strategic planning is an activity which emphasizes the process of planning rather than the production of a written document. This process is a continuous, cyclical one which encourages the participation of all those who will be affected by the decisions made. Unlike earlier forms of long range planning, strategic planning is a future-oriented process which requires an analysis of the organization's present and projected external environment, an overall vision of the central purpose of the organization, and the development of alternative courses of action which anticipate potential changes in the organization or its

environment. Not just a separate periodic management function, strategic planning is a unique way of thinking, a way of life, that should become an integral part of all decision making in the organization. Comprehensive examinations of the definition of strategic planning can be found in the following sources: Steiner (1979), Keller (1983), J. Lewis (1983), Morrison et al. (1984), Goodstein et al. (1986), McCune (1986), and Cope (1987).

Boundaries of strategic planning

Focusing the literature search on the strategic planning process required the examination of several related or overlapping terms. In each instance the search was extended only so far as was necessary to understand the relevancy of the specific term to the current study. More complete explanations of the terms and of their relationship to strategic planning can be found in the cited sources.

First it was necessary to distinguish strategic planning from other forms of planning. Although strategic planning is a type of long range planning, traditional, formal long range planning tends to ignore the external environment and to consider the future as predictable (Mintzberg, 1973; J. Lewis, 1983; Ansoff, 1984). Two other types of planning often discussed in conjunction with strategic planning are tactical and

operational. Tactical planning, which is concerned with selecting means for accomplishing the goals determined through strategic planning, is more limited in scope and more internally focused (Steiner, 1969). Operational planning is usually used interchangeably with tactical planning to describe the implementation of strategic plans (Moskow, 1978; J. Lewis, 1983). Within the academic literature, tactical or operational planning may be referred to as program planning (Fincher, 1982; McCune, 1986).

It was also necessary to identify terms sometimes used synonymously with strategic planning. In discussing strategic planning for colleges, Cope prefers open-system planning (1981b) or contextual planning (1987) to eliminate the military connotations and to more precisely indicate the link between this form of planning and the external environment. Kimbrough and Nunnery (1983), among others, emphasize the future orientation with the term futures planning.

Another problem concerned several popular planning techniques frequently mentioned in the literature. Sometimes related to strategic planning, these techniques are more accurately identified as part of operational planning than as models of the strategic planning process. For example, PIMS (profit impact of market

strategies) is a statistical model limited to evaluating one aspect of corporate strategy implementation (Holloway, 1986). PPBS (program, planning, budget system) and PERT (planning, evaluation, and review technique), both operational planning techniques, often appear in the literature on educational planning (Tanner, 1981; J. Lewis, 1983; Guthrie & Reed, 1986).

Finally, strategic planning needs to be differentiated from strategic management. Since strategic planning is generally considered as one aspect of strategic management (Drucker, 1974; Ansoff, 1984, 1988; Freeman, 1984), selections from that body of literature proved useful. However, strategic management often refers to implementation activities well beyond initial environmental scanning and, therefore, outside the scope of this study (Cope, 1985; United Way of America, 1985a; Goodstein et al., 1986).

The strategic planning process

In a study concluded in 1978, Moskow found that there was no single widely accepted model of strategic planning. Holloway (1986) and Cope (1987) agreed. Comparisons of several proposed models can be found in Steiner (1979), Holloway (1986), and Bryson et al. (1986). One of the most recent and comprehensive models is the Applied Strategic Planning Model issued by

University Associates and detailed in Goodstein et al. (1986).

While no one model dominates the literature or common practice, nearly all models of the strategic planning process include the following elements or activities: preparation, environmental scanning, developing a mission statement, setting goals and objectives, developing implementation plans, implementing the plans and monitoring progress, and formal evaluation. There is also general agreement that the process is a continuous cycle in which activities may occur simultaneously or in varying order.

The elements of strategic planning provide an excellent example of one semantic problem encountered in the literature. Nearly every source on the strategic planning process includes a discussion of goals and objectives. The meaning or ranking of these two terms, however, is not consistent. Steiner, who recognized the problem in 1979, conceived of objectives as the broader term with goals as steps toward reaching objectives. This view was shared by Ackoff (1970) and King (1979), although King admitted that such a view reversed the usual definitions. The more common hierarchy perceives goals as long-run organizational aims and objectives as short-term, operational targets (Kahalas, 1976; Hofer &

Schendel, 1978). Since this ranking is the more common, and since it is the most frequently used in the literature related to educational organizations (e.g. Martisko & Ammentorp, 1986; McCune, 1986; Stone, 1987), it has been adopted for this study.

In addition to some consensus as to the elements of strategic planning, there is also agreement concerning essential aspects of the implementation of the process. Both the support and the active involvement of top management are critical to success as is the participation of a wide variety of interested parties. The most frequent recommendation is that the process be coordinated by a task force working with numerous subgroups. Furthermore, large amounts of time must be devoted exclusively to planning and strong channels of communication must be established.

The following sources offer thorough discussions of the elements of strategic planning and suggestions for implementation: Steiner (1979), Keller (1983), J. Lewis (1983), United Way of America (1985a), Pfeiffer (1986), Stone (1987), and Hart (1988). Much of the literature specific to school systems has been sponsored by the Association for Supervision and Curriculum Development which has produced an overview video tape and an annual study institute (Cawelti, 1987). Their publications

include Glennan (1984), Cawelti and Valiant (1985), and McCune (1986).

Problems and benefits of strategic planning

In the early 1970s Steiner (1979) sent questionnaires concerning problems with long range planning to 600 companies. From the 215 usable replies, he compiled a list of fifty frequent pitfalls of planning. In 1983 J. Lewis adapted this list to public education, and in 1986 Stringer devoted an entire text to coping with planning problems. All agree that long range planning and strategic planning in particular are difficult, time-consuming, and often expensive.

Many of the problems identified by these authors and others (e.g. United Way of America, 1985a; McCune, 1986; Pfeiffer, 1986) address elements of the strategic planning process beyond the scope of this study, but at least three are relevant to external environmental scanning. First, lack of commitment by top management is usually listed as the most significant problem facing strategic planning. A second major problem, often resulting from the first, is failure to integrate the information collected and the planning process itself into daily decision making. Third, and most relevant, the complexity of the external environment and the need for better ways to collect and assess information from

the environment are often mentioned as crucial problems facing strategic planning (e.g. Humble, 1972; Royce, 1978; Shipper, 1983).

Although Steiner (1979) has collected comprehensive information on planning problems, he remains one of the strongest advocates of strategic planning asserting that "every manager should have a basic understanding of both the concept and the practice of formal strategic planning" (p. vii). Like others, he believes that the potential benefits outweigh the difficulties.

As was true of the problems, many of the benefits cited are not directly related to environmental scanning. However, in most discussions of the advantages of strategic planning, the incorporation of information concerning the macroenvironment ranks high. Having more and better information tends to improve management and decision making throughout the organization. As part of the strategic planning process, the environmental information forces participants to ask and answer new and important questions, to anticipate the future, and to become more adaptable to change (Steiner, 1969, 1979; J. Lewis, 1983; McCune, 1986). In a report of their strategic planning effort, the staff of North Side High School, Fort Wayne, Indiana, summarized these benefits: "The process has enabled us to anticipate change, and

therefore, not to be overwhelmed by the change. It has enabled our staff to be proactive, instead of reactive, and more in control of our future" (Bundschuh, Howe, Lovell, & Platt, 1985, p. 4). The benefits accrued from the environmental scanning element are so significant, in fact, that in evaluating strategic planning in higher education, Keller asserted that "this growing awareness of the outside environment is the single most important contribution of strategic planning to institutional decision making" (Cope, 1987, p. 69).

Summary

Strategic planning is a process which helps an organization clarify its goals, coordinate decision making, and anticipate the future. One of the main distinguishing features of strategic planning is the integration of information concerning the external environment. "Viewed in the broadest terms, the primary purpose of strategic planning could be described as optimizing the 'fit' between the business and its current and future environment" (Albert, 1983, pp. 3-4). Strategic planning, therefore, is the broader context of which environmental scanning is a part.

Dating essentially to the 1960s, the strategic planning process began in the business sector then moved to non-profit and public organizations, institutions of

higher education, and school systems. Consequently, there is more literature on corporate strategic planning than on strategic planning in education. Steiner (1969, 1979), Ansoff (1965, 1988), and Ackoff (1970) dominate the business literature, but Holloway's 1986 textbook Strategic Planning, a comprehensive and more recent source, bears notice. Although others have written about strategic planning for non-profit and public organizations, the materials from the United Way (1985a) are the most practical. Administrators involved in higher education would most likely find Cope (1981b, 1985, 1987) and Keller (1983) informative. Within the limited literature specific to public school systems, J. Lewis (1983) and McCune (1986) are the most significant.

Descriptions of Future Schools

The final broad context examined, the literature on schools of the future, assisted the study in two ways. As is explained in detail in Chapter IV, these references were useful in the selection of the items. Perhaps the more important contribution of the sources on schools of the future, however, is that they exemplify the process of environmental analysis and reinforce the need for external information in long range planning. Without necessarily addressing the steps taken, writers such as Adler (1982), Apple (1983), Goodlad (1984), Cetron (1985,

1988), and Shane (1987), examined environmental conditions, then created a kind of scenario based on the impact these conditions could or should have on public schools. Regardless of the perspective from which these scenarios are drawn, they all recognize that social, economic, political, and technological factors will influence the future of education. This recognition underscores the value of consciously integrating information from the external environment into long range planning in education.

Chapter III

Review of Literature Specific to Environmental Scanning

Development of Environmental Scanning

Not surprisingly, open system and environmental theories led not only to the strategic planning process, but also to specific concentration on the external environment and the interactions between organizations and their environments. Individual managers and organizations became increasingly aware of the need to collect and use information about the outside environment. Originally all such activity was designated as environmental scanning whether conducted as part of a strategic planning exercise or not. As activities have become more sophisticated, environmental scanning has more often been used to describe only the collection phase and environmental analysis has become the broader term to cover both the collection and interpretation of information.

One of the first works devoted to environmental scanning, and still one of the most frequently cited, is Aguilar's Scanning the Business Environment (1967) which is based on his dissertation study. Using surveys and interviews, Aguilar questioned 137 managers in 41 companies in the United States and 6 western European countries to discover what information managers obtain

about the outside environment for purposes of determining strategy, the sources they use to get this information, the ways in which they get it, and why they scan the environment as they do. He found that while scanning activities tended to be much the same from industry to industry, conditions and trends in the industry affected the specific kinds of external information reviewed by managers. Looking at the results from all of the companies showed that most of the information being collected concerned Market Tidings (58%). Managers placed much less emphasis on Broad Issues (8%) which included demographics and government action. However, the larger the company, the greater the concern with Broad Issues. Although most of the companies were in the chemical industry and Aguilar limited his discussion to corporate implications, he claims in the preface that the observations and findings are relevant to any task-oriented organization. Of Aguilar's findings, perhaps the most relevant to the current study were those revealing the state of environmental scanning. He found that top management's understanding of the scanning process was generally inadequate and that few coordinated scanning activities existed. Aguilar concluded that "the subject of scanning for strategic information is far too complex and far too unfamiliar to permit any definitive

interpretation at this early and still exploratory stage of study" (p. 50) and that "increased attention to and experience in scanning should lead to new and improved techniques of seeking, obtaining, and handling external information" (p. 202). His predictions have proven true especially in the business field, but environmental scanning for public school systems is still largely undeveloped.

Aguilar's study was followed up in 1973 by Kefalas and Schoderbek. Although they too were examining what information was collected and how, they were more concerned with the relationship between external environmental characteristics and organizational information-acquisition behavior. Hence, they selected a sample of 6 companies, 3 from an industry in a stable environment, 3 from an industry in a dynamic environment. Their study was conducted in two phases. In Phase I they used questionnaires and interviews to classify the external environment as stable or dynamic. In Phase II they used a scanning questionnaire during interviews with managers to determine the amount of time spent on scanning, the kinds of information acquired, and the types of sources used. The major finding from their study was that companies in a dynamic environment spent more time on scanning than did those in a stable

environment. These results also support Whittaker's (1978) hypothesis that the acceleration in the rate of change in the external environment which began in the 1960s explains why companies turned to strategic planning and environmental scanning at that time and not before.

General Electric is again often credited with creating the earliest environmental scanning group. As part of their innovative strategic planning activities, General Electric formed a Business Environmental Studies unit in May 1967 to identify and monitor social, political, and economic trends and to determine their implications for company planning (Wilson, 1974). Other companies also began to experiment with formalizing environmental scanning, but the focus remained on economic factors (Renfro & Morrison, 1983b). It took the near collapse of the life insurance industry in the 1970s from unanticipated social factors to expand the scope and practice of environmental scanning (Renfro & Morrison, 1984). To assure that their industry would not again be so buffeted by environmental changes, the American Council of Life Insurance Underwriters developed the Trend Analysis Program (TAP) to monitor and report on events and issues in all aspects of the external environment (Ewing, 1979).

Several studies have chronicled the development of corporate environmental scanning. In 1975 Fahey and King conducted field interviews with executives in 12 large corporations concerning scanning practices. Based on their findings, they developed a taxonomy to describe environmental scanning activities as irregular, regular, or continuous. Results showed that while executives wanted to improve environmental scanning in their companies, procedures were generally unsophisticated, irregular, and not integrated well into the strategic planning process. In 1981 Fahey, King, and Narayanan conducted an expanded study involving questionnaires of "aware professionals" and interviews with practitioners in the 12 firms. They discovered that there was still no consensus about how to organize environmental scanning activities and that the integration between scanning and strategic planning was still weak. These results were supported by Thomas (1974) and by Pfeffer and Salancik (1978). Although Fahey et al. conducted their studies in the United Kingdom, they continue to be among the most frequently cited in the literature (Ruddock & Rossy, 1984; Lenz & Engledow, 1986).

Another major study of corporate practice was completed in 1977 by Diffenbach (1983). Eight-page questionnaires were sent to the presidents of 112 Fortune

500 firms. Of the 90 respondents, 66 indicated that they had organized environmental analysis units in place. Results indicated that larger corporations tended to use a greater variety of techniques for analyzing information and that their executives were more likely to use the information gained from scanning, but that no systematic relationship existed between organizational size and either the perceived usefulness of or the amount of effort spent on environmental analysis.

From his study Diffenbach proposed that the development of environmental scanning goes through three stages: appreciation, analysis, and application. During the appreciation stage, the organization becomes aware of the value of obtaining information from the external environment. The next stage, analysis, involves finding sources of environmental data, then collecting and examining the data. In the application stage, the organization has developed a system for acquiring data and has integrated that system into management decision making. As one of his conclusions, Diffenbach asserted that it is important for a company to know which phase it is in. Applying this view to the current study would suggest that one aim of this effort might be to help school systems move from the appreciation stage into the analysis stage.

Following Diffenbach's methodology, Jain (1984), who completed his study in 1979, mailed surveys to 186 Fortune 500 firms and interviewed 37 executives. From his results Jain developed a model showing four, rather than three, levels of evolution in environmental scanning activities: (1) primitive, the environment is perceived as inevitable and random; (2) ad hoc, a few areas have been identified for careful watching; (3) reactive, organization lacks an established scanning mechanism and is overwhelmed by information; (4) proactive, organization has developed a structured method for collecting, sorting, and evaluating data. Most importantly, perhaps, he concluded that effectiveness in strategic planning is directly related to the capacity for environmental scanning. Jain further reported that corporations which had established scanning systems usually collected information concerning social, economic, political, and technological trends, but that techniques for gathering information were most developed for economic indicators, least developed for the social area. In discussing other problems facing scanning units, Jain observed that a major problem was discerning what parts of the environment to scan. This last observation is particularly relevant to the current study.

Perhaps the most ambitious inquiry was completed by Klein and Linneman (1984) who described their 1981-82 study as "the most extensive examination of corporate environmental assessment activity ever undertaken" (p. 66). Using questionnaires and interviews, they gathered information from approximately 500 of the world's largest corporations. Their results showed that corporate planning processes were virtually universal and that environmental assessment had been recognized as a formal step in about half of the 500 firms. Furthermore, their conclusions support Diffenbach's observation that the recognition of the value of environmental scanning is not dependent on company size.

Of all the studies, one of the most thoroughly reported is the 1984 work of Lenz and Engledow (1986). In an effort to examine the use of environmental analysis units and to define the conceptions of the organizational environment guiding scanning, Lenz and Engledow spent three to five hours in structured field interviews at each of 10 "leading-edge" corporations. Rather than selecting companies at random, they chose to sample companies that represented the most advanced commitment to and practice in environmental analysis. Despite this commitment, Lenz and Engledow found that in most corporations, there was no coherent concept of the

environment guiding scanning activities. Furthermore, their results showed that most companies were encountering difficulties in implementing environmental analysis. These difficulties were largely concerned with the design of the units, their position in the corporate structure, and their integration with strategic decision processes. Problems associated with collecting environmental data were not addressed.

The growth of corporate environmental scanning during the 1970s and early 80s is reflected in two remarks from Thomas based on his studies. In 1974 he reported that environmental scanning activities had not been formalized or systematized in most businesses. By 1982, however, he was ready to declare that effective environmental scanning had become permanent and pervasive (Stubbart, 1982). Although some of the researchers reported above might have disagreed, Albert (1983) shared Thomas' view: "The new centrality of environmental analysis in the strategic planning process is no fad and no accident. It is a reflection of reality: the growing importance of external factors to business success" (p. 9-19).

Similar recognition of the growing complexity and importance of environmental factors led, in part, to the creation of the Congressional Clearinghouse for the

Future. A bipartisan legislative service founded in 1976 and funded by members of Congress, the Clearinghouse now conducts environmental analysis and supplies information about developing issues to over 100 senators and representatives. Most of the documents produced by the Clearinghouse are republished for public sale by the Congressional Institute for the Future which operates under the same director but has separate funding, mostly from corporate contributions (Willard & Fields, 1989).

In 1985 Senator Albert Gore, Jr., currently co-chair of the Congressional Clearinghouse, introduced legislation for a Critical Trends Assessment Act which would have established an Office of Critical Trends Analysis in the Executive Office of the President to serve an advisory function and to publish a Report on Critical Trends and Alternative Futures once every four years (Gore, 1985). Although this bill failed to pass committee, it further indicates Congressional awareness of the increasing need to monitor the macroenvironment.

Educators also became more interested in environmental changes as early as the 1960s, but environmental scanning was much slower to develop in educational settings than in corporations. In 1965 the Office of Education sponsored a joint project by eight western states to study education for the future

(Morphet, 1967). Under the direction of Edgar Morphet, the group produced a seven volume report. Volume 1, Prospective changes in Society by 1980, is a collection of papers by 24 authorities in various technical fields who predicted social changes by 1980. For Volume 2, Implications for Education of Prospective Changes in Society, 21 leading educators considered the implications for education of the predictions in Volume 1. The project was too early to be expected to use the language of strategic planning and environmental scanning, but the process represents the kind of environmental analysis recommended in today's literature.

Despite growing recognition of the influence of external events on educational organizations (McGrath, 1972; Williams & Nusberg, 1973; Collazo, Lewis, & Thomas, 1977), little progress was made during the 1970s. Then as colleges and universities began to adapt strategic planning, they began to recognize the need for environmental scanning. In 1983 Keller observed that "if there has been any major transformation in outlook in higher education in the past few years, it has been in the acute new awareness of the economic, political, and cultural environment surrounding the campuses" (p. 69). This new awareness prompted the development of techniques for assessing external factors. One of the first models

for assessing the impact of external events was the Futures Creating Paradigm developed in 1978 by the Resource Center for Planned Change of the American Association of State Colleges and Universities (Cope, 1981a). Shortly thereafter Old Dominion University and the Education Section of the World Future Society conducted a joint research project to study the use of scenarios for strategic planning in education (Dede & Allen, 1981). Although both activities utilized information on environmental trends, they were more concerned with analyzing impacts than with the process of collecting the information. So, too, is ED QUEST, Quick Environmental Scanning Technique for Education, introduced by Mecca and Adams in 1982.

The most extensive work advocating and designing environmental scanning processes for higher education has been contributed in the last few years by James Morrison. With Renfro and Boucher, he has developed guidelines for initiating and institutionalizing environmental scanning in higher education institutions (Renfro & Morrison, 1983b, 1983c; Morrison et al., 1984). He has also collaborated with Mecca in expanding and promoting ED QUEST (Mecca & Morrison, 1986; Morrison, 1987).

By 1986 environmental scanning had become a popular topic and a more frequent activity in higher education.

Assessments such as Johnsen's (1986) that "three-quarters of all change at most institutions of higher learning is now triggered by outside factors" (p. 6) and widespread experimentation with strategic planning spurred interest. An entire volume of New Directions for Institutional Research (Callan, 1986) was devoted to environmental scanning and Morrison reported on more than 60 colleges and universities that were engaging in some type of environmental scanning activities (Morrison, 1986). In terms of the developmental stages of environmental scanning suggested by Diffenbach (1983), colleges and universities were making the transition from the appreciation stage to the analysis and application stages.

Public school systems would probably best be described as still in the appreciation stage, recognizing the significance of external factors and exploring ways to assess and use environmental information. While Keller could describe the awareness level in higher education as "acute" in 1983, Payzant found it still "emerging" in public school systems in 1987: "Social, political, economic, fiscal, and psychological forces have always defined the setting in which public schools function. What is already different is our emerging

awareness of the powerful implications that these forces suggest" (p. 1).

This growing awareness can be seen in encouragements to give greater attention to environmental analysis (e.g. Lilly, 1984; Hodgkinson, 1985; Valentine, 1986). It is also evident in efforts to incorporate external information into educational planning. For example, in a major planning effort in 1984, the Princeton, New Jersey, school system decided to concentrate on educational issues that the future might create even though a survey of similar school districts showed that few were considering external issues when making long range plans (Houston, 1984).

At about the same time, the National Association of Secondary School Principals introduced the Comprehensive Assessment of School Environments Model (CASE) which was designed to help school systems develop a data base for planning school improvement. Although the CASE materials warn that "it is pointless to investigate the climate of a school without placing it in the context of the larger setting", the instruments which have been developed focus on assessing and monitoring internal variables. The part of the model concerning the external environment tends to suggest categories of information rather than specific data to acquire.

As might be expected from its role in developing strategic planning, the Association for Supervision and Curriculum Development has been most active in helping school systems to attempt environmental scanning through their study institutes, planning networks, and publications. They produced Hodgkinson's Strategic Planning: Scanning Techniques (1984), which makes a strong case for the need for public school systems to engage in environmental scanning, but does not provide adequate directions for conducting a scan. The most specific guidelines for a scan of the external environment of a public school system appears to be the External Scanning Data Checklist found in another Association publication, McCune's Guide to Strategic Planning for Educators (1986).

Increased interest in environmental scanning for public schools has also produced several relevant studies. In 1985 Holmes conducted open-ended interviews with 84 elementary and secondary teachers, principals, district administrators, board members, and secretaries from an urban school system in the state of Washington to examine the information flow between a school district and its environment. Most people reported that they spent at least one hour per day scanning the external environment and that they preferred verbal rather than

written techniques. Scanning behavior was found to be largely an individual and decentralized activity. Based on her results, Holmes questioned the value of formal, centralized organizational scanning. The study serves to indicate awareness of environmental scanning among public school personnel; but the use of a single school district, especially one in an environment described as relatively low in turbulence, limits the generalizability of the conclusions.

Lease (1988) chose to study both strategic planning and environmental scanning activity. From interviews with 12 superintendents of school systems in or near several upstate New York cities, he observed that although strategic planning and environmental scanning were viewed as high priority functions, environmental scanning activity was mostly informal and non-systematic. Like the Holmes study, Lease's shows increasing appreciation of the need to assess external factors.

While Holmes and Lease examined scanning practice, three other researchers have focused on the external factors themselves. Rhoda (1986) used meta-analysis of 27 studies to determine if relationships exist between demographic, academic, and non-academic factors and student retention. She concluded that demographic factors were helpful in describing a particular

population, but were not related to student retention. Despite this conclusion, she urged more research on the influence of current demographic trends. Continued research seems especially called for since Rhoda's finding contrasts with Hodgkinson (1985) who maintains that a direct link exists between socio-economic factors and retention and with the assertion by the National Association of Secondary School Principals (1984) that family wealth is the most accurate predictor of student success.

In a study completed in 1986, Hoogasian concluded that the impetus for curriculum change within a public high school came largely from internal factors regardless of the degree of stability in the external environment. This finding is not particularly surprising, nor does it lessen the need for the current study. Hoogasian confined his study to the period from 1973 to 1983, a period generally preceding both awareness of the significance of environmental factors and experimentation with environmental scanning in public schools.

The intended purpose of the study completed by Smith in 1986 was to develop a checklist of critical data needed by public school planners for facility and curriculum planning. The use of critical data points up two significant differences between Smith's study and the

current one. First, as will be explained more fully later in this chapter, the identification of factors as critical requires considerable assessment which occurs well after the first step in scanning. Second, by definition, critical data includes internal as well as external factors. Nonetheless, Smith's study reinforced the selection of some items for the current survey. Using a three-round modified Delphi, Smith obtained responses from 56% of the public school districts in the Greater Kansas City Metropolitan Area. Based on his results, he identified several factors critical to both facilities and curriculum planning including the following external factors: population, population mobility, community economic and social priorities, and financial resources and alternatives. A comparison of the responses showed that the size of the district made no significant difference. In his recommendations, Smith encouraged public school districts to create data bases for planning purposes including information on the critical factors identified through his study. The current study seeks to provide more extensive suggestions of external information for school systems initiating such a data base.

Environmental scanning is still a new topic for public schools. Although Ahumada declared in 1986 that

"almost all recent books on management and planning refer at least implicitly to environmental scanning, and those on strategic planning refer to it explicitly since such scanning is a major element of this approach to planning" (p. 87), the literature specifically addressing environmental scanning in public school systems is sparse. Therefore, it is again necessary to rely heavily on literature intended for business or higher education institutions.

Definition of Environmental Scanning

Environmental scanning generally includes two aspects, one internal, the other external. Only the examination of the external environment is relevant to the current study. Before defining external environmental scanning, however, it is first prudent, as stressed by Lenz and Engledow (1986), to consider what is meant by the external environment. Terry (1977) broadly defined the external environment as "those things which lie outside the company (or organization) and are of concern to it." The external environment "consists of things which have influence on the organization and also things which the organization wishes to influence" (p. 2). Kast's (1980) definition, although more concise, is even broader: "everything external to the organization's boundary" (p. 23). To give some structure to this large

concept, many sources propose viewing the external environment as two concentric circles, the microenvironment and the macroenvironment (e.g. Thomas, 1974; Rothschild, 1976; Camillus, 1986). The microenvironment contains factors most closely related to the specific organization such as local resources and competitors, while the macroenvironment encompasses those social, economic, political, and technological factors affecting all organizations (Fahey and Narayanan, 1986). The literature on environmental scanning tends to focus on the examination of the macroenvironment.

What then is environmental or macroenvironmental scanning? For the purpose of his early study, Aguilar (1967) defined environmental scanning as a process of "acquiring information about events and relationships in a company's outside environment, the knowledge of which would assist top management in its task of charting the company's future course of action" (p. 1). Summarizing the threads common among other explanations of environmental scanning leads to the following definition: external environmental scanning is the process of examining the broad environment outside an organization in order to gather information on changes and potential changes which might create opportunities or pose threats

for the organization (e.g. Morrison et al., 1984; Fahey & Narayanan, 1986; McCune, 1986).

While most references would be likely to agree with the above definition, some might argue that it is incomplete. The problem concerns the distinction between collecting information and interpreting information. Aguilar (1967) and Albert (1983), for example, use scanning to describe only the collection of information. Others have used environmental scanning to refer to both the collection and the analysis of the information (e.g. Terry, 1974; Nanus, 1982; Mecca & Morrison, 1986). Materials from the United Way of America (1985b) combine these two approaches by presenting environmental scanning as a process composed of two distinct steps: (1) data gathering and reporting and (2) development of implications.

Throughout these inconsistencies, two aspects of environmental scanning remain constant. First, scanning involves the collection of data. Second, the purpose of gathering this data is to identify opportunities and threats. Therefore, the topic of this current study, initial data gathering, is included in all explanations of environmental scanning. Nevertheless, the concept of environmental scanning operating in this study is most closely associated with that of Fahey and Narayanan

(1986) who view scanning and assessment as separate stages.

Boundaries of Environmental Scanning

Establishing boundaries entails both restricting and expanding limits. This proved especially true in determining the scope of environmental scanning and isolating the relevant literature, efforts which were often complicated by semantic problems. Some authors discuss scanning activities, but use the term environmental scanning rarely or not at all. For instance, Steiner (1979) chose to invent his own term, situation audit, to describe the process while J. Lewis (1983) called his external environmental scan a critical analysis of the school district.

In other instances, environmental scanning has been subordinated under broader terms which have more recently become associated with strategic planning. The most popular of these umbrella terms is environmental analysis which is generally divided into four phases: scanning, evaluation, monitoring, and forecasting (e.g. Morrison et al., 1984; Fahey & Narayanan, 1986). Within this framework, scanning is limited to a broad sweep of the environment to collect potentially important information. The information is then evaluated to assess implications for the organization. Through the evaluation, some

trends or issues are identified as important enough for continued tracking or monitoring. Using a variety of techniques, researchers also attempt to forecast the future direction of these environmental changes. Use of environmental analysis to describe the entire process is widespread especially in the business sector (e.g. Thomas, 1974; Diffenbach, 1983; Lenz & Engledow, 1986). The most thorough explanation of the components of environmental analysis can be found in Fahey and Narayanan (1986).

The term environmental analysis, however, is not always used consistently. For example, the United Way (1985b) labels their procedure as environmental analysis, but, as has already been shown, considers evaluation as part of environmental scanning. In addition, their explanation of environmental monitoring differs somewhat from the usual and includes the collection of some data generally considered to be the province of scanning.

Another heading under which environmental scanning might be listed is environmental assessment. In several cases, environmental assessment operates synonymously with environmental analysis (e.g. Neubauer & Solomon, 1977; Cope, 1981a; Klein & Linneman, 1984). In other references this term is used narrowly to designate only

the evaluation phase (e.g. J. Lewis, 1983; United Way of America, 1985b; Fahey & Narayanan, 1986).

Environmental scanning is also considered part of futures research which begins with environmental scanning, but emphasizes the creation of forecasts and scenarios. An extensive discussion of futures research, the role of environmental scanning in this process, and the integration of futures research into strategic planning can be found in Morrison et al. (1984).

Issues management is perhaps the broadest term of all. As described by Ansoff (1975), issues management begins with the detection of weak signals from the environment during scanning and continues beyond issues analysis to the implementation of action in response to external environmental factors. More recently, Coates has developed a comprehensive model of issues management which includes scanning as one of many phases (Coates et al., 1986).

Although the literature on all of these broad topics has relevance for environmental scanning, some of it is outside the boundaries of this study. Since the focus here is on initial scanning activity, the extent of the search was limited to those references most pertinent to this phase. Where it has been possible to separate them, techniques for monitoring, forecasting and assessment

have been considered beyond the scope of this study. The conversion of the results from environmental analysis into managerial action, the later stages of issues management, is also not relevant here.

Furthermore, the decision was made to exclude the literature on Management Information Systems (MIS). These systems are designed to acquire, store, and disseminate information for the organization. Until recently, however, they have concentrated mostly on internal information (Ansoff, 1970; Council of the Great City Schools, 1972; Hussain, 1973). While there has been some recognition of the need for management information systems to address the external environment (Hanson, 1985; Groff, 1981), environmental scanning activities are usually conducted separate from the MIS unit in both business and education organizations (Jain, 1984; Klein & Linneman, 1984; Renfro & Morrison, 1983b).

Finally, the identification of Critical Success Factors was considered outside the boundaries of this study. First suggested by Daniel in the 1960s, Critical Success Factors (CSFs) are those few factors which are crucial to the success of an organization competing in a particular industry (Rockart, 1979; Leidecker & Bruno, 1984). Also called Key Success Factors (Hofer & Schendel, 1978; Cope, 1987), these variables are often identified

from the internal rather than the external environment (Hax, 1984; United Way of America, 1985a). In explaining the limitations of the use of Critical Success Factors, Rockart (1979) commented, "Let me stress that the CSF approach does not attempt to deal with information needs for strategic planning" (p. 88). The separation of Critical or Key Success Factors from the environmental analysis process is further discussed by Leidecker and Bruno (1984) and by Fahey and Narayanan (1986).

The Environmental Scanning Process

Before deciding how to begin environmental scanning, an individual or organization must first recognize that there are different types or modes of scanning. Aguilar (1967) conceived of four types occurring along a continuum: undirected viewing, conditioned viewing, informal search, and formal search. The distinction among the four modes depends upon the consciousness of the search and the degree to which specific items have been identified and a methodology has been established. A similar scheme is offered by Morrison et al. (1984) who specify three modes: passive, undirected, and directed. Fahey et al. (1981) based their typology on the frequency of scanning activities as irregular, periodic, or continuous; but Fahey and Narayanan (1986) later chose, as had Hofer and Schendel (1978), to place greater

emphasis on the perspective used in the scan, outside-in or inside-out.

Each of these classification systems could be used to more precisely describe the type of scanning which is the subject of this study. Initial environmental scanning based on a suggested list of data would probably fit into Aguilar's continuum near the intersection of informal and formal searching since specific data is actively sought, but no methodology has been formally established within the organization. Under Morrison, Renfro, and Boucher's system, such scanning would be considered directed since it is active scanning for specific items. While the frequency of later scanning activities is not an issue in the current study, it is hoped that the impression made by the initial scan will encourage school systems to adopt continuous scanning. Finally, the scan described in this study would most likely be regarded as inside-out because the data to be collected has been limited to items perceived as having potential impact on the organization. True outside-in scanning draws information from the total macroenvironment without considering whether or not this information has any applicability to the specific organization.

Determining that the scan under consideration will be somewhat structured and directed leads to the examination of recommended procedures for initiating and conducting the environmental scanning process. Although there are some common recommendations, there is no universal model (Steiner, 1979; Coates et al., 1986). Most models address the whole process of environmental analysis and include some form of the following activities:

1. determining the scope of data gathering
2. collecting data
3. reporting the data
4. assessing the impact of the data
5. developing forecasts and scenarios
6. identifying items or issues for monitoring
7. reporting the results of assessment
8. continuous scanning, monitoring, and assessing of environmental data
9. integrating environmental analysis into strategic planning and daily decision making
10. periodically reevaluating and revising environmental analysis procedures

Of these activities, only the first three are of immediate concern during initial scanning. However, understanding the entire process helps to shape the scan.

One of the first decisions to be made when an organization plans to initiate scanning is to determine who will have responsibility for conducting the scan. Scanning methods vary from one person collecting and publishing information to highly structured group techniques. Outside consultants and information services may or may not be used. Techniques which involve groups seem to be the most favored in the literature and in practice (e.g. Thomas, 1974; Stubbart, 1982; Bundschuh et al., 1985). The recommended size of these groups varies from as few as 4 or 5 (Morrison et al., 1984) to as many as 25 (United Way of America, 1985b). Corporate scanning groups tend to be composed predominantly of internal personnel (Fahey et al., 1981); non-profit and education organizations are more likely to include representatives of various outside stakeholders (McCune, 1986). Often the strategic planning committee conducts much of the environmental analysis process. Regardless of the composition of the scanning group, nearly all sources agree that, like strategic planning, effective environmental scanning requires the support and involvement of top management (e.g. Renfro & Morrison, 1983b; Cawelti & Valiant, 1985; Fahey & Narayanan, 1986).

Having decided where to place the responsibility for scanning, organizations must next determine what

information will be collected and how. Repeatedly the literature warns that this step is difficult, time-consuming, and often expensive (e.g. Steiner, 1979; Klein & Newman, 1980; McCune, 1986) Stubbart (1982) maintains that the problem is a universal one: "All organizations report continuous frustration in efforts to define their environment and in ascertaining what information is worth having" (p. 143). This point is given emphasis here because it is the key issue addressed by the current study.

The most comprehensive guidelines for solving these problems and implementing environmental scanning in higher education have been developed by Renfro and Morrison (Renfro & Morrison, 1983b, 1983c; Morrison et al., 1984). Working from the assumption that ideas for issues and sources can be drawn from people within the organization, they suggest that the scanning process begin with an in-house, interdisciplin-ary scanning committee of 10-12 members which meets on a regular basis, preferably monthly. They argue against the use of outside information services because such sources are often expensive and too general to meet the needs of the specific organization.

The first task of the committee is to generate a list of issues covering possible developments in the

social, economic, legislative/regulatory, and technological environments. Ideas for the list may come from the personal knowledge of the members or from recommendations made by key managers or administrators. Another suggestion is for members to gather clippings of articles and look for reinforcing signals that may indicate emerging trends or issues, a method similar to that used by the Naisbitt Group which publishes Trend Report. These techniques depend heavily on the judgment of persons who may be engaging in conscious scanning for the first time. They are also subject to what Kahalas (1976) and Ansoff (1984) called information filters, personal or organizational biases which cause individuals to credit or discredit certain types of information or information sources.

Once the committee has created a lengthy list of possible topics, they must limit that list to 25-40 issues and develop ways to code and store information which will be gathered. They must also agree on a list of periodicals to be regularly scanned. Then each member agrees to continuously scan several specific periodicals for items on 2-3 of the issues. At their regular meetings, members share, discuss, and file the information they have collected. This step may require a separate staff person to maintain the files (Morrison et

al., 1984) or the use of electronic filing programs such as Dbase or Lotus (Morrison, 1987). Furthermore, the scanning committee should publish a weekly or monthly newsletter reviewing the 2-5 most significant items recently found. After one year the committee should review the collected clippings and eliminate outdated material, reevaluate the list of issues to be scanned, and revise the list of publications being scanned.

While these detailed recommendations may result in an effective scanning process, they represent large commitments of time and personnel which may not be possible in a public school system. Furthermore, the process described goes beyond the kind of initial scan or district profile needed for first attempts to expand the use of environmental information in long range planning.

The United Way (1985b) has also developed guidelines for establishing environmental scanning. The national organization uses a scanning committee similar to Morrison and Renfro's and encourages local chapters to establish volunteer committees to compile and review data. One of the major differences, however, is that the national group has already developed a complete taxonomy for classifying data; provides the local unit with detailed suggestions for locating, recording, and assessing information; and maintains a national

environmental analysis database. Recognizing that the full group process may still not be feasible within the limited resources of local units, the United Way suggests that the committee could be presented with complete database materials "pulled together" by a local staff person for the committee to review, discuss, and approve. To assist either the full committee or local staff members to gather data, the United Way has developed an extensive Environmental Scan Demographic Data Checklist which suggests items that might be presented for assessment. Other recommendations exist for determining what information to collect and how to collect that information, but they are usually less detailed and often less instructive. In his advice for corporate scanning units, Aguilar (1967) stressed the use of in-house personnel and heavy reliance on newspapers and periodicals for discovering potential issues. Two decades later Lomax (1987) observed that in most organizations attempts at environmental scanning usually begin with some kind of systematic review of magazines, newspapers, journals, and other sources of information. She advised organizations to follow the United Way or Morrison models in structuring the systematic review. McCune adapted the United Way's database for use by school systems, but confined her coverage of the entire

environmental analysis process to less than four pages. Another proposal for environmental scanning encourages groups of colleges and universities to combine their efforts in a manner similar to the Trends Analysis Program (TAP) used in the life insurance industry (Cope, 1981a; Morrison et al., 1984). Ansoff (1984) supported the technique most closely related to the current study. He recommended that inexperienced organizations start with a list of issues that have been significant to similar organizations. Members of the scanning committee then eliminate issues which are not relevant to their organization and add others which they identify during their own scanning.

No matter which method is adopted for collecting and limiting the data, the next step is to prepare an initial report. A unique suggestion was offered by Aguilar (1967) who urged corporations to set up a corporate information presentation room which could house the collection of information and contain continuously changing informative displays. More often, advice for this step addresses some form of written report. This may be a collection of abstracts written by members of the scanning committee or a compilation of data arranged in some consistent format. Suggestions of formats for reporting data can be found in J. Lewis (1983), Holloway

(1986), or Lomax (1987) and in the manual from the United Way (1985b). The United Way also offers a set of screening questions which might be used to determine whether or not to include specific data:

1. Are comparable local data available?
2. Are the data recent, at least no more than 5 years old?
3. Are the data relevant?
4. Do the data say something about the future?

Stressing the importance of the effective presentation of data, McCune suggested the use of microcomputer graphics to enhance either a written or audio-visual report.

At this point the environmental analysis process moves from the collection of data to the assessment of the impact and importance of that data. Several complex techniques have been developed for assessment and forecasting. The most popular procedures include trend extrapolation, Delphi, cross impact analysis, trend impact analysis, scenarios, and probability/diffusion matrix. Some of these activities are done manually, some require computer programs, but all follow initial scanning and are much less germane to the current study. Thorough presentations of the full analysis process can be found in Cope (1981b, 1987); Morrison et al. (1984); United Way of America (1985b); and Fahey and Narayanan

(1986). Kotler and Fox (1985) provide further discussion of assessment for institutions of higher education. Although not as detailed as the references mentioned above, J. Lewis (1983) and McCune (1986) offer the most extensive discussions for public school systems. Additional comprehensive explanations of techniques specifically for forecasting have been contributed by Wilson (1984), Ewing (1979), and Klein and Linneman (1984). For explicit assistance in developing the report on assessment and forecasting, organizations should consult Albert (1983), Lozier and Chittipeddi (1986), and the United Way of America (1987).

No examination of the literature on environmental analysis would be complete without a review of several terms used to describe the process or to identify specific models. In each case, however, the emphasis is on assessment rather than on the collection of information. For example, Steiner (1979) followed his data collection step with an analysis of the weaknesses, opportunities, threats, and strengths underlying planning which he called a WOTS UP analysis. Considering Steiner's influence in the field of strategic planning, it is not surprising that this acronym appears occasionally in other sources as well.

Another acronym, STEP, has been given more than one meaning. In the early 1970s the Trenton, New Jersey, school system used STEP as an abbreviation for the System for Trenton's Educational Planning (Weiss & Ackerman, 1973). While this STEP claims to describe strategic planning procedures, the Table of Current Indicators focuses on internal factors. STEP recurs much later in the literature to designate the systematic review of sociodemographic changes, technological changes, economic changes, and political changes, an analysis procedure described by Cope (1987).

One of the most frequently mentioned models is the Trend Analysis Program (TAP) operated by the American Council of Life Insurance. Basically TAP consists of a steering committee which synthesizes abstracts submitted by nationwide scanners, then publishes regular reports on trends and issues deemed important to the industry (Cope, 1981a; Heydinger, 1983). TAP led to TEAM, trend evaluation and monitoring system, which was developed by Weiner, Edrich, and Brown and which became the model for the analysis procedure recommended by the United Way (Albert, 1983). SPIRE, systematic probing and identification of the relevant environment (Klein & Newman, 1980), and INTERAX (Enzer, 1983) are two other

methods designed primarily for assessing external information.

The only procedure intended specifically for educational institutions is ED QUEST, Quick Environmental Scanning Technique for Education. Mecca and Adams (1982) adapted ED QUEST for use by colleges and universities from QUEST, a procedure Nanus (1982) developed for business use. More recently Morrison has been active in the evolution of ED QUEST (Mecca & Morrison, 1986, 1988; Morrison, 1987). Essentially ED QUEST consists of four steps: preparing for the activity, conducting the first planning session, developing scenarios, and selecting strategic options. A group of 12-15 organizational personnel, usually administrators, participate in two day-long meetings spaced several weeks apart in which they use a kind of Delphi method to agree on a limited number of external issues which they believe are most important to the institution and suggest possible courses of action for the institution.

As part of the preparation step, at least two weeks before the first session, members of the group are given a Future Prospects Notebook which contains data on social, economic, political, and technological developments having possible future significance for education; trend charts; articles clipped from newspapers

and magazines; quotations about the future direction of education; and forecasts. The collection, selection, and production of the contents of the notebook are usually left to the team facilitator, who is often an outside consultant. The scope of the contents is, therefore, limited by the knowledge and resources of the facilitator, by any conscious or unconscious biases, and by the amount of time the facilitator has available for the task. Although this notebook strongly influences the issues that will be considered by the team, members are encouraged to suggest additional topics for group consideration.

Several advantages are often cited for ED QUEST. It is relatively quick, inexpensive, and specific to the individual organization. Moreover it results in recommendations for implementation and action. Yet from the beginning, Nanus (1982) cautioned organizations to remember that these exercises are not substitutes for the "more complex, objective and detailed analysis of the external environment which should accompany the determination of major resource allocation decisions" (p. 45).

Since the initial scanning activity is done by the person who produces the notebook, ED QUEST begins at a point beyond the scope of this study. The lists of data

to be developed here, however, could be helpful in the selection of information for the notebook and could reduce the subjectivity in that process.

By the operating definition, environmental scanning is limited to the collection of data. Assessment of the potential impact of that data is considered a later step in the larger process of environmental analysis. Regardless of their title, however, most resources and models not only cover the whole process, but place greater emphasis on assessment. Nonetheless, several sources provide valuable guidance for understanding environmental scanning and its role in environmental analysis. Coates et al. (1986) and Fahey and Narayanan (1986) focus on the business sector. Morrison has made the greatest contributions for higher education, especially in his joint efforts with Renfro (Renfro & Morrison, 1983b, 1983c; Morrison et al., 1984). Of the limited literature which exists for public school systems, McCune (1986) is the most specific. Perhaps the most useful materials of all are those produced by the United Way (1985b), in spite of the semantic inconsistencies.

Problems and Benefits of Environmental Scanning

At this stage in its development, environmental scanning still faces many problems. Nearly all sources

agree that scanning is difficult, time-consuming, and sometimes expensive. The most frequently cited obstacle is the overwhelming abundance of data coupled with limited guidelines for narrowing the scan. Another frequently mentioned hindrance involves the lack of expertise of many who attempt scanning and their inability to recognize relevant data, especially indicators of issues which may become more significant in the future. Hopefully, the data lists to be developed in this study will help relieve these problems for public school systems. Other impediments include lack of support from top management and unclear understanding of the use to which the information will be put. The most comprehensive discussions of environmental scanning problems are found in Aguilar (1967) and Fahey and Narayanan (1986).

Stubbart (1982) warns that these problems are not easily overcome, but he is among those who recognize the advantages to be gained through environmental scanning. By far, the most important benefit of environmental scanning is a database of information for use in organizational decision making (Kahalas, 1976; Keller, 1983; McCune, 1986). Ackoff (1970) asserts that this information also increases awareness of the need to make decisions and provides criteria for evaluating decisions

which have been made and implemented. As an integrated part of a strategic planning process, environmental scanning helps an organization avoid surprises, recognize opportunities, and manage change. It encourages organizations to think about and plan for the future so that they can adopt a proactive rather than reactive stance (Cope, 1981a; Morrison et al., 1984; Fahey & Narayanan, 1986).

Summary

Environmental scanning is the process of collecting and recording data from the broad environment outside an organization in order to describe the environment and to identify changes and potential changes which might create opportunities or pose threats for the organization. Ideally, the information collected during scanning is integrated into environmental analysis, strategic planning, and organization-wide decision making.

Like strategic planning, environmental scanning began in the 1960s. As the degree of turbulence in the environment has increased, so has recognition of the need to consider the external environment when making decisions and long range plans. Though progress was slower than for strategic planning, environmental scanning is now a well-developed, widely accepted

and universities have also developed scanning procedures. While public school personnel indicate that they recognize the need for external information, there is little expertise or experience in environmental scanning. Likewise, there is considerable literature on environmental scanning in business, some for public organizations and higher education institutions, and very little for public school systems. Furthermore, selecting relevant literature is often complicated by the numerous terms and techniques associated with environmental scanning, environmental analysis, and futures research. The most comprehensive sources on environmental scanning for business are Aguilar (1967) and Fahey and Narayanan (1986); for public organizations, the United Way of America (1985b); and for higher education, Renfro and Morrison (1983a, b, c) and Morrison et al. (1984). Of the limited resources specific to public schools, McCune (1986) is the most useful.

McCune (1986) suggests that "the first goal of environmental scanning is to identify the nature of the community and changed and changing conditions likely to affect education and training systems" (p. 40). Like most other authors, she urges organizations to collect information at the national, regional, state, and local levels. It is the intent of this study to provide needed

assistance to public school systems attempting to reach this first goal.

Chapter IV

Methodology

Purpose of the Study

In the 1960s corporations, recognizing the increasing turbulence in their external environment and the growing influence of that environment on their activities, initiated environmental scanning, the process of gathering information on changes and potential changes outside the organization which might create opportunities or pose threats. The evolution of environmental scanning in the business sector led to its adoption by non-profit organizations and higher education institutions. It has only been within this decade, however, that public school planners have begun to explore the benefits of environmental scanning. The literature specific to public schools is limited and offers inadequate guidelines for districts wishing to implement the process. Early efforts especially are often frustrated by not knowing where to begin or how to limit the data collection. This study hopes to provide some relief for these problems by answering the following research questions:

What specific data items should be included in a checklist for the first step in external environmental scanning by a public school system?

Specifically:

1. What data items do practitioners and experts experienced in environmental scanning recommend be included in such a checklist?
2. Of these items, which are the ten most highly recommended?
3. Do practitioners and experts differ in their recommendations?

Following the precedent set by Aguilar in 1967, the investigation focuses on the identification of relevant external information and not on the analysis, interpretation or use of the information. The study would be classified as descriptive because it proposes "to determine what others are doing with similar problems or situations and benefit from their experience in making future plans and decisions" (Isaac & Michael, 1981, p.46).

Appropriate participants for the study tended to represent two distinct types of experience or qualifications. There is very little literature or research specific to environmental scanning for public school systems. Therefore, those persons who might be widely recognized as experts in external environmental scanning even in the field of education often have, at best, limited experience in actual public school

planning. On the other hand, persons with current practical experience in public school planning may be less familiar with the literature and may lack the broader perspective of the experts. Consequently, although overall results were computed for each round, the subjects were divided into two groups and the differences between the results from these groups was examined.

Procedure

Answers to the research questions were sought using a three-round modification of both Q-sort and Delphi techniques adapted largely from suggestions by Kerlinger (1965). Possible data items were each printed on 3"x 5" cards and respondents were asked to sort/score the cards based on the degree to which they would recommend or not recommend that each item be included in a data checklist. Like a survey, the Q-sort technique offers several advantages. First, this method allows for efficient data collection from school systems across the nation. Second, response can be solicited on a large number of items in a reasonable amount of time. Third, a larger number of items can be investigated consistently than would be possible using an open-ended technique (Isaac & Michael, 1981). The Q-sort was chosen over a paper-pencil survey for the convenience of sorting (Kerlinger,

1979) and for the appeal of this format over more commonplace questionnaires (Kerlinger, 1972).

Prior to Round I, a letter was sent to the superintendents of 18 school systems soliciting agreement to participate in the study and the name of a specific contact person (Appendix C). Ten districts agreed to participate. The representatives from these districts comprised the first group, designated Practitioners.

Requests for participation were sent to 12 Experts with the Round I materials. Responses were received from 6 Experts who became the members of the second group.

For Round I the deck of 90 item cards, five blank cards, five header cards, an introductory letter, directions, an address verification sheet, and a pre-addressed stamped envelope were sent to each Practitioner and Expert on February 20, 1990 with a request that the materials be returned within approximately two weeks (Appendix C). Subjects were asked to sort the cards into the following piles: Strongly Recommended, Recommended, Probably Not Recommended, Strongly Not Recommended, and Undecided. They were permitted to determine how many, if any, cards were to be placed in each pile during sorting. In addition, they were asked to rank order the items placed in the Strongly Recommended pile. No limit was placed on the number of cards to be rank ordered to

prevent biasing the number of items which would be placed in the Strongly Recommended pile. The blank cards could be used to suggest additional items. This served as another check on content validity. The estimate of the amount of time Round I would require was based partly on the results of a study by Miller, Rubin, and Glassford (1987).

No attempt was made to maintain anonymity since Isaac and Michael (1981) suggest it is unnecessary in this type of design, postmarks would identify respondents, and the desired follow-up technique would be impossible. However, participants were assured that neither their individual names nor the names of specific school districts would be cited. Each participant was assigned an identification number. As return packets of material were received, they were labelled with the round number, the subject identification number, and the date received. Only subject identification numbers, not individual names, were used in recording scores.

Follow-up letters and some second mailings of the complete packet of materials resulted in responses from all subjects. Round I took approximately seven weeks to complete. The completed sorts were analyzed as indicated in the Data Analysis section below.

In Round II, the participants were again sent a deck of item cards, an introductory letter, directions, a return sheet, and a pre-addressed stamped envelope (Appendix E). In this round, mailed April 23, 1990, the cards included not only each item, but the group mean and the individual's score from Round I. Subjects were asked to review the scores and were given the opportunity to change the individual score on any item. They were also asked to score the four new items submitted during Round I.

The forced-choice option for Q-sorts (Kerlinger, 1965) was adapted for Round II. Although subjects could place any number of items in most piles, they were instructed to limit the number of "Most Strongly Recommended" items to 10. Furthermore, the "Undecided" heading was eliminated and subjects were asked to score all items. The decision to limit the number of "Most Strongly Recommended" items to 10 was based partly on suggestions in the literature that the number of issues to be considered at any one time by environmental analysis committees be limited to 10 (e.g. Nanus, 1982; Morrison et al., 1984; Association for Supervision and Curriculum Development, 1987). The estimate of the amount of time required for Round II was based on the times reported from Round I.

After follow-up letters and approximately five weeks, responses were received from all participants. The analysis of the responses is reported in the Data Analysis section below.

In Round III, mailed June 2, 1990, participants were sent an introductory letter, directions, a comment sheet, a stamped return envelope, and cards only for those items on which the group means differed (Appendix E). Each card included the item, the overall mean, the means of each group, the most recent individual score, and a response blank. Subjects were asked to review the scores and given the opportunity to make further changes in any of the individual scores. They were also encouraged to use the reverse side of the cards to comment on the items or the differences in the group scores and to offer explanation of their scoring of the item. Since the amount of time spent commenting could not be predicted, no estimated time was offered for this round.

Responses were received from all of subjects within five weeks. The results were analyzed as indicated in the Data Analysis section below.

Following Round III, a letter of appreciation, a summary of the results, and a stamped envelope were sent to each participant on July 31, 1990. Subjects were invited to reply to enclosed summary questions and/or to

submit concluding comments (Appendix F). Although response was optional, replies were received from 7 of the 10 Practitioners and 5 of the 6 Experts.

Identification of Items

Three kinds of literature were useful for identifying items which might be included in the study: general sources on environmental scanning, more detailed checklists or lists of items, and sources which directly or indirectly suggested items. Nearly all sources which discuss environmental scanning also suggest broad categories of information to collect. The most common recommendation is to divide the environment into four segments: social, economic, political, and technological (SEPT). Within the social area, more detailed classifications often include demographics (Hofer & Schendel, 1978; Steiner, 1979) or cultural (Kotler & Murphy, 1981; Hanson, 1985) as headings. The political segment is variously designated regulatory (Camillus, 1986), legal (Espy, 1986), or legislative (Morrison et al., 1984). Among the other categories occurring in more than isolated instances, the most frequent are competition (Stubbart, 1982) and ecological or natural resources (Whittaker, 1978; Kotler & Fox, 1985). Fahey and Narayanan (1986) present a complete review of the

scope of these broad segments and difficulties encountered in scanning each.

While the majority of references limit their suggestions to the broadest of categories, some discuss the need for a detailed taxonomy under which to file information as it is collected. According to Morrison et al. (1984), a scanning taxonomy must be complete enough so that there is a place for every possible development and precise enough so that every development should fit in only one place in the filing system. Yet Renfro and Morrison (1984) urge scanning committees to keep the number of categories in the classification system to between 25 and 40. Detailed taxonomies are particularly useful if data is to be filed electronically.

Both the broad categories and the suggestions for more specific taxonomies indicate areas from which survey items might be drawn, but they give little direction for individual data. The most complete taxonomy and the best resource for identifying specific data are products of the United Way of America (1985b). The listing of files, file names, and related subjects used in the United Way's Environmental Analysis Database represents a comprehensive taxonomy; their Environmental Scan Demographic Data Checklist details four pages of specific data which might be collected. Not only does this

checklist include far more items than most organizations could or would consider in an initial scan, it also includes several items that have relevance for United Way chapters, but little applicability to school systems.

The third kind of source used to identify or reinforce individual items for the present study was references which in some way suggested the need for specific data. Some of these references directly identified items. For example, the categories and data suggestions from J. Lewis (1983) and the National Association of Secondary School Principals (1984), though limited, were helpful. Categories or items were also suggested by Kast (1980), Glover (1983), and Stone (1987).

Though not intended as guidelines for environmental scans, presentations and discussions of data also indicated potential items. McCune (1986) opens her book with a chapter reviewing recent social, economic, and technological statistics. Hodgkinson (1984, 1985, and 1988) focused his extensive work on the impact of demographic changes on education; the National School Boards Association (1988) concentrated on changes affecting families. Further support for several items was contributed by materials based on external information from Mesa Public Schools, Arizona (1986), and

by the researcher's involvement in the development of scanning reports for Anne Arundel County Public Schools and Cecil County Public Schools in Maryland (Mitchell, 1987; Poole, 1987, 1988).

Like the sources listed in the above paragraph, recommendations and predictions for schools of the future served to identify or justify many items in the survey. This was especially true of the work of Cetron (1985, 1988), whose Schools of the Future includes over 22 pages of demographic charts.

Another, often more indirect, source of items was found in discussions of major trends, the most popular of which is Naisbitt's (1984) Megatrends. More useful, however, were those limited to trends affecting education now or in the future (A. Lewis, 1983; Troutman & Palombo, 1983; Association for Supervision and Curriculum Development, 1987).

Major contributions to the identification of relevant issues have also been made by Shane who has studied the effects of external factors on education for nearly twenty years. Sponsored by the United States Office of Education, Shane interviewed 82 leading futurists during 1971-72 concerning possible benefits futures research might have for education. From his results he identified ten major problems facing

education's future (Shane, 1980b). In 1972, this time working with the National Education Association, Shane (1980a) conducted a study in which 50 distinguished persons, both American and foreign, were asked what premises should guide educational planning. The problems identified in these two studies and their possible effects on education provided the base for The Educational Significance of the Future (1973). Shane has continued to address issues facing future schools (Brandt, 1983; Shane, 1987) and his work provided support for several items in the survey.

Construction of the Item Lists

The most comprehensive checklist of data for external scanning for school systems was adapted by McCune (1986) from the checklist published by the United Way of America (1985b). McCune's list was used as the basis for selecting items, but was modified considerably.

The first major modification concerned the classification of the items. McCune organized her checklist under five headings: economic, demographic, social, political, and educational, choosing to include technological issues under each of these rather than as a separate headings. Although the categories and subheadings were not printed on the item cards during the sorting procedure, the original list of items for this

study was divided into the four major sections most commonly used in the literature: social, economic, political, and technological (e.g. Morrison et al., 1984; United Way of America, 1985b, Fahey & Narayanan, 1986). The subheadings closely follow McCune and the United Way. These categories and subheadings were used during the analysis of the results and are a part of the final lists produced from the study.

A second modification concerned the definition of external. Using the Katz and Kahn (1956) concept, external factors were defined as those which affect the input into the organization rather than the throughput or output. For example, the educational level in the community is a source of input into the school system in the form of attitudes toward education and potential resources for schools while dropout statistics describe the effectiveness of throughput and output. Some items on McCune's external list were deemed more appropriate to the internal checklist while some of the items she designated as internal, such as local, state, and federal legislative issues, fit the definition of external concerns. This distinction also became important to accepting or rejecting suggestions for new items made by participants during Round I.

Finally, in order to increase content validity, each item from McCune was compared with the United Way suggestions and with suggestions from 6 other sources which directly or indirectly indicated numerous potential items (Appendix A). While McCune's list is the only comprehensive guide specifically for school systems, the United Way's material which served as her base offers the most extensive and frequently mentioned data list available (Morrison, 1987). Of the other 6 sources, all except Fahey and Narayanan (1986) are concerned with environmental scanning in education. All items which appeared in both McCune and the United Way lists and which identified specific data for collection were included in the survey, although some were combined and the wording of others was revised to improve conciseness, clarity, or consistency. Selection of other items was determined by support from the literature and the personal experience of the researcher. All items were worded to identify specific, collectable data.

A total of 90 items were selected for the study (Appendix B). The disproportionate number of items in the social and economic categories was not considered a threat to validity for two reasons. First, social and economic indicators are more common, more easily quantified, and more commonly used than are political and

technological ones (Fahey & Narayanan, 1986). Second, the socio-economic status of a child's family is frequently listed as closely tied to his success in school (e.g. Collazo et al., 1977; National Association of Secondary School Principals, 1984; National School Boards Association, 1988).

Prior to Round I, the items were organized according to the social, economic, political, and technological categories although these categories were not shared with the participants. In later rounds, the item cards were sorted by score. The scale used included the following headings: Most Strongly Recommended, Strongly Recommended, Recommended, Not Recommended, Strongly Not Recommended. These headings follow both the suggestions from Kerlinger (1979) and the Likert-type scales commonly found on surveys. A scale of headings was preferred over a simple recommended/not recommended choice because it indicates the strength of the recommendation, was more useful in constructing later rounds, and allowed both research questions to be answered in the same process.

In addition to the 90 original items, respondents suggested 17 possible additional items during Round I. Only 4 of these items clearly addressed external information or could be worded to identify specific, collectable data. Three of the items concerned social

factors, one concerned economic factors. These items became numbers 91-94 and were used throughout the remainder of the study (Appendix B).

Sample of Practitioners

The decision was made to follow the example of Lenz and Engledow (1986) and limit the group to representatives of public school systems known to have attempted some type of environmental scanning activities since inexperienced school personnel could offer only speculative responses. (Anne Arundel County and Cecil County in Maryland were eliminated from consideration because of the close involvement of the researcher with these scanning efforts). Ten appropriate school districts agreed to participate in the study. The districts vary in enrollment size from below 1500 to above 100,000 and cover a wide geographical spread: Massachusetts, Maryland, Virginia, Florida, Arkansas, Colorado, Arizona, California, Oregon, and Minnesota. Two are small rural districts, two are large city systems. They represent a variety of socio-economic areas including some of those most strongly affected by issues such as dramatic inward or outward flow of population, large minority and foreign populations, and depressed housing and job markets.

Three of the districts participated in the consortias operated by the Association for Supervision and Curriculum Development. Evidence supports the conclusion that this guidance is not prejudicial and does not constitute a threat to the integrity of the study. Participants in the consortias designed and conducted their own scans. Perhaps more importantly, the presentations and productions of the Association represent the most thorough materials available on environmental scanning for public schools (e.g. Hodgkinson, 1984; McCune, 1986) and would likely be used by any district attempting environmental scanning.

Selection of Experts

For the purposes of this study, experts is defined as those persons who are frequently cited as knowledgeable sources in the literature on environmental scanning, who have contributed to the literature on environmental scanning in education, who have stressed the importance of information from the external environment in long range educational planning, and/or who have served as consultants to school systems engaged in strategic planning. Precedents for the selection and use of such a panel include the authorities chosen by Morphet (1967), the "distinguished persons" interviewed

by Shane (1980a), and the "aware professionals" consulted by Fahey et al. (1981).

Of the 6 Experts who participated, all are or have been associated with education except one. Three of the Experts are prominent in environmental scanning primarily for institutions of higher education, have published widely, and serve as consultants. Two others hold prominent positions in the nationwide strategic planning and environmental scanning activities of the United Way. The last, a widely respected writer, researcher, and educator, has often focused on the influence of external issues on the present and future of public school systems.

Analysis of Data

Analysis of the responses from Round I began to answer both research questions and provided the basis for Round II. Practitioners were designated Group I; Experts, Group II. Responses were scored using the following scale:

5 = Those items ranked 1 - 10 in the Strongly Recommended pile

4 = All other items placed in the Strongly Recommended pile

3 = Each item in the Recommended pile

2 = Each item in the Probably Not Recommended pile

1 = Each item in the Strongly Not Recommended pile

0 = Each item in the Undecided pile

Results from the first sort are reported separately for each group and include frequency distributions and mean scores for each item. Variability in the responses is indicated by the standard deviation. For each group, items were rank ordered by mean (Appendix D). A combined or overall mean and standard deviation was also computed for each item though this was not used in constructing Round II. Frequency distribution of the results by item category (i.e. Social, Economic, etc.) was also constructed for each group and for the overall scores.

Beginning with Round II, subjects were asked to use the following scale to score items:

5 = Most Strongly Recommended (Top 10 Items Only)

4 = Strongly Recommended

3 = Recommended

2 = Not Recommended

1 = Strongly Not Recommended

At the conclusion of Round II, frequency distributions, overall means, group means, and overall and group standard deviations were computed for each item. Items were rank ordered by the overall mean.

Only those items on which the group means from Round II differed were included in Round III. Round III scores were used to compute frequency distributions, overall means, group means, and overall and group standard deviations. The new overall means were used to revise the rank order of the full list of items.

Summary

A modification of both Delphi and Q-sort methodology was used to determine what specific data items should be included in a checklist for the first step in external environmental scanning by a public school system. Ninety data items were selected for the original list and submitted to 10 Practitioners and 6 Experts for scoring. Two subsequent rounds were used to increase consensus and to score 4 new items suggested by respondents. Data analysis depended largely on the comparison of overall and group means and standard deviations. At the conclusion of the study, subjects were invited to respond to several summary questions. Complete findings from the study are reported and discussed in Chapter V. In Chapter VI, conclusions are drawn and suggestions are given for further research.

Chapter V

Findings

Introduction

External environmental scanning, an integral part of strategic planning popular in business, non-profit, and higher education organizations, is now being applied more frequently to public school systems. The first step in the scanning process involves gathering data from the broad social, economic, political, and technological environment. For the process to be an effective part of strategic planning, this data gathering must be expanded to include items not traditionally collected or considered. The major problem becomes identifying possible new areas of data without becoming overwhelmed by the amount of information which might be considered. Inexperienced scanners, including the majority of public school personnel, need guidance. Unfortunately, the literature specific to public schools is limited. The purpose of this study is to provide better guidance for school systems by answering the following research questions:

What specific data items should be included in a checklist for the first step in external environmental scanning by a public school system? Specifically:

1. What data items do practitioners and experts experienced in environmental scanning recommend be included in such a checklist?
2. Of these items, which are the ten most highly recommended?
3. Do practitioners and experts differ in their recommendations?

The answers to these questions were sought through a modification of both Q-sort and Delphi techniques. An initial list of 90 items was developed based on suggestions from the literature (see Appendixes A and B). These items were presented to 16 subjects, 10 Practitioners and 6 Experts, who were asked to sort the items according to the degree to which the respondents would recommend or not recommend the items be included on the described checklist. Two additional rounds were used to increase both overall and group consensus on the recommendations.

Analysis of Data

Overall results

In Round I, subjects were asked to sort a deck of 90 3" x 5" cards on which possible items were printed. Cards were sorted into five piles using the following headings: Strongly Recommended, Recommended, Probably Not Recommended, Strongly Not Recommended, and Undecided.

Subjects were free to place as many or as few cards in each pile as they chose. In addition, they were asked to rank order the items in the Strongly Recommended pile by numbering the cards from 1, the item with the strongest recommendation, to whatever number of cards were contained in the pile.

For the analysis of results from Round I, values of 5 to 9 were assigned: (5) most strongly recommended - those items ranked 1 - 10; (4) strongly recommended; (3) recommended; (2) not recommended; (1) strongly not recommended; (0) undecided. Overall means were then computed for each item. No items achieved an overall mean score > 4.49. Fourteen of the items (16%) achieved means > 3.50 but < 4.49 and were designated "strongly recommended"; 39 items (43%) had means > 2.49 but < 3.50 and were designated "recommended"; and 36 items (40%) had means > 1.49 but < 2.50 and were designated "not recommended". Only one item (1%) had a mean < 1.50, or "strongly not recommended". There were no items with a mean > .49 or "undecided". The range of overall means was between 4.44 for Item 85 and 1.06 for Item 72.

Overall standard deviations were also computed for each item. The range of standard deviation was between 1.64 for Item 11 and .50 for Item 49. Seventy-one of the

items (79%) had standard deviations > 1.00. Only Item 49 had a standard deviation < .58.

During Round I, 17 new items were suggested (see Appendix G). Four of these items could be edited to meet the criteria of identifying specific, clearly external data which would be available to public school personnel. These four items were included throughout the remainder of the study as Items 91 - 94 (see Appendix B).

The main purpose of Round II was to increase consensus, especially within the groups. In this round, a new deck of 94 cards was sent to each participant with the group mean and the individual's score from Round I printed on the card. Subjects were asked to score the items using the following whole number scale: (5) most strongly recommended - top ten items only; (4) strongly recommended; (3) recommended; (2) not recommended; (1) strongly not recommended. The undecided category was eliminated and subjects were asked to score all items.

Following Round II, 3 items (3%) achieved the designation "most strongly recommended" by having means > 4.49. Sixteen items (17%) had means in the "strongly recommended" range, < 3.40 but > 4.50; 44 items (47%) had means in the "recommended" range, > 2.40 but < 3.50; and 31 items (33%) had means in the "not recommended" range, > 1.49 but < 2.50. No items were designated "strongly

not recommended." The range of overall means for Round II was between 4.81 for Item 4 and 1.56 for Item 45. Seventy-two items (80%) showed an increase in overall mean, 11 items (12%) showed a decrease, and 7 items (8%) remained unchanged.

The standard deviation decreased for all 90 original items. In Round II, the range of standard deviations was between 1.17 for Item 5 and .35 for Item 37. A standard deviation > 1.00 was reported for 2 items (2%). Ten items (11%) had standard deviations < .50.

The range of scores for the four new items was 2.55 - 3.67. Standard deviations ranged from .63 to .97.

Round III was conducted to gain further consensus if possible. Respondents were sent cards only for those items on which the group means disagreed. Overall means and means from both groups recorded during Round II were printed on the cards as was the individual score given by the subject during Round II. Scoring was based on the same scale used in Round II.

Between Rounds II and III, the overall mean increased for 23 of the 94 items (26%). Of the 23, 5 increased sufficiently to enter a higher designation, 4 moving from "not recommended" to "recommended". Thirteen items (14%) showed a decrease in overall means. Of these 13, 2 decreased sufficiently to enter a lower

designation, 1 moving from "recommended" to "not recommended". The mean of 58 items (64%) remained unchanged. Overall means for Round III ranged from a high of 4.81 for Items 1 and 4 to a low of 1.60 for Item 72. The percentages of total items with overall means designated "most strongly recommended" (MSR), "strongly recommended" (SR), "recommended" (R), "not recommended" (NR), and "strongly not recommended" (SNR) for the three rounds are compared in Table 1.

Table 1

Percentage of Items in Each Score Category by Overall Mean, Rounds I - III

	MSR	SR	R	NR	SNR
RD I	0%	16%	43%	40%	1%
RD II	3%	17%	47%	44%	31%
RD III	3%	17%	50%	30%	28%

Overall standard deviations for Round III ranged from .35 for Item 37 to 1.09 for Items 5 and 38. Standard deviations < .50 were recorded for 11 of the 94 items (12%). Standard deviations > 1.00 were recorded only for Items 5 and 38.

The first research question asks what data items practitioners and experts recommend be included in a

checklist. Sixty-six items (70%) of the 94 items achieved some degree of recommendation based on the overall means following Round III. The final overall and group mean scores for all items are presented in Table 2. Raw scores for all three rounds are further summarized in Appendix G.

Table 2

Distribution of Items Based on Final Overall Mean

Item	Overall Mean	Pract. Mean	Expert Mean
MOST STRONGLY RECOMMENDED			
1. population size and growth rate	4.81	4.90	4.67
4. population by age and race/ethnicity	4.81	4.80	4.83
85. federal, state, and local financial support of education	4.69	4.80	4.50
STRONGLY RECOMMENDED			
3. birth rates by age and	4.13	4.00	4.33
2. population geographic distribution and mobility	4.06	4.30	3.67
5. immigration rates by age, sex, and race/ethnicity	3.75	3.50	4.17
7. number of single-parent families	4.00	3.90	4.17
11. number of children in non-parental child care arrangements	3.69	3.10	4.67
12. size and growth rates of minority population	3.63	3.50	3.83
14. geographic distribution of minorities	3.56	3.40	3.83
16. non-English-speaking population	3.88	3.80	4.00

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
26. educational levels of population	4.44	4.40	4.50
27. illiteracy rates	4.13	3.70	4.83
28. postsecondary education participation by age, sex, and race/ethnicity	4.25	4.30	4.17
29. private and parochial school enrollment	3.94	3.70	4.33
44. number of births to teenagers	3.81	4.00	3.70
46. drug abuse rates	3.63	3.50	3.83
48. teen suicide rates	3.69	3.60	3.83
91. enrollment in public or private pre-school programs	3.55	3.56	3.50
92. number of households without school-age children	3.67	3.67	4.00
RECOMMENDED			
6. number and size of families	3.06	2.90	3.33
8. number and size of households	3.13	3.30	2.83
9. household composition including non-family households	2.81	2.40	3.50
13. minority population by age and sex	3.44	3.20	3.83
15. foreign-born population	2.75	2.70	2.83
17. number of single-parent families among minorities	3.07	2.90	3.40

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
18. educational levels of minorities	3.25	3.00	3.67
19. employment of minorities	2.63	2.50	2.83
21. female heads of households	3.07	3.10	3.00
22. female work force participation	2.80	2.70	3.00
23. number/percentage of mothers who work	3.25	3.00	3.67
24. female poverty levels by age and race/ethnicity	2.50	2.20	3.00
30. number, type, and age of housing units	2.56	2.70	2.33
38. number of residential building permits, grants and dollar values	2.94	3.10	2.67
39. size of homeless population	2.56	2.40	2.83
47. alcoholism rates	2.94	2.90	3.00
49. reported cases of child abuse	3.38	3.20	3.67
51. health-care costs	2.56	2.30	3.00
52. violent and nonviolent reported crime rates for adults and juveniles	2.56	2.30	3.00
58. per capita personal income	3.19	3.10	3.33
60. median household income	3.31	3.40	3.17
61. median family income	3.20	3.20	3.20
62. income by age and race/ethnicity	2.81	2.70	3.00

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
63. poverty levels by age and race/ethnicity	2.88	2.50	3.50
64. number of households and families under poverty	3.20	3.20	3.20
65. number of public assistance recipients	2.56	2.30	3.00
66. wage earnings by employment sector (manufacturing, construction, government, farming, etc.)	2.50	2.40	2.67
67. growth rates of each employment sector	2.81	2.90	2.67
68. small business and major corporate growth rates	2.88	2.80	3.00
73. work force size and growth	3.06	3.00	3.17
74. work force participation by age, sex, and race/ethnicity	2.80	2.50	3.40
75. occupational employment by job type (managerial, professional, sales, farming, etc.)	3.13	3.20	3.00
76. occupational employment by sex and race/ethnicity	2.81	2.40	3.50
78. part-time and temporary work force	2.50	2.10	3.17
79. unemployment rates by sector, sex, and race/ethnicity	2.88	2.60	3.33
81. amount spent on training/retraining programs for workers	2.75	2.50	3.17

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
82. state and local government budgets: income and expenditures	3.31	3.50	3.00
83. tax burden on individuals	3.31	3.30	3.33
84. tax burden on corporations	3.07	3.00	3.20
86. voter participation by age, sex, and race/ethnicity	2.88	2.80	3.00
88. growth of job-related use of computers	2.93	2.70	3.40
89. number of households with computers	2.73	2.50	3.20
90. growth of high-tech industry	3.07	3.10	3.00
93. average salary by professional occupation (accountant, dentist, teacher, etc.)	2.50	2.44	2.60
94. number of college/ university education majors by discipline	2.64	2.56	3.00
NOT RECOMMENDED			
10. marital status of individuals	2.44	2.10	3.00
25. female and male earnings and income	2.31	2.00	2.83
31. numbers/percentages of housing facilities available (heating equipment, sewage, telephone, etc.)	2.19	2.30	2.00
32. percentages of owner and renter housing	2.25	2.20	2.33

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
33. number of seasonal and year-round housing units	2.25	2.30	2.14
34. rates of occupancy and vacancy of housing	2.44	2.80	1.83
35. mean value of housing	2.07	2.30	1.60
36. average cost of housing	2.25	2.20	2.33
37. median percentage of household income spent on housing	2.00	2.00	2.00
40. life expectancy rates	2.00	1.90	2.20
41. mortality rates and causes	2.00	1.70	2.60
42. infant mortality rates and causes	2.31	1.90	3.00
43. abnormal birth rates including low-birthweight infants	2.25	2.00	2.67
45. incidence of mental illness by age and race/ethnicity	1.63	1.20	2.33
50. reported cases of AIDS	2.25	2.00	2.67
53. rates of imprisonment for adults and juveniles by sex and race/ethnicity	2.25	1.90	2.83
54. availability and use of public transportation	2.25	2.20	2.33
55. motor vehicle registration and car ownership	2.06	2.10	2.00
56. percentage of use of various means of transportation to work	2.25	2.00	2.67

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
57. average travel time to and from work	2.13	2.00	2.33
59. effective buying income	2.44	2.30	2.67
69. rate of new business birth	2.44	2.10	2.00
70. retail sales	1.73	1.60	2.00
71. number/percentage of minority and female-owned businesses	1.88	1.60	2.33
72. growth rate of foreign investment and trade	1.60	1.50	1.80
77. employment by size of business	2.25	2.20	2.33
80. frequency of job changes	2.38	2.30	2.50
87. rate of use of environmental resources (water, energy, etc.)	2.06	2.10	2.00

Answering the second research question requires identifying the 10 items with the highest means. The same 10 items met this criteria in all three rounds even though the rank order of the items changed. The 10 items and their means for each round are shown in Table 3.

Table 3

The Ten Most Highly Recommended Items by Overall Means

Item	Mean Round I	Mean Round II	Mean Round III
1. population size and growth	4.31	4.50	4.81
2. population geographic distribution and mobility	4.06	4.06	4.06
3. birth rates by age and race/ethnicity	4.06	4.13	4.13
4. population by age and race/ethnicity	4.38	4.81	4.81
7. number of single-parent families	4.00	4.00	4.00
26. educational levels of population	3.81	4.44	4.44
27. illiteracy rates	3.81	4.13	4.13
28. postsecondary education participation by age, sex, and race/ethnicity	3.81	4.25	4.25
29. private and parochial school enrollment	3.81	3.94	3.94
85. federal, state, and local financial support of education	4.44	4.69	4.69

The answer to the third research question can only be found by examining the group results.

Group results

Those subjects who have practical experience working with the planning efforts of public schools are usually limited in their focus and only locally recognized while at present those who are generally recognized for their expertise in environmental scanning tend to have little direct experience with public schools. Consequently, the 16 subjects were divided into two groups so that the effects of these differences in background and perspective might be examined. The first group, Practitioners, consisted of 10 persons currently employed by and actively involved in the planning of public school systems across the nation. The other group, Experts, contained 6 subjects widely recognized for their knowledge and research on scanning, for their contributions to the literature, and for their experience with scanning though usually not within public school systems.

In addition to the overall mean, group means and standard deviations were computed for each item following each round. In Round I, the group mean for the Practitioners placed 3 items in the "most strongly recommended" range, 11 items in the "strongly

recommended" range, 32 items in the "recommended" range, 39 items in the "not recommended" range, and 5 items in the "strongly not recommended". No item had a mean > .50 or "undecided". The range of means for the Practitioners was between 4.60 for Item 85 and 1.30 for Items 41 and 72. The range of standard deviation among Practitioners for Round I was between 1.73 for Item 62 and .46 for Item 49. Sixty-nine items (77%) had a standard deviation > 1.00 while only Item 49 had a standard deviation < .50.

From the group means for the Experts in Round I, no items achieved "most strongly recommended" status. Twenty-one items fell in the "strongly recommended" range; 55 items in the "recommended" range; and 14 items in the "not recommended" range. No items were designated "strongly not recommended" or "undecided". The range of means for the Experts was between 4.17 for Items 4, 7, 27, 29, and 85 and 1.50 for Item 35. The range of standard deviation was between 1.77 for Item 11 and .37 for Item 55. Forty-five items (50%) had a standard deviation > 1.00; 7 items (8%) had a standard deviation < .50. Table 4 compares the percentages of total items with means in each of the scoring ranges by group for Round I.

Table 4

Percentage of Items in Each Score Category by Group, Round I

	MSR	SR	R	NR	SNR
Practitioners	3%	12%	36%	43%	6%
Experts	0%	23%	55%	14%	0%

In Round II the mean for Practitioners identified 3 of the 94 items as "most strongly recommended", 25 items as "strongly recommended", 39 items as "recommended", 37 items as "not recommended", and 2 of the items as "strongly not recommended". The range of Practitioner means of Round II was between 4.90 for Item 1 and 1.00 for Item 45. Sixty-seven items (71%) showed an increase in Practitioner mean, 12 items (13%) showed a decrease, and 6 items (6%) remained unchanged.

The Practitioner standard deviation increased for Item 48; remained unchanged for Items 6, 45 and 82; and decreased for the other 86 items. The range of Practitioner standard deviation for Round II was between 1.08 for Item 5 and .00 for Items 37 and 45. Item 5 was the only item with a standard deviation > 1.00. Thirty-four items (36%) had standard deviations < .50.

The range of Practitioner scores for the four new items was 2.44 and 3.67. Standard deviations ranged from .67 to .96.

Experts placed 5 items in the "most strongly recommended" range during Round II. Nineteen items were designated "strongly recommended"; 51 items were "recommended"; 19 items were "not recommended". No items were designated "strongly not recommended". Expert means ranged from 4.83 for Items 4 and 27 to 1.60 for Item 35. Between Rounds I and II, 53 items (56%) showed an increase in Expert mean, 18 items (19%) showed a decreased, and 19 items (20%) remained unchanged.

The standard deviation among Experts increased for Items 12, 47, and 55; remained unchanged for 11 items; and decreased for 80 items. The range of standard deviation was between 1.29 for Items 81 and 86 and .00 for Items 22 and 82. A standard deviation > 1.00 was reported for 6 items (6%). Thirty items (32%) had standard deviations < .50.

The range of Expert scores for the four new items was 3.00 - 4.00. Standard deviations ranged from .78 to 1.09. Table 5 compares the percentages of total items with means in each of the scoring ranges by group for Round II.

Table 5

Percentage of Items in Each Score Category by Group, Round II

	MSR	SR	R	NR	SNR
Practitioners	3%	16%	41%	37%	2%
Experts	5%	20%	54%	20%	0%

Between Round II and III, the Practitioner mean increased for 16 (17%) of the items. Of the 16, 5 rose to a higher designation on the scale, 3 moving from "not recommended" to "recommended". Six items (6%) showed a decrease, 2 enough to drop to a lower designation, both moving from "recommended" to "not recommended". The mean of 72 items (77%) remained unchanged. The range of Practitioner means for Round III was between 4.90 for Item 1 and 1.20 for Item 45.

Following Round III, Practitioner standard deviations ranged from .00 for Item 37 to 1.12 for Item 5, the only item with a standard deviation > 1.00. There were 40 items (43%) with standard deviations < .50.

The Expert mean increased during Round III for 12 items (13%), 4 of which rose to a higher designation on the scale, 1 moving from "not recommended" to "recommended". The mean decreased for 12 items (13%), 3

of which dropped to a lower designation, all 3 moving from "recommended" to "not recommended". The mean remained unchanged for 70 items (74%). Expert means ranged from a high of 4.83 for Items 4 and 27 to a low of 1.60 for Item 35.

The range of standard deviation among the Experts for Round III was from .00 for Items 22 and 82 to 1.29 for Item 86. Standard deviations < .50 were recorded for 29 items (31%). Five items (5%) had standard deviations > 1.00.

A comparison of the total items placed in each scale category by both groups is presented in Table 6.

Table 6

Percentage of Items in Each Score Category by Group, Round III

	MSR	SR	R	NR	SNR
Practitioners	3%	16%	43%	37%	1%
Experts	6%	20%	53%	20%	0%

At the conclusion of the study, Practitioners had given some degree of recommendation to 59 (62%) of the 94 items; Experts had recommended 76 items (79%).

Research question three asks whether Practitioners and Experts differ in their recommendations. During

Round I the group mean scores differed for 47 (52%) of the 90 items. For 34 of these items, the difference was between "recommended" and "not recommended". In Round II, the group mean scores differed for 43 (46%) of the 94 items, 31 of which were between "recommended" and "not recommended". In the final results, the group mean scores differed for 33 (35%) of the items, 21 of which differed between "recommended" and "not recommended". These 21 items and their final scores are highlighted in Table 7.

Table 7

Items on Which the Groups Disagree Between Recommended and Not Recommended

Item	Overall Mean	Pract. Mean	Expert Mean
10. marital status of individuals	2.44	2.10	3.00
24. female poverty levels by age and race/ethnicity	2.50	2.20	3.00
25. female and male earnings and income	2.31	2.00	2.83
30. number, type, and age of housing units	2.56	2.70	2.33
34. rates of occupancy and of housing	2.44	2.80	1.83
39. size of homeless population	2.56	2.40	2.83
41. mortality rates and causes	2.00	1.70	2.60
42. infant mortality rates and causes	2.31	1.90	3.00
43. abnormal birth rates including low-birthweight infants	2.25	2.00	2.67
50. reported cases of AIDS	2.25	2.00	2.67
52. violent and nonviolent reported crime rates for adults and juveniles	2.56	2.30	3.00
53. rates of imprisonment for adults and juveniles by sex and race/ethnicity	2.25	1.90	2.83
56. percentage of use of various means of transportation to work	2.25	2.00	2.67

(table continues)

Item	Overall Mean	Pract. Mean	Expert Mean
59. effective buying income	2.44	2.30	2.67
65. number of public assistance recipients	2.56	2.30	3.00
66. wage earnings by employment sector (manufacturing, construction, government, farming, etc.)	2.50	2.40	2.67
69. rate of new business birth	2.44	2.10	3.00
76. occupational employment by sex and race/ethnicity	2.81	2.40	3.50
78. part-time and temporary work force	2.50	2.10	3.17
80. frequency of job changes	2.38	2.30	2.50
93. average salary by professional occupation (accountant, dentist, teacher, etc.)	2.55	2.44	3.00

The only item recommended by Practitioners, but not by the overall group was Item 34. Experts recommended 11 items not recommended by the overall group: Items 10, 25, 41, 42, 43, 50, 53, 56, 59, 69, and 80 (see Table 7).

Following Round III, 3 items shared the tenth highest position among the Practitioners. In addition to the 10 items identified by Overall Mean (see Table 3), Practitioners also included Items 16 (non-English-speaking population) and 44 (number of births to

teenagers) in their most highly recommended. Among the Experts, 11 items were most highly recommended. The Experts differed from the Overall by excluding Item 2 (population geographic distribution and mobility) and adding Item 5 (immigration rates by age, sex, and race/ethnicity) and Item 11 (number of children in non-parental child care arrangements) in their most highly recommended.

Results by environmental category

The original list of items was divided under the headings Social, Economic, Political, and Technological. Overall and group results according to these categories are compared in Table 8.

Table 8

Percentage of Items by Environmental Category Following Round III

	MSR	SR	R	NR	SNR
SOCIAL (60 items)					
Overall	3.33	26.67	36.67	33.33	
Practitioners	3.33	23.33	35.00	36.67	1.67
Experts	8.33	28.33	40.00	23.33	
ECONOMIC (25 items)					
Overall			72.00	28.00	
Practitioners			52.00	48.00	
Experts		8.00	76.00	16.00	
POLITICAL (6 items)					
Overall	16.67		66.67	16.67	
Practitioners	16.67	16.67	50.00	16.67	
Experts	16.67		66.67	16.67	
TECHNOLOGICAL (3 items)					
Overall			100.00		
Practitioners			100.00		
Experts			100.00		

Discussion of Findings

Relative to the entire study

Through the three rounds of the study, 66 (70%) of the 94 items were identified by their overall means as recommended to some degree. Consensus on the items increased with each round both within and between the groups. During Round II, the overall standard deviation decreased for every item. Further decreases were recorded in Round III. At the conclusion of the study, only 2 items had an overall standard deviation > 1.00. The standard deviation among Practitioners decreased for 86 items during Round II. Following Round III, one item had a Practitioner standard deviation > 1.00, 40 were < .50. Experts increased consensus on 80 items during Round II and ended Round III with 5 items showing standard deviation > 1.00, 29 items < .50.

Differences between the groups decreased also. Following Round I, the two groups differed on 47 (52%) of the 90 items; after Round II, they differed on 43 (46%) of the 94 items; and after Round III, they differed on 33 (35%) of the 94 items. Only 21 items differed as to Recommended or Not Recommended.

Although some further increases in consensus might have been possible, additional rounds did not seem justified. First, it seemed unlikely that another round

would yield many changes in the results. In Round II, where individuals could compare their scores with the group mean, the average number of score changes was 28 for Practitioners and 21 for Experts. However, in Round III, even though subjects could now compare their individual score with the means from both groups, the average number of score changes was only 4 for Practitioners and 7 for Experts. Of the 43 items which might have changed in score during Round III, only 7 items changed scoring level based on the overall mean and only 5 of these changed between Recommended and Not Recommended.

Second there seemed to be insufficient reason to impose further on participants who had already given much time and effort to the project. A 100% response rate was recorded for all three rounds. Subjects reported spending an average of 38 minutes on Round I, 22 minutes on Round II, and 21 minutes on Round III. Most participants submitted optional comments during the rounds and 70% returned responses to the Summary Questions. Given the limited potential for further score changes and the amount of cooperation already received from the participants, there was insufficient justification for a fourth round.

Relative to research question one

What data items do practitioners and experts experienced in environmental scanning recommend be included in a checklist for the first step in external environmental scanning by a public school system?

Many of the 66 recommended items were predictable ones involving population information traditionally collected by school systems, essential financial information (Item 85), and popular issues such as teenage pregnancy and drug abuse. Although this study was not intended to assess the impact of specific data or to identify critical data or factors, the recommended items are compatible with the critical factors identified in Smith's 1986 study: population; population mobility; community economic and social priorities; and financial resources and alternatives. The list also includes socio-economic factors deemed significant by Hodgkinson (1985) and the National Association of Secondary School Principals (1984).

The size of the school district represented appears to have had little effect on scores or items recommended. The limitations of the sample and the nature of the study did not lend themselves to statistical evaluation of the effect of district size, but an examination of the raw

data gave no indication of size affecting scoring. When this issue was raised as one of the Summary Questions, 9 of the 11 respondents agreed that the size of the school district would probably not affect response. This observation concurs with results from the studies of Diefenbach (1977), Klein and Linneman (1984), and Smith (1986).

Variance in response seemed most likely attributable to differences in perspective caused by individual preferences and/or by differences in experience, geographic location, or specific situation. The influence of these factors can be seen most clearly perhaps in the comments for Items 5 (immigration rates by age, sex, and race/ethnicity) and 38 (number of residential building permits, grants and dollar value), the two items with the highest overall standard deviations:

> [Immigration] is not a big factor in our community. I'm sure it may be in others... (Practitioner, Round III).
>
> Except in a few geographic areas, immigration is not that important to school district planning (Expert, Round III).

> Respondents who do not fully appreciate the importance of anticipating future growth impact well in advance probably don't recognize the significance of this item [38]. In high growth areas, it is essential to have this information for long range prudent facility planning (Practitioner, Summary Questions).

The impact of situational differences is further highlighted by comments concerning the overall study:

> Many of the items are only relevant to a specific setting, i.e. urban, rural or given area of the country (Practitioner, Round I).

> Areas in which I placed cards as [not recommended] may be vital information for someone else's scan (Practitioner, Round I).

> What is important to one organization, even when they are in the same business, is not necessarily important to other similar organizations. I doubt a rural school in northern New Jersey would track the same variables as a suburban school near Newark or a rural school in Maryland (Expert, Round I).

Numerous similar comments were received concerning differences in group results or the scoring of individual items (see Appendix H).

The influence of personal and situational factors, described as information filters by Kahalas (1976) and Ansoff (1984), was anticipated. The materials sent to subjects included repeated directions to score the items according to the degree to which they would recommend these items be collected by any school system. All of the subjects, however, are experienced in both collecting and assessing the impact of data and issues on the planning for specific organizations. The determination of the importance of any information to the planning process must always be situation-specific. It is not surprising, therefore, that the experience of the subjects is reflected in their scores.

While the overall score for many items was predictable, the results for some items bear notice. Nearly all of the items on housing were considered "Not Recommended" by both groups, yet Item 38 (number of residential building permits, grants, and dollar value) was not only recommended, but was one of the two most controversial items. Nine subjects rated Item 38 "recommended", 3 considered it "strongly recommended", 3 considered it "strongly not recommended", and one Practitioner persisted in placing this item among the Top Ten. Those who gave Item 38 high scores cited its importance as an indicator of community growth, as a

factor in facility planning, and as a predictor of revenue base.

Although most popular social issues ranked high, some did not. The size of the homeless population, Item 39, had an overall mean of 2.56 and was ranked "not recommended" by Practitioners. This seems surprising considering the number of school-age children in the homeless population, the responsibility of public education to serve these children, and the amount of media coverage of this issue. Controversy over the public education of children with AIDS and the potential impact of AIDS treatment on public funds is also given wide coverage in the media, but Item 50 was designated "not recommended" by both the Practitioners and the overall mean.

Several items with potential impact on specific areas of the curriculum also were scored lower than might have been expected. Problems at birth, especially low birthweight, have received much recent attention as predictors of need for special education particularly at the elementary level, yet Item 43 was ranked "not recommended" by Practitioners and overall and had only a 2.67 mean among the Experts. One Expert expressed concern that items regarding employment patterns such as Items 76, 78, 79, and 81 did not score higher considering

their potential impact on planning for vocational education. Each of these items, however, was recommended for inclusion in the final checklist. The three items in the Technological area also were recommended though the highest overall mean was 3.07. These scores seem unexpectedly low not only because of the popularity of the issue, but because of the potential impact that the information might have on curriculum and instructional planning.

Finally, a comment needs to be made regarding the four new items, 91 - 94. Two of the items were designated "recommended", two "strongly recommended" by the overall means. While these scores may be true reflections of the subjects' recommendations, they may also have been biased by the knowledge that these items were submitted by fellow participants.

Relative to research question two

Of these items, which are the ten most highly recommended?

Items 1, 4, and 85 achieved "most strongly recommended" status during Round I and maintained that designation throughout the study. These items identify information traditionally considered essential for facilities and financial planning. The other seven items in the Top Ten are the items with the highest overall

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means in the "strongly recommended" range. Two of these items, Items 3 and 7, further describe population growth and movement and would be expected to score high. Items 26, 27, 28, and 29, could also have been predicted since these were the 4 items under the sub-heading "Education" in the original list. The only item, therefore, which might not have been anticipated is Item 7 (number of single-parent families). No comments were offered by participants to explain why this issue consistently scored among the ten highest. Possible explanations might include the psychological effect on the child, the potential decrease in parental participation in and availability to the school system, the socio-economic repercussions of single-parent families, and the general popularity of the issue. Although several other items were considered among the Top Ten by individual subjects, no other items achieved an overall mean within the top ten during any of the three rounds.

Relative to research question three

Do practitioners and experts differ in their recommendations?

At the conclusion of the study, the group means differed for 33 of the 94 items, 21 items differed as to "recommended" or "not recommended". The number of differences is a reflection of the tendency for the

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Experts to recommend more items than did the Practitioners. Throughout the three rounds, the Experts tended to lower their scores while the Practitioners tended to raise theirs. However, at the conclusion of Round III, the Experts were recommending 79% of the items, the Practitioners only 62%. Comments concerning these results again emphasized the influence of differences in perspective on the overall scores and the scores for individual items. The question of the practical use of the information seemed to be of particular concern:

> It would seem that the "experts" include data that practitioners will not use. This is not surprising as they (we) each approach the task of planning from a different perspective (Practitioner, Round III).
>
> Those that are district biased may be more action oriented i.e., "what can I do with this information?" as contrasted with "let's collect this information because it's interesting" (Practitioner, Summary Questions).
>
> Local practitioners might tend to be more narrowly focused on the factors (and the number of factors) that impact them directly, as well as the number they feel they have the practical

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> resources at hand to deal with. [Experts], however, may be taking a more global view (Practitioner, Summary Questions).

> Practitioners would tend to be more concerned with the number of children actually seeking child care services from the schools, whereas [Experts] perceive this from a more global perspective (Expert, Summary Questions).

The two groups were closest on political and technological items. Within the social area, the groups differed strongly on items relating to families, women, and health; but the greatest difference was in the economic area where the Practitioners rejected 48% of the items, the Experts rejected 16%. Perspective and perceived practicality seem to have been part of the explanation here as well. When asked in the Summary Questions why Practitioners rejected more items, particularly economic ones, a Practitioner suggested that many of the items "sound like they would be interesting information yet in reality they have little planning value". An Expert explained the difference by saying that "public school administrators-planners do not focus as much on the economy because they do not see it as immediately relevant to their mission and tasks." He

went on to caution, however, that "the indirect impact can be significant."

The groups differed most strongly on Items 9 (household composition including non-family households), 11 (number of children in non-parental child care arrangements), and 76 (occupational employment by sex and race/ethnicity). Explanatory comments again emphasized differences in perspective or the criteria used to judge the items. In regard to all three items, one Practitioner noted that "when responding I could not only consider which have the most significance but also which I (the school) could respond (react) to with significance." Item 11 is interesting in that while the two groups differed by two points on the rating scale, the standard deviations within the groups were small. Practitioners rated the item "recommended" with a standard deviation of .30. Experts considered the item "most strongly recommended" and had a group standard deviation of .47. A Practitioner suggested that the difference reflected "disagreement on the value of tracking child care patterns." Regarding Item 76, one Practitioner noted that "we already have racial mix data", another commented that "occupational data seems of little value," and an Expert observed that "most public schools do not see employment preparation (Vocational

Education) as a mission of the schools - thus less concerned." Although the Practitioners and the Experts were able to agree on 61 of the items, there is evidence of distinct differences in scanning perspective and criteria for recommending items to be scanned.

Summary

The study was successful in identifying items which Practitioners and Experts would recommend for a checklist for environmental scanning for public schools. Through the final overall means, 66 items were recommended, 28 were rejected. The same 10 items achieved the highest scores in all three rounds. Although both overall and group consensus increased during the three rounds, the groups continued to disagree on 35% of the items. Differences in perspective and in the criteria used for scoring items seem to be the major factors in individual and group disagreement. Further summary of raw scores and optional comments received are presented in Appendixes G and H. Final conclusions and recommendations are discussed in Chapter IV.

Chapter VI

Summary, Conclusions, and Recommendations

Summary

Open systems theory, developed largely by Bertalanffy (1968) and Katz and Kahn (1966), maintains that any organization which takes input from its outside environment is dependent upon that environment. The success and even the survival of the organization is directly related to its knowledge about the environment and its ability to align its behavior with environmental conditions (Chandler, 1962). Furthermore, from their studies of the interaction of organizations with their environments, Emery and Trist (1965) demonstrated that the more turbulent the environment, the greater its effect on the organization, and the greater the need for the organization to develop techniques for collecting and utilizing external information (Fahey and Narayanan, 1986).

Work with open systems and environmental theories led to the development of strategic planning, a future-oriented, continuous process. Beginning in the 1960s Ansoff (1965, 1979, 1988), Steiner (1969, 1979), Ackoff (1970) and others developed models for strategic planning and encouraged first businesses, then other kinds of organizations to adopt the process. Each model includes

reviewing data from the outside or "macro" environment as an essential element. The whole process of collecting, assessing, presenting, and monitoring this data is now generally called external environmental analysis with environmental scanning focusing primarily on the collection phase (see Figure 1).

As part of strategic planning, environmental scanning was first introduced in corporations in the 1960s. By the 1980s it had become a common business practice. Environmental scanning spread to government and non-profit organizations in the 1970s and to colleges and universities in the 1980s. Experimentation with both strategic planning and environmental scanning in public school systems has only occurred within the past few years. Consequently, there is much literature available on strategic planning and environmental scanning, but little of it is specific to public school systems.

At present there is no universal model for environmental scanning, but most recommendations suggest that the first step should be a gathering of information from the broad social, economic, political, and technological environment surrounding the organization in order to detect potential threats and opportunities. It is important that this data collection go beyond the topics and statistics traditionally considered by the

organization in order to detect wider signals and expand the possibilities for planning. The difficulty of determining the scope of this scan is an oft-cited problem facing organizations, especially inexperienced ones (e.g Steiner, 1979; Klein & Newman, 1980; Jain, 1984; McCune, 1986). As one solution, Ansoff (1984) suggested that inexperienced organizations start with a list of issues significant to similar organizations. Unfortunately, the available literature provides few resources for public school systems.

Many sources suggest broad headings under which data should be collected and some give a few specific examples (e.g. Fahey & Narayanan, 1986; J. Lewis, 1983). The most extensive guidelines are found in the data lists developed by the United Way of America (1985b), but these guidelines obviously are not specific to public school systems. The only detailed list currently available for public schools seems to be the External Scanning Data Checklist found in McCune's Guide to Strategic Planning for Educators (1986). This checklist, however, draws almost exclusively from the United Way suggestions. No research is cited to justify the applicability of this list to public schools.

The purpose of this study, therefore, has been to develop a checklist which might serve as a guideline for

school districts by answering the following research questions:

What specific data items should be included in a checklist for the first step in external environmental scanning by a public school system? Specifically:

1. What data items do practitioners and experts experienced in environmental scanning recommend be included in such a checklist?
2. Of these items, which are the ten most highly recommended?
3. Do practitioners and experts differ in their recommendations?

Using a modification of both Q-sort and Delphi techniques, 10 representatives from school districts experienced in environmental scanning (Practitioners) and 6 persons recognized in the literature for their knowledge and expertise in environmental scanning (Experts) scored 94 items as to the degree to which they would recommend the items be included on the described checklist. The school districts, in 10 different states, ranged in enrollment from below 2,500 students to above 100,000 and represented a variety of community descriptions. All participants were guaranteed anonymity in the presentation of the study.

Data analysis was based on means and standard deviations. At the end of three rounds, overall means indicated that 66 items were recommended, 28 were rejected. The size of the school district did not seem to affect the scoring, but comments from participants support the conclusion that individual perspective and differences in experience, geographic location, or specific situation did influence scoring.

The outcome for many items was fairly predictable. The 66 recommended items included the population and budget information traditionally gathered by schools, other population data, educational topics, and popular social issues such as drug abuse and working mothers. Among the rejected items were those addressing data on housing, health, crime, transportation, and the economic structure of the community.

The same 10 items scored highest during all three rounds. These included basic population statistics, budget information, and the items dealing specifically with education. Perhaps the least predictable outcome was the consistent placement of the number of single-parent families in the Top Ten.

Consensus within and between groups increased through the three rounds, but at the end of the study, the groups still disagreed on over one-third of the

items. As a group, Experts tended to recommend more items than did Practitioners. Comments received throughout the study offer evidence that the groups differed in their scanning perspective and in the criteria used for recommending items to be scanned. More detailed presentation and discussion of results can be found in Chapter V and Appendixes G and H.

Conclusions

The study succeeded in answering each of the research questions. Recommended items were identified, the same items consistently scored as the ten highest, and group differences were noted. However, the results of the study and the comments received from participants lead to additional conclusions beyond the content and construction of the checklist. At the end of the study, three major conclusions were reached:

1. The checklist developed through the study has both value and limitations.
2. Environmental scanning is still in the developmental stage even among experienced school systems.
3. Inadequate rapport exists between the Practitioners and the Experts.

Concerning the checklist of recommended items

The original list of 90 items seems to have included most of the data participants would wish to recommend. Only 4 appropriate new items were submitted. A Practitioner observed that there were no items on "attitudes and values", an Expert suggested there should be more technological items, and another Expert recommended more items on "supply and demand factors: teachers, jobs, skills needed and student interests", but none of these subjects offered specific items. One Expert complimented the list as "interesting and quite comprehensive." The rejection of 28 items supports the assumption that McCune's (1986) External Data Checklist is not adequately adapted for use by public school districts.

The major purpose of this study was to identify items for a checklist which public school personnel could use as a guideline for the first step in environmental scanning, the broad scan. This purpose was accomplished. A suggested format for a checklist based on the results from the study can be found in Figure 2. Comments from both Practitioners and Experts attest to the value and usefulness of such a checklist (see Appendix H). However, two limitations to the checklist should be noted. First, the results of this study reflect the

recommendations of a small group of subjects. While their credentials and experience support the validity of these results, further studies would be needed to determine if other subjects would make the same recommendations. Second, the checklist is intended for use as a guideline for scanning, not as an all-inclusive list of important information.

This second limitation warrants further discussion. The use of a checklist is only partially compatible with the purpose of environmental scanning. The selection of data to scan and the determination of the significance of that data must be situation-specific. Checklists are appropriate to directed scanning as described by Morrison, Renfro, and Boucher (1984) and to the outside-in scanning described by Fahey and Narayanan (1986). The danger is that a checklist might prevent scanners from moving on to the more sophisticated levels in which they continue to broaden the scope of the scan and adapt the data search to their particular organizations. Concern with these pitfalls was reflected most strongly in the remarks of one Expert:

> The problem with such a checklist is two-fold. First, what are important variables today are not necessarily important tomorrow and vise versa. The basic rationale for scanning is not to track...for

> variables we presently consider important. Rather, it is to look at signals or discontinuities that while they might not be or have been important, could be important in the future.... What a checklist represents is what has happened in the past and what we have made part of our experience base. If decision-makers look for those developments that have been experienced in the past, they are going to miss the unique changes/ discontinuities of the future.... To respond proactively to a turbulent environment is to seek out the atypical/unfamiliar change in the environment, not the familiar.

Recognizing these limitations does not diminish the value of constructing a checklist, but provides cautions for its use. As Ansoff (1984) suggested, a checklist can help novice scanners learn from the experience of others and consider new possibilities for scanning.

Concerning the state of environmental scanning

In their studies of scanning practices in school districts, Holmes (1985) and Lease (1988) both found the process to be in the earliest stage of development (Diffenbach, 1983). The results and comments from the current study suggest that environmental scanning is still in the developmental stage even among experienced

school districts. One indicator of the lack of progress is the continuing dearth of literature on both strategic planning and environmental scanning for public schools. A spread in practice and popularity would likely be accompanied by an increase in literature. More troubling are the indicators that public school planners have adopted the terminology without adopting the intent of environmental scanning.

Many of the comments received suggest that scanning activities have made little progress beyond traditional data gathering. Only one of the participating school districts indicated having established environmental scanning as something more than the gathering of data necessary for fiscal and financial planning. Repeatedly Practitioners emphasized the need for information to be immediately and obviously practical. These comments and the results on several items suggest that many school planners either misunderstand the intent of environmental scanning or lack the expertise to recognize potential threats and opportunities. For example, the Practitioner mean for Item 85 (federal, state, and local financial support of education) was understandably one of the three highest, 4.80. Yet many of the potential indicators of threats to that financial support such as health care costs (Items 50 and 51), public assistance recipients

(Item 65), unemployment (Item 79), and use of environmental resources (Item 87) scored low, most in the "not recommended" range. Nearly all of these were items on which the Practitioners and the Experts disagreed.

Another example relates to the opportunities and threats for public education posed by the increasing number of older people in the American population. Despite the media exposure given this issue and the efforts of many school districts to utilize the resources of senior citizens or develop lifelong learning programs, Practitioners apparently failed to recognize the potential value of relevant items. Several indicators of the trend itself (Items 9 and 40), of the financial competition (Items 51 and 65), of the political implications (Item 86), or of the increasing need for adult education (Items 80 and 81) received low scores, many in the "not recommended" range. Again, each of these items scored higher among the Experts.

In responding to the Summary Questions, an Expert observed that Practitioners "are working from a traditional paradigm/schema of what makes the world go around vis a vis public schools. Scanning has to be very broad in scope or it is of very little value in comparison with traditional approaches to external analysis." Results from this study suggest that many

public school planners have not yet recognized or accepted the full role intended for environmental scanning.

Concerning differences between the groups

Throughout the study, the Experts tended to recommend more items than did the Practitioners. At the end of Round III, the groups still differed on 33 of the 94 items. On 21 items this difference was between "recommended" and "not recommended". The most likely explanation for these differences seems to be that Practitioners and Experts differ in scanning perspective and criteria for recommending items to be scanned. Several comments supported the Practitioner who concluded that "Practitioners might tend to be more narrowly focused on the factors (and the number of factors) that impact them directly...[while Experts] may be taking a more global view" (see Appendix H). As discussed in the preceding section, the scores on many specific items also support this explanation.

That the Experts would apply broader, less immediately pragmatic criteria for recommending items is not surprising. What is surprising, is the evidence in many of the comments that little rapport exists between the two groups. Practitioners seem to perceive Experts as disinterested in and out of touch with reality:

"[Differences in group results are] a result of the very notion of having the 'experts' removed from what is actually occurring" (Round III); "the so-called non-practicing 'experts' should be aware of what the practitioners, who deal with many of these factors daily, think are significant" (Summary Questions). Many Experts seem to consider Practitioners limited in their viewpoints and unlikely to change: "Futurists probably have a broader view than the daily managers" (Summary Questions); "Public school personnel only focus on traditional client group K-12 students -- can not envision an expanded target population of clients" (Summary Questions).

The possible underlying disrespect or even animosity between the groups was perhaps most evident in the tone of one Practitioner's comment:

> [The Experts recommend many] items which I fail to see the importance in planning for a local school district, but then as you have indicated I am not the "expert" but only a "practitioner". My assumption is that [the experts view it as their role] to look at as many factors as possible and...pump them through a computer until something pops out.... A "practitioner" is more interested in the information that is usable, and can be a

valuable piece in an overall strategic planning model (Round III).

Such negativity between the groups threatens the development of environmental scanning. Most of the literature, research, and experience in scanning is outside public school systems. Practitioners need to learn from the Experts. However, for the Experts to be helpful, they must accept and respect the Practitioners' greater familiarity with public school planning. Failure of the groups to combine their expertise can only hamper progress in adapting environmental scanning to public schools.

Recommendations

For a scanning checklist

Although the major purpose of this study has been the identification of items which might be included on a scanning checklist, the form and format of such a checklist must also be considered. All 66 items achieving an overall mean above 2.49 were considered for the checklist presented in Figure 2. Recurring comments about the redundancy in some items led to a Summary Question asking whether such items should be combined. Nine of the 11 respondents encouraged combining similar items where possible. This recommendation was followed. It should be noted that one Expert not only opposed

combining items, but suggested that all items should be worded so as to include only one variable rather than a combination such as "age, sex, and race/ethnicity".

Combining items led to another decision concerning the recommended checklist. Much of the redundancy in the original items resulted from the sub-headings for minorities and women used by the United Way (1985b) and McCune (1986). To reduce clutter and to eliminate numerous sub-categories containing few items, only the major headings, Social, Economic, Political, and Technological, are used in the recommended checklist. These are the most consistently used headings in the scanning literature (Jain, 1984).

In addition to the items identified by overall mean, 11 items recommended by one group, but not overall were also included in the checklist in Figure 2. As one Expert concluded, "Perhaps the major value of your work is to provide 'ticklers' for the kind of information that may be important as they engage in planning." Since this was, indeed, the intention, it seemed best to include all items which had been recommended by either group and let each scanning committee decide the significance of the data for local planning efforts.

The order of the items was another consideration. As one Expert suggested, there seemed to be little value

in rank-ordering the items by overall mean. In fact, school districts might misinterpret these scores as indications of the relative significance of the items rather than determining for themselves the impact each item might have on their own system. Organizing similar items together under the major headings offers a more useful guideline for scanning.

Finally, some general directions and cautions were inserted at the beginning of the checklist. These were needed to better describe the kind of data needed and to emphasize the limitations of the checklist. The final checklist of 68 recommended items is presented in Figure 2.

One other recommendation is appropriate here. The second research question asks for the ten highest-scoring items. These items were clearly and consistently identified. The predictability of the items and the likelihood that most school districts already routinely collect most of this information indicate little value in a special presentation of these results. Therefore, the recommendation is that no separate list of the Top Ten Items be published.

Figure 2: A Checklist for External Environmental Scanning

SUGGESTIONS FOR SCANNING

Note: Whenever possible local, state, and national data, both current and historic, should be collected.

Caution: No checklist for external environmental scanning, no matter how carefully constructed, should ever be considered all-inclusive or prescriptive. These suggestions represent the recommendations of experienced public school planners, but each school district must determine for itself the significance of specific items and the need to collect information not recommended on this list.

Social Factors

___ population size and growth rate by race/ethnicity

___ population by age, sex, and race/ethnicity

___ population geographic distribution and mobility by race/ethnicity

___ birth rates by age and race/ethnicity

___ immigration rates by age, sex, and race/ethnicity

___ foreign-born population

___ non-English speaking population

___ marital status of individuals

___ number and size of households

___ household composition including non-family households

(figure continues)

Social Factors

___ number of households without school-age children

___ number and size of families

___ number of single-parent families by race/ethnicity

___ number of female heads of households

___ number/percentage of mothers who work

___ number of children in non-parental child care arrangements

___ enrollment in public or private pre-school programs

___ educational levels of population by race/ethnicity

___ illiteracy rates

___ postsecondary education participation by age, sex, and race/ethnicity

___ number of college/university education majors by discipline

___ private and parochial school enrollment

___ number, type, and age of housing units

___ rates of occupancy and vacancy of housing

___ number of residential building permits, grants and dollar value

___ size of homeless population

___ mortality rates and causes

___ infant mortality rates and causes

___ abnormal birth rates including low-birthweight infants

(figure continues)

Social Factors

___ number of births to teenagers

___ drug abuse rates

___ alcoholism rates

___ teen suicide rates

___ reported cases of child abuse

___ reported cases of AIDS

___ health-care costs

___ violent and nonviolent reported crime rates for adults and juveniles

___ rates of imprisonment for adults and juveniles by sex and race/ethnicity

___ percentage of use of various means of transportation to work

Economic Factors

___ income by age, sex, and race/ethnicity

___ per capita personal income

___ effective buying income

___ median household income

___ median family income

___ poverty levels by age, sex, and race/ethnicity

___ number of households and families under poverty

___ number of public assistance recipients

___ wage earnings by employment sector (manufacturing, construction, government, farming, etc.)

(figure continues)

Economic Factors

___ average salary by professional occupation (accountant, dentist, teacher, etc.)

___ growth rates of each employment sector

___ small business and major corporate growth rates

___ rate of new business birth

___ work force size and growth

___ work force participation by age, sex, and race/ethnicity

___ occupational employment by job type (managerial, professional, sales, farming, etc.)

___ occupational employment by sex and race/ethnicity

___ part-time and temporary work force

___ unemployment rates by sector, sex, and race/ethnicity

___ frequency of job changes

___ amount spend on training/retraining programs for workers

Political Factors

___ state and local government budgets: income and expenditures

___ tax burden on individuals

___ tax burden on corporations

___ federal, state, and local financial support of education

___ voter participation by age, sex, and race/ethnicity

(figure continues)

Technological Factors

___ growth of job-related use of computers

___ number of households with computers

___ growth of high-tech industry

For development of environmental scanning in public schools

The support of the literature and remarks of the participants in this study reinforce the value of implementing both strategic planning and environmental scanning in public school systems. The further adoption and development of environmental scanning could be facilitated by several recommendations. As suggested by J. Lewis (1983) and Valentine (1986), strategic planning needs to be implemented and improved. The ultimate purpose of environmental scanning is the integration of information into strategic planning and daily decision making. Therefore, progress in the development of scanning is directly related to progress in strategic planning.

If this progress is to take place, greater commitment to strategic planning and, especially, environmental scanning is needed. Effective scanning requires an investment of time, money, and personnel as well as the support and involvement of top-ranking system leaders. A specific, continuous environmental scanning procedure should be established separate from the standard management information systems (MIS) department and from the fiscal and facilities planning units. Environmental analysis should be done by a committee

composed of administrators, curriculum developers, instructional personnel, and representatives of various community stakeholder groups. Provisions must be made for the distribution and integration of information and committee recommendations.

In addition to establishing procedures for environmental scanning, school districts need to provide opportunities to increase local knowledge and expertise. McNeight (1980) and Valentine (1986) both noted the lack of planning expertise among public school personnel. Results from the present study indicate that this continues to be a problem. Increasing awareness of the purpose and value of environmental scanning may lead not only to better use of the process but also to less distance between the perspectives of the Practitioners and the Expert. An adaptation of the Ed Quest procedure (Mecca & Adams, 1982; Mecca & Morrison, 1986) for public school use might be one effective educational activity for local personnel.

For the research design and methodology

The strongest recommendation for someone replicating this study or attempting one similar in design would be to improve the introductory letters and directions. As can be seen in these and other comments from Round I (see Appendix H), there was some initial misunderstanding: "I

really do not agree with your premise that some items are much more important than others." (Expert); "If I understand your study correctly, you are trying to determine what variables are critical to schools" (Expert). The focus on suggestions for scanning rather than on the probable impact of items or the identification of critical factors needed to be stressed more firmly.

It may be difficult, however, to avoid some conflict over terminology. The following comment from one Expert indicates that the "semantic entanglement" observed by Steiner in 1969 still may be a factor in scanning research:

> Selecting categories of importance to school districts for scanning is not really environmental scanning, but is environmental monitoring. That is, these categories provide key word identifiers to search data banks and literature for historical and forecasted information. Environmental scanning requires searching for signals of change that may affect the district (Summary Questions)

The blurring of the boundaries between scanning and monitoring was addressed during the review of the literature.

Another recommendation would be to avoid the use of Experts in labeling the groups. Although the terms Practitioners and Experts appears frequently in the literature, one Practitioner was antagonized by their use: "I found your choice of terms interesting.... I inferred from this that if one is a 'practitioner' one certainly cannot be an 'expert'" (Round III). When participants were asked for comments during the Summary Questions, some felt the "controversy is moot and not worth any time" (Expert), others offered alternative labels such as "professional planners/theorists" (Practitioner) or simply "Group I/Group II" (Practitioner). None of the suggestions seemed particularly effective in highlighting the difference in the groups or avoiding potential conflict (see Appendix H).

The last recommendations or observations concern the mechanics of the study. As was hoped, the participants responded well to the novelty of the cards--one Practitioner even called the exercise "fun". The cards also made the recording and analysis of data easier because they could be sorted and rearranged. However, the flexibility of the cards increased the need for careful handling to avoid mixing the packs. It is recommended that when responses are received, the

envelope be marked with the subject identification number and the Delphi round number. All cards should be stored in these envelopes and the researcher should work with only one envelope at a time. Furthermore, anyone planning to use this method should be aware of the increase in postage expense caused by the weight of the cards.

In Round I, participants were asked to mark each card with the number of the pile in which they had placed it. This proved very helpful in recording the results. Subjects were also asked to write a rank-order number for all cards placed in the top pile. This resulted in some subjects ranking as many as 60 cards. Beyond the first ten, the numbers were of little use. Even though asking for ranking on only the top ten may bias the number of cards placed in the pile, this procedure would seem preferable.

For further research

The lack of literature and the small number of studies specific to environmental scanning in public schools leave wide possibilities for research in the field. The results from this study suggest four specific recommendations.

The available resources make it difficult to determine which school systems are using environmental

scanning or how they are implementing the process. This was particularly evident in the difficulty of identifying appropriate school districts for the sample. Study of environmental scanning in business began in 1967 with Aguilar's survey of corporate scanning practices. A comparable survey of the scanning practices of public school systems would be beneficial.

A second, obvious, recommendation would be to expand the present study. Although it would be difficult to identify comparable Practitioners and Experts to test the results from this study with a different, but similar sample, it would be worthwhile to test the assumption that representatives from school districts inexperienced in environmental scanning would respond differently. The limited scope evident in some of the Practitioner responses indicate that experience may not have affected the scoring. A comparative study should also be done using a sample of persons whose primary focus is curriculum planning. Either of these possibilities would offer the opportunity for unbiased testing of Items 91 - 94.

Differences in perceptions of the scope and use of environmental scanning appear to have strongly influenced scoring. This suggests several potential research questions: Who are the persons charged with implementing

public school scanning? What are their backgrounds, training, and experience? What biases or "information filters" do they bring to environmental analysis? These questions might be addressed through attitude scales or qualitative research techniques.

Another difficulty encountered in the present research project was maintaining the distinction between suggestions for scanning and the identification of Critical Factors. While it is the belief of this researcher that the priority at present should be on facilitating the adoption of environmental analysis by public school systems, the identification of Critical Factors would be an appropriate topic for future research.

In 1984, Jain concluded that the potential for effectiveness in strategic planning is directly related to an organization's capacity for environmental scanning. It has been the intent of this study to improve this capacity in public school systems by offering a thorough review of the pertinent literature and by constructing a checklist to assist districts struggling with the first step in the scanning process. The concluding comments received from several participants suggest that the study has made a potentially valuable contribution but none so

clearly expresses the hope of this researcher as the following statement from one Practitioner:

> This is a worthy study, particularly if its results are applied to help guide practitioners in considering significant items they either had not previously considered or perceived as not significant enough to track.... I believe a strong environmental scanning/ external analysis component is absolutely vital to sound planning--hopefully, studies like this will assist in raising the level of awareness among educators relative to the world around them.

Appendix A

Selection of Items

Endorsement of potential items for the survey was sought from several sources. The chart which follows lists items that were considered and indicates sources which directly or indirectly suggested large numbers of items.

Key to sources used:

1 = McCune (1986)

2 = United Way of America (1985b, 1987)

3 = Mesa Public Schools (1986)

4 = Hodgkinson (1985)

5 = National School Boards Association (1988)

6 = Stone (1987)

7 = Cetron et al. (1985)

8 = Fahey & Narayanan (1986)

Items which appeared in both McCune and the United Way's data checklist and database were included in the survey, but many items were combined or reworded for clarity, conciseness, or consistency. Other items with support from at least three sources were also included separately or in combination. Changes and trends which have occurred since McCune published her checklist and the strength of the discussions in the most recent United Way environmental scanning report (United Way of America,

1987), were considered sufficient to warrant the inclusion of the items concerning the homeless population (item 50), health-care costs (item 64), voter participation (item 103), and environmental resources (item 106).

Two overall directions should be considered part of all items where applicable and possible:

1. Data should be gathered for national, state, regional, and local levels.
2. Data should include current statistics, historical trends, and available projections.

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
SOCIAL FACTORS								
Population								
1. population size & growth rate	x	x	x	x		x		x
2. population density	x	x		x				x
3. population geographic distribution, diffusion, mobility, migration	x	x	x	x		x	x	x
4. birth rates	x	x	x	x	x			x
5. immigration	x	x		x		x		
6. population by age & sex composition	x	x	x	x		x	x	x
7. population by age & income	x							
8. median age				x		x		x
Families & Households								
9. number of households	x	x		x				
10. size of households	x	x		x				x
11. number of families	x	x						
12. size of families	x	x			x	x		x
13. marital status of individuals	x	x	x	x			x	
14. single-parent families	x	x	x	x	x	x		x
15. birth rate by age & race/ethnicity	x			x	x			

(table continues)

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
16. number & size of families by race/ ethnicity	x			x				
17. marital status by race/ethnicity	x							
18. arrangements for child care		x		x	x		x	
19. household composition including non-family households		x		x	x	x		x
Minorities								
20. size & growth rates of minority populations	x	x	x	x				x
21. age & sex composition of minority populations	x	x						x
22. geographic distribution of minorities	x	x		x				x
23. income & poverty levels of minorities	x	x		x	x	x		x
24. educational levels of minorities	x	x		x				
25. employment of minorities	x	x						
26. single-parent families among minorities	x	x		x	x			
27. foreign-born population	x	x		x	x			
28. non-English-speaking population	x	x	x	x	x		x	
Changing Role of Women								
29. female work force participation	x	x		x	x	x	x	

(table continues)

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
30. working mothers	x	x	x	x				
31. female heads of households	x	x		x	x		x	x
32. female & male earnings & income	x	x					x	
33. female poverty levels by age & race/ethnicity	x	x		x	x			
Education								
34. educational levels of population	x	x			x			x
35. illiteracy rates	x	x			x			
36. perceptions of educational quality	x	x			x		x	
37. postsecondary education participation by sex & race/ethnicity	x			x				x
38. private & parochial school enrollment				x	x	x		
Housing								
39. Number of housing units	x	x						
40. age of housing	x	x						
41. owner vs. renter housing	x	x						
42. median percentage household income spent on housing	x	x						
43. mean value of housing	x	x						
44. seasonal vs. year-round units	x	x						

(table continues)

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
45. average cost of housing	x	x				x		
46. housing facilities available (heating equipment, sewage, telephone, etc.)	x	x						
47. multi-family housing	x							
48. occupancy & vacancy of housing	x	x						
49. residential building permits, grants, & dollar value	x	x						x
50. size of homeless population		x						
Health								
51. life expectancy rates	x	x	x					
52. infant mortality & causes	x	x						
53. mortality rates & causes	x	x						x
54. abnormal births including low-birthweight infants	x	x		x				
55. births to teenagers (teen pregnancy)	x	x	x	x	x			
56. health problems of youth	x							
57. mental illness by age & race/ethnicity	x	x						
58. drug abuse	x	x			x			
59. alcoholism	x	x	x		x			

(table continues)

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
60. teen suicide	x	x						
61. child abuse	x	x	x					
62. nutritional problems	x							
63. youth fitness	x							
64. health-care costs		x						
Crime								
65. violent & nonviolent reported crime rates for adults & juveniles	x	x						
66. rates of imprisonment for adults & juveniles by sex & race/ethnicity	x	x						
Transportation								
67. availability & use of public transportation	x	x				x		
68. means of transportation to work	x	x						
69. travel time to & from work	x	x						
70. motor vehicle registration & car ownership	x	x						
ECONOMIC FACTORS								
Income								
71. per capita personal income	x	x	x					x
72. median household income	x	x						x

(table continues)

POTENTIAL ITEM	SOURCE							
	1	2	3	4	5	6	7	8
73. median family income	x	x						
74. households & families under poverty level by age & race/ethnicity	x	x	x	x	x		x	
75. public assistance recipients	x	x						
76. effective buying income	x	x						
77. wage earnings by employment sector	x	x						
78. income by age & race/ ethnicity	x						x	x
Economic Structure								
79. major income sources by economic sectors	x	x						
80. small business & major corporate growth	x	x						
81. new business birth	x	x						
82. growth by employment sector	x	x	x			x		
83. major income sources by sector	x	x				x		
84. retail sales	x	x						
85. minority & female-owned businesses	x	x						
86. impact of foreign investment & trade	x	x						
Employment								
87. work force size & growth	x	x		x		x		x

(table continues)

POTENTIAL ITEM		SOURCE							
		1	2	3	4	5	6	7	8
88.	work force participation by age, sex, & race/ ethnicity	x	x		x				x
89.	occupational employment by job type	x	x		x		x	x	x
90.	occupational employment by sex & race/ethnicity	x	x		x				
91.	employment by size of business establishment	x	x						
92.	blue collar vs. white collar & manufacturing vs. nonmanufacturing employment	x	x						
93.	unemployment by sector, sex, & race/ethnicity	x	x						x
94.	frequency of job/career changes		x	x				x	
95.	training/retraining programs for workers	x		x				x	
96.	part-time & temporary work force	x	x						x
POLITICAL FACTORS									
97.	state & local government budgets: income & expenditures	x	x	x					x
98.	tax burden on individuals	x	x						
99.	tax burden on corporations	x	x						
100.	federal support to education	x		x				x	x

(table continues)

POTENTIAL ITEM		SOURCE							
		1	2	3	4	5	6	7	8
101.	state support to education	x		x				x	x
102.	local tax support of education	x						x	x
103.	voter participation by age, sex, & race/ ethnicity		x					x	
104.	significant local issues		x						
105.	key legislative/ litigation actions	x	x						
106.	environmental resources (water, pollution, energy, etc.)		x				x		
TECHNOLOGICAL FACTORS									
107.	impact of technology (computers, robotics, communications, transportation, etc.)		x	x				x	
108.	number of households with computers		x	x				x	
109.	growth of high-tech industry		x	x				x	

Appendix B

Items Used in Study

SOCIAL FACTORS

Population

1. population size and growth rate
2. population geographic distribution and mobility
3. birth rates by age and race/ethnicity
4. population by age and race/ethnicity
5. immigration rates by age, sex, and race/ethnicity

Families & Households

6. number and size of families
7. number of single-parent families
8. number and size of households
9. household composition including non-family households
10. marital status of individuals
11. number of children in non-parental child care arrangements

Minorities

12. size and growth rates of minority population
13. minority population by age and sex
14. geographic distribution of minorities
15. foreign-born population
16. non-English speaking population
17. number of single-parent families among minorities
18. educational levels of minorities
19. employment of minorities
20. income and poverty levels of minorities

Changing Role of Women

21. female heads of households
22. female work force participation
23. number/percentage of mothers who work
24. female poverty levels by age and race/ethnicity
25. female and male earnings and income

Education

26. educational levels of population
27. illiteracy rates
28. postsecondary education participation by age, sex, and race/ethnicity
29. private and parochial school enrollment

Housing

30. number, type, and age of housing units

31. numbers/percentages of housing facilities available (heating equipment, sewage, telephone, etc.)
32. percentages of owner and renter housing
33. numbers of seasonal and year-round housing units
34. rates of occupancy and vacancy of housing
35. mean value of housing
36. average cost of housing
37. median percentage of household income spent on housing
38. number of residential building permits, grants and dollar value
39. size of homeless population

Health

40. life expectancy rates
41. mortality rates and causes
42. infant mortality rates and causes
43. abnormal birth rates including low-birthweight infants
44. number of births to teenagers
45. incidence of mental illness by age and race/ethnicity
46. drug abuse rates
47. alcoholism rates
48. teen suicide rates
49. reported cases of child abuse
50. reported cases of AIDS
51. health-care costs

Crime

52. violent and nonviolent reported crime rates for adults and juveniles
53. rates of imprisonment for adults and juveniles by sex and race/ethnicity

Transportation

54. availability and use of public transportation
55. motor vehicle registration and car ownership
56. percentage of use of various means of transportation to work
57. average travel time to and from work

ECONOMIC FACTORS

Income

58. per capita personal income
59. effective buying income
60. median household income
61. median family income
62. income by age and race/ethnicity
63. poverty levels by age and race/ethnicity

65. number of households and families under poverty
66. wage earnings by employment sector (manufacturing, construction, government, farming, etc.)

Economic Structure

67. growth rates of each employment sector (manufacturing, construction, government, farming, etc.)
68. small business and major corporate growth rates
69. rate of new business birth
70. retail sales
71. number/percentages of minority and female-owned businesses
72. growth rate of foreign investment and trade

Employment

73. work force size and growth
74. work force participation by age, sex, and race/ethnicity
75. occupational employment by job type (managerial, professional, sales, farming, etc.)
76. occupational employment by sex and race/ethnicity
77. employment by size of business
78. part-time and temporary work force
79. unemployment rates by sector, sex, and race/ethnicity
80. frequency of job changes
81. amount spent on training/retraining programs for workers

POLITICAL FACTORS

82. state and local government budgets: income and expenditures
83. tax burden on individuals
84. tax burden on corporations
85. federal, state, and local financial support of education
86. voter participation by age, sex, and race/ethnicity
87. rate of use of environmental resources (water, energy, etc.)

TECHNOLOGICAL FACTORS

88. growth of job-related use of computers
89. number of households with computers
90. growth of high-tech industry

ITEMS ADDED AFTER ROUND I

91. enrollment in public or private pre-school programs (SOCIAL - Education)
92. number of households without school-age children (SOCIAL - Families & Households)
93. average salary by professional occupation (accountant, dentist, teacher, etc.) (ECONOMIC - Income)
94. number of college/university education majors by discipline (SOCIAL - Education)

Appendix C

Round One

Contact Letter to Superintendents

Agreement Form

Letter to Practitioners

Letter to Experts

Directions

Address Verification Form

Letter Requesting Return of Packets

975 Fall Circle Way
Gambrills, MD 21054
February , 1990

Address

Dear Superintendent:

I am pursuing a Ph.D. in Education Policy, Planning, and Administration at the University of Maryland. I am writing to you to enlist your aid in my dissertation study.

As you know, many school systems have adopted or are considering strategic planning. One of the earliest steps in strategic planning is a broad scan of the external environment.

Unfortunately, there are few guidelines for environmental scanning specific to public school systems. The purpose of my dissertation study is to develop a checklist of data which public school systems might include in their broad scan. I have compiled a list of 90 such items based on suggestions from numerous sources on planning and environmental scanning. With the assistance of representatives from public school systems experienced in strategic planning and several recognized experts in environmental scanning, I hope to both narrow this list and indicate some priority for the items.

From my review of the literature and with help from the Association for Supervision and Curriculum Development, I have identified your school system as one experienced in strategic planning. I ask you to share that experience with others by participating in my study. In the first stage of the study, each participant will be asked to sort a deck of cards containing potential items into piles according to the degree to which the participant recommends the item for inclusion on the proposed checklist. This will be followed by one, possibly two, further contacts in which participants will be asked to react to the results from round one. All participants will receive copies of the final results from the study.

Your cooperation would be greatly appreciated. Please complete the enclosed form and return it by March 7, 1990. I am, of course, hoping that you or the person most closely involved with environmental scanning will agree to participate in the study. If you have any questions about the study or what would be involved in

participating, please call me at the number below. Thank you for your time and consideration.

Sincerely,

Molly Linda Poole

PLEASE COMPLETE THIS FORM AND RETURN IT IN THE ENCLOSED ENVELOPE BY FEBRUARY 15, 1990. THANK YOU FOR YOUR COOPERATION.

M. Linda Poole
975 Fall Circle Way
Gambrills, MD 21054

____ Yes, we are willing to participate in the study.
All further materials should be sent to

NAME: _____

TITLE: _____

ADDRESS: _____

_____

_____

PHONE: _____

SCHOOL SYSTEM: _____

____ No, we prefer not to participate in the study.

NAME: _____

SCHOOL SYSTEM: _____

MAJOR REASON FOR REFUSAL: _____

_____

_____

975 Fall Circle Way
Gambrills, MD 21054
February 19, 1990

Address

Dear Practitioner:

Thank you for agreeing to participate in this study. As you know, many public schools systems are adopting the strategic planning process. One phase of this process is external environmental scanning, the collection of data about the social, economic, political, and technical environment in which the school system operates. The first step in environmental scanning is to collect a broad range of data which will later be analyzed to determine important trends and issues. This first step is often more difficult and time-consuming than it may appear. Inexperienced personnel especially need suggestions both how to make the scan broad enough and how to limit it. The available literature offers little help specific to public school systems. It is the purpose of this study, therefore, to develop two checklists. The first is to be an extensive one suggesting the scope that a broad scan might include; the second is to be a limited checklist of the most highly recommended items. Let me emphasize that the purpose of these checklists is to suggest data which might be collected for consideration during the earliest stages of environmental scanning. Determination of the potential impact of any data on the planning of a specific school system must be a later task of the local planning committee.

In order to develop these checklists, I have solicited the assistance of representatives from several school systems with experience in strategic planning as well as a number of authorities knowledgeable in both education and environmental scanning. The design of the study is a modification of both Q-sort and Delphi techniques. Although your responses will be identifiable to the researcher, all results will be reported anonymously in the dissertation.

In this first round, you will be asked to sort a deck of item cards into one of five piles according to the degree to which you would recommend that item be included on the broad checklist. You will then be asked to rank order those items which you have placed in the "strongly recommended" pile. (See the attached directions.) The maximum time for round one is one hour though it is expected that most participants will take far less time.

In round two, you will be asked to review the results from round one and offer comments. Depending upon the degree of consensus, a brief third contact may be necessary in order to refine the checklists.

At the completion of the study, you will receive copies of all final results including the checklists. Hopefully, we will develop useful tools to aid public school systems in their planning efforts. The success of this project depends upon your prompt return of the completed materials. I truly appreciate your cooperation in this endeavor.

Sincerely,

Molly Linda Poole

ENCLOSURES:

directions sheet
deck of 90 item cards
five cards numbered 91 - 95 which may be used to suggest additional items
five yellow header cards to identify each pile
rubber bands
address verification sheet
return envelope

975 Fall Circle Way
Gambrills, MD 21054
February 19, 1990

Address

Dear :

I am pursuing a Ph.D. in Education Policy, Planning, and Administration at the University of Maryland. I am writing to you to enlist your aid in my dissertation study because of your recognized knowledge and experience in planning, environmental scanning, and education.

As you know, many public school systems have adopted or are considering strategic planning. One phase of this process is external environmental scanning, the collection of data about the social, economic, political, and technical environment in which the school system operates. The first step in environmental scanning is to collect a broad range of data which will later be analyzed to determine important trends and issues. This first step is often more difficult and time-consuming than it may appear. Inexperienced personnel especially need suggestions both how to make the scan broad enough and how to limit it. The available literature offers limited guidance specific to public school systems. It is the purpose of this study, therefore, to develop two checklists. The first is to be an extensive one suggesting the scope that a broad scan might include; the second is to be a narrower checklist of the most highly recommended items. Let me emphasize that the purpose of these checklists is to suggest data which might be collected for consideration during the earliest stages of environmental scanning. Determination of the potential impact of any data on the planning of a specific school system must be a later task of the local planning committee.

In order to develop these checklists, I am soliciting the assistance of representatives from several school systems with experience in strategic planning as well as a number of authorities like yourself who are knowledgeable in both environmental scanning and education. The design of the study is a modification of both Q-sort and Delphi techniques. Although your responses will be identifiable to the researcher, all results will be reported anonymously in the dissertation.

In this first round, you are asked to sort a deck of item cards into one of five piles according to the degree to which you would recommend that item be included on the broad checklist. You will then be asked to rank order

those items which you have placed in the "strongly recommended" pile. (See the attached directions.) The maximum time for round one is one hour though it is expected that most participants will take far less time.

In round two, you will be asked to review the results from round one and offer comments. Depending upon the degree of consensus, a brief third contact may be necessary in order to refine the checklists.

At the completion of the study, you will receive copies of all final results including the checklists. Hopefully, we will develop useful tools to aid public school systems in their planning efforts.

Your participation is crucial to the success of this project. It is my sincere hope that you will share your expertise by completing the enclosed materials. If, however, you are unable to participate, please return all materials in the enclosed envelope. I truly appreciate your cooperation in this endeavor.

Sincerely,

Molly Linda Poole

ENCLOSURES:

directions sheet
deck of 90 item cards
five cards numbered 91 - 95 which may be used to suggest additional items
five yellow header cards to identify each pile
rubber bands
address verification sheet
return envelope

DIRECTIONS

1. Please read all directions carefully before proceeding.

2. Sort the deck of item cards by placing each of the cards in one of the 5 piles according to the degree to which you would recommend the item. Yellow header cards are provided for your convenience. Please remember that you are evaluating the degree to which you would recommend that any public school system collect and consider each particular item of data during the first broad sweep of the environmental scanning process. Each pile may have as many or as few cards as you feel is appropriate.

3. Use cards 91 - 95 for items which you feel should be included in Pile One, but which are not in the deck. If you have no additional items, place cards 91 - 95 in Pile Five.

4. When you have finished sorting all of the cards, set those in Pile One aside for a moment. For the cards in the remaining four piles, write the number of the pile in the lower right corner of each card. (This is necessary should the cards become shuffled during mailing.) Place the yellow header card on the top of each pile and secure the pile with a rubber band.

5. Now return to those cards in Pile One. Please arrange these cards in priority or rank order from the one you feel most strongly about to the one you feel least strongly about. In the lower right corner of the card containing the item you most strongly recommend, write 1-1. Continue labeling the cards 1-2, 1-3, ... until each card is numbered. Place the header card on top of Pile One and secure the pile with a rubber band.

6. Complete the Address Verification Sheet, place it and the five piles of cards in the return envelope, seal, and mail. Please return all responses by March 5, 1990.

Your prompt response is crucial to this project. Thank you for your cooperation.

ADDRESS VERIFICATION

Please complete this sheet after you have finished the sort. Thank you.

NAME: _____

ADDRESS: _____

_____

_____

Approximate time it took to complete the sort:

_____

Any comments regarding the items or the sorting procedure:

Thank you again for your participation.

975 Fall Circle Way
Gambrills, MD 21054
April 4, 1990

Address

Dear :

Just over a month ago, I sent the enclosed request for your participation in my dissertation study. Since I have had no response from you, I have considered the possibility that the materials were lost in the mail and am now repeating my request.
I realize that you are very busy and assure you that your agreement to take part in the study would be greatly appreciated. If, however, you are unable to participate at this time, please return the materials in the envelope provided. I know you understand the importance of your prompt response to the progress of my doctoral work.
Thank you for your time, consideration, and cooperation.

Sincerely,

Molly Linda Poole

Appendix D

Round Two

Letter to Practitioners and Experts

Directions

Information Sheet

Letter Requesting Return of Packets

975 Fall Circle Way
Gambrills, MD 21054
April 20, 1990

Address

Dear:

Thank you for your cooperation in Round I of this study. The results are both useful and interesting. We are now ready to continue with Round II. As you recall, the goal of the study is to develop lists of suggested items which any school system should or might consider during the first broad sweep in environmental scanning. The potential impact each item may have on planning is a later step and must be determined by the individual school system.

The scoring system used for Round I considered both the pile in which you placed the item and the rank you gave the items in the "Strongly Recommended" pile. The items have now been placed into five piles based on the mean score from Round I. The mean score and the score you gave the item are printed on the face of each card.

The purpose of Round II is to increase consensus if possible. In this round, you are asked to reconsider your original score in light of the mean score. It will be necessary for you to mark only those cards on which your score differed from the mean. You are also asked to score several new items which were submitted during Round I. (Some of the items submitted were determined to be outside the limitations of this study and, therefore, are not included. Other items have been edited to meet the specifications of the study.) Complete directions are enclosed as is a stamped return envelope. It is anticipated that Round II will take a maximum of 30 minutes to complete.

Your prompt response and continuing cooperation are truly appreciated.

Sincerely,

M. Linda Poole

ENCLOSURES:

5 packs of cards each with a yellow header card
1 pack of NEW ITEMS on green cards
directions
information sheet (blue)
return envelope

DIRECTIONS

1. The items have now been placed into five piles based on the mean score from Round I. These means have been printed on the face of the cards. Your placement of the item has been converted to the scale for Round II and also printed on the face of the card. In addition, there is a pile of NEW ITEMS (green) which were submitted during Round I. (The cards have been arranged in this manner for your convenience. You may return them in any order.)

2. Use the following scale to score items in Round II:

Most Strongly Recommended (Place no more than 10 items in this category)	= 5	TOP TEN ONLY
Strongly Recommended	= 4	
Recommended	= 3	
Not Recommended	= 2	
Strongly Not Recommended	= 1	

   The scale does not include an "Undecided" category. You are asked to make a decision on each item.

3. For the original items, examine both the mean score and your score. For each item on which your score from Round I differs from the mean, write the number from the scale above which best represents your current recommendation (whole numbers only) in the blank in the lower right corner of the card. You are asked to mark all cards on which your score was different from the mean whether you now wish to change your score or whether you would still score the item as you did in Round I. Supporting comments may be written on the reverse side of the card.

4. For each NEW ITEM, write a score in the lower right corner of the card using the above scale (whole numbers only).

5. Please double-check that you have placed a maximum of 10 items, whether original or new, in category 5 - Most Strongly Recommended.

6. Secure the pile or piles of cards with rubber bands. (The order of the cards or the number of piles is not important so long as all cards are returned.)

7. Complete the Information Sheet (blue).

8. Please return the cards and the Information Sheet in the envelope provided no later than May 4, 1990.

INFORMATION SHEET

Person responding:

_____

Approximate time it took to complete Round II:

_____

Comments:

Thank you for your time and cooperation.

975 Fall Circle Way
Gambrills, MD 21054
May 26, 1990

Address

Dear:

Several weeks ago I mailed to you Round II of the study concerning external environmental scanning for public schools. To date I have not received your response. If you have already returned Round II, thank you for your cooperation. If not, please complete the materials and return them to me as soon as possible. I am sure you understand that the progress of my dissertation depends upon your reply. If you did not receive Round II, please call me at the number listed below.

Sincerely,

M. Linda Poole

Appendix E

Round III

Letter to Practitioners and Experts

Directions

Comment Sheet

975 Fall Circle Way
Gambrills, MD 21054
June 1, 1990

Address

Dear:

Thank you for your response to Round II. Enclosed are the materials for the third round of the study.

For Rounds I and II participants were divided into two groups. The first group, Practitioners, consists of individuals who are actively involved in scanning activities within public school systems. These school systems vary in size, situation, and geographic area across the country. The second group, Experts, consists of individuals selected for their recognized knowledge of and contributions to the field of environmental scanning though not necessarily specific to public school systems.

The purpose of Round II was to improve group consensus if possible. Therefore, the means reported to you during Round II were the means for your group. Round II did, indeed, result in smaller group standard deviations for most items. The purpose of Round III is to examine the differences in results from the two groups and to develop a final score for each item.

For Round III, you have been sent cards only for those items on which the Practitioners and Experts disagree. Following Round II, an overall mean combining scores from both Practi- tioners and Experts was computed for each item. The rounded overall score, rounded scores from both groups, and your most recent score for the item are printed on each card. You are asked to review the scores and make any final changes in your own ranking of the items. In addition you are invited to comment on possible explanations for the differences between the scores on any or all of the items.

Thank you for your continuing cooperation and support. Please return the item list and the comment sheet in the envelope provided as promptly as possible, but no later than June 19, 1990. At the completion of the project, a summary of the study and a copy of the final checklists will be sent to each of you.

Sincerely,

M. Linda Poole

DIRECTIONS FOR ROUND III

1. Please review the scores printed on each item card. If you wish to make any change in your score for the item, mark the change in the blank provided on the lower right side of the card using the following scale:

   5 = Most Strongly Recommended
   (Your top 10 items only)
   4 = Strongly Recommended
   3 = Recommended
   2 = Not Recommended
   1 = Strongly Not Recommended

2. You are encouraged to offer comments or explanations for either your scoring of the item or the differences between the scores from the two groups. Please write all comments on the back (blank side) of the cards. General or summary comments should be written on the Comment Sheet.

3. Complete the Comment Sheet, place it and the cards in the stamped envelope provided, and return them as soon as possible but no later than June 19, 1990.

Thank you for your assistance and cooperation.

COMMENT SHEET

Your name: _____

Phone number where you can be reached during the summer:

_____

Amount of time spent on Round III: _____

Please use the space below for any concluding comments or explanations you may have about the differences between the scores from the two groups or about the study itself:

Please return the cards and this form no later than June 19th.

Thank you for sharing your experience and expertise.

Appendix F

Summary materials

Summary Letter to Practitioners and Experts

Summary Questions

Recommendations for Scanning

Ten Highest-Scoring Items

975 Fall Circle Way
Gambrills, MD 21054
August 1, 1990

Address

Dear :

Thank you for your participation in my dissertation study. Your time; your cooperation; and your many valuable comments, critiques, and words of encouragement have been sincerely appreciated.

I have enclosed the final sorting of the items based on the overall means after Round III. At the outset of the study, the list of items was arranged under the categories Social, Economic, Political, or Technological, with the majority of the items falling in the first two categories. I have included these headings in each section of the final sorting and placed Items 91-94 with items on similar topics. For each item, the final overall mean, and the final group means are given. Group I consists of those participants who are actively involved in planning in a public school system experienced in environmental scanning. Group II includes those participants who are not and may not have been involved with public school planning but whose reputation and experience with environmental scanning qualify them to make recommendations. There is also a separate sheet listing the ten highest-scoring items in rank order.

At this point I am considering numerous questions raised by the results of the study as I prepare to write my final chapter. I would like to share some of these observations with you and invite your response and comment. If you would take a few moments to consider the Summary Questions, offer your insights, and return them in the envelope provided by August 17, I would be grateful. The comments and letters which you sent with Rounds I - III were very helpful and much appreciated.

Again, a sincere thank you for your participation.

Yours truly,

Molly Linda Poole

Enclosures:
Recommendations for Scanning (white)
Ten Highest Scoring Items (green)
Summary Questions (blue)
Return envelope

SUMMARY QUESTIONS

Name: _____

* Check the phrase which most closely describes your perspective on planning:

___ mostly concerned with facilities and management planning

___ mostly concerned with curriculum planning

___ equally concerned with both of the above areas of planning

* An objection was raised to the use of "practitioners" and "experts" to identify the two groups because of the implication that practitioners are not also experts. What titles would you suggest to clarify the difference between the two groups?

* Throughout the study, the location and particular circumstances surrounding specific school districts seems to have influenced some responses, but <u>size</u> of the school system does not seem to have affected the results. Would you agree that the size of a school district has little effect on the selection of data to collect?

* The major sources used for selection of items included subheadings for data specific to minorities and data indicating the changing role of women. As several of you pointed out, this led to redundancy in seven pairs of items.

  Example One:

  7. number of single-parent families
  17. number of single-parent families among minorities

  Could be combined as "number of single-parent families by race/ethnicity"

  Example Two:

  24. female poverty levels by age and race/ethnicity
  63. poverty levels by age and race/ethnicity

  Could be combined as "poverty levels by age, sex, and race/ethnicity"

  In compiling the final list of suggested items, would you recommend that items like the above examples be retained to emphasize the issues or combined as indicated?

* In general, Group I rejected more items (38%) than did Group II (20%). This was especially true in the Economic area where Group I rejected 48% of the items while Group II rejected only 16%. What explanation would you offer for these results?

  Sample items rejected by Group I but recommended by Group II:

  65. number of public assistance recipients
  78. part-time and temporary work force
  80. frequency of job changes

* Disagreement between the groups is most pronounced on the following three items. What explanation would you offer for the difference in results?

9. household composition including non-family households
   Group I - Not Recommended
   Group II - Strongly Recommended

   One respondent rated this item in the top ten.

11. number of children in non-parental child care arrangements
   Group I - Recommended
   Group II - Most Strongly Recommended

   The standard deviation on this item was .30 for Group I, .47 for Group II.

76. occupational employment by sex and race/ethnicity
   Group I - Not Recommended
   Group II - Strongly Recommended

* The highest overall standard deviations, 1.09, were recorded for items 5 and 38. For both items scores ranged from Most Strongly Recommended to Strongly Not Recommended. How would you explain the wide range of scores on these two items?

5. immigration rates by age, sex, and race/ethnicity (Overall = Strongly Recommended)

38. number of residential building permits, grants and dollar value (Overall = Recommended)

* Have you any other concluding comments or observations concerning specific items or the overall study?

Thank you for your time and effort. Please return these materials in the envelope provided by AUGUST 17, 1990.

RECOMMENDATIONS FOR SCANNING

ITEM	OVERALL MEAN	GROUP I MEAN	GROUP II MEAN
Most Strongly Recommended			
Social			
1. population size and growth rate	4.81	4.90	4.67
4. population by age and race/ethnicity	4.81	4.80	4.83
Political			
85. federal, state, and local financial support of education	4.69	4.80	4.50
Strongly Recommended			
Social			
2. population geographic distribution and mobility	4.06	4.30	3.67
3. birth rates by age and race/ethnicity	4.13	4.00	4.33
5. immigration rates by age, sex, and race/ethnicity	3.75	3.50	4.17
7. number of single-parent families	4.00	3.90	4.17
11. number of children in non-parental child care arrangements	3.69	3.10	4.67
92. number of households	3.67	3.67	4.00
12. size and growth rates of minority population	3.63	3.50	3.83
14. geographic distribution of minorities	3.56	3.40	3.83
16. non-English-speaking population	3.88	3.80	4.00
26. educational levels of population	4.44	4.40	4.50
27. illiteracy rates	4.13	3.70	4.83
28. postsecondary education participation by age, sex, and race/ethnicity	4.25	4.30	4.17
29. private and parochial school enrollment	3.94	3.70	4.33
91. enrollment in public or private pre-school programs	3.55	3.56	3.50

	ITEM	OVERALL MEAN	GROUP I MEAN	GROUP II MEAN
44.	number of births to teenagers	3.81	4.00	3.70
46.	drug abuse rates	3.63	3.50	3.83
48.	teen suicide rates	3.69	3.60	3.83
	RECOMMENDED			
Social				
6.	number and size of families	3.06	2.90	3.33
8.	number and size of households	3.13	3.30	2.83
9.	household composition including non-family households	2.81	2.40	3.50
13.	minority population by age and sex	3.44	3.20	3.83
15.	foreign-born population	2.75	2.70	2.83
17.	number of single-parent families among minorities	3.07	2.90	3.40
18.	educational levels of minorities	3.25	3.00	3.67
19.	employment of minorities	2.63	2.50	2.83
20.	income and poverty levels of minorities	3.06	2.90	3.33
21.	female heads of households	3.07	3.10	3.00
22.	female work force participation	2.80	2.70	3.00
23.	number/percentage of mothers who work	3.25	3.00	3.67
24.	female poverty levels by age and race/ethnicity	2.50	2.20	3.00
94.	number of college/ university education majors by discipline	2.64	2.56	3.00
30.	number, type, and age of housing units	2.56	2.70	2.33
38.	number of residential building permits, grants and dollar values	2.94	3.10	2.67
39.	size of homeless population	2.56	2.40	2.83
47.	alcoholism rates	2.94	2.90	3.00
49.	reported cases of child abuse	3.38	3.20	3.67

	ITEM	OVERALL MEAN	GROUP I MEAN	GROUP II MEAN
51.	health-care costs	2.56	2.60	2.50
52.	violent and nonviolent reported crime rates for adults and juveniles	2.56	2.30	3.00
Economic				
58.	per capita personal income	3.19	3.10	3.33
60.	median household income	3.31	3.40	3.17
61.	median family income	3.20	3.20	3.20
62.	income by age and race/ethnicity	2.81	2.70	3.00
63.	poverty levels by age and race/ethnicity	2.88	2.50	3.50
64.	number of households and families under poverty	3.20	3.20	3.20
65.	number of public assistance recipients	2.56	2.30	3.00
66.	wage earnings by employment sector (manufacturing, construction, government, farming, etc.)	2.50	2.40	2.67
93.	average salary by professional occupation (accountant, dentist, teacher, etc.)	2.50	2.44	2.60
67.	growth rates of each employment sector	2.81	2.90	2.67
68.	small business and major corporate growth rates	2.88	2.80	3.00
73.	work force size and growth	3.06	3.00	3.17
74.	work force participation by age, sex, and race/ethnicity	2.80	2.50	3.40
75.	occupational employment by job type (managerial, professional, sales, farming, etc.)	3.13	3.20	3.00
76.	occupational employment by sex and race/ethnicity	2.81	2.40	3.50
78.	part-time and temporary work force	2.50	2.10	3.17
79.	unemployment rates by sector, sex, and race/ethnicity	2.88	2.60	3.33

ITEM	OVERALL MEAN	GROUP I MEAN	GROUP II MEAN
81. amount spend on training/ retraining programs for workers	2.75	2.50	3.17
Political			
82. state and local government budgets: income and expenditures	3.31	3.50	3.00
83. tax burden on individuals	3.31	3.30	3.33
84. tax burden on corporations	3.07	3.00	3.20
86. voter participation by age, sex, and race/ ethnicity	2.88	2.80	3.00
Technological			
88. growth of job-related use of computers	2.93	2.70	3.40
89. number of households with computers	2.73	2.50	3.20
90. growth of high-tech industry	3.07	3.10	3.00
NOT RECOMMENDED			
Social			
10. marital status of individuals	2.44	2.10	3.00
25. female and male earnings and income	2.31	2.00	2.83
31. numbers/percentages of housing facilities available (heating equipment, sewage, telephone, etc.)	2.19	2.30	2.00
32. percentages of owner and renter housing	2.25	2.20	2.33
33. numbers of seasonal and year-round housing units	2.25	2.30	2.17
34. rates of occupancy and vacancy of housing	2.44	2.80	1.83
35. mean value of housing	2.07	2.30	1.60
36. average cost of housing	2.25	2.20	2.33
37. median percentage of household income spent on housing	2.00	2.00	2.00
40. life expectancy rates	2.00	1.90	2.20

	ITEM	OVERALL MEAN	GROUP I MEAN	GROUP II MEAN
41.	mortality rates and causes	2.00	1.70	2.60
42.	infant mortality rates and causes	2.31	1.90	3.00
43.	abnormal birth rates including low-birthweight infants	2.25	2.00	2.67
45.	incidence of mental illness by age and race/ethnicity	1.63	1.20	2.33
50.	reported cases of AIDS	2.25	2.00	2.67
53.	rates of imprisonment for adults and juveniles by sex and race/ethnicity	2.25	1.90	2.83
54.	availability and use of public transportation	2.25	2.20	2.33
55.	motor vehicle registration and car ownership	2.06	2.10	2.00
56.	percentage of use of various means of transportation to work	2.25	2.00	2.67
57.	average travel time to and from work	2.13	2.00	2.33
Economic				
59.	effective buying income	2.44	2.30	2.67
69.	rate of new business birth	2.44	2.10	3.00
70.	retail sales	1.73	1.60	2.00
71.	number/percentage of minority and female-owned businesses	1.88	1.60	2.33
72.	growth rate of foreign investment and trade	1.60	1.50	1.80
77.	employment by size of business	2.25	2.20	2.33
80.	frequency of job changes	2.38	2.30	2.50
Political				
87.	rate of use of environmental resources (water, energy, etc.)	2.06	2.10	2.00

TEN HIGHEST-SCORING ITEMS

- population size and growth rate
- population by age and race/ethnicity
- federal, state and local financial support of education
- educational levels of population
- postsecondary education participation by age, sex, and race/ethnicity
- illiteracy rates
- birth rates by age and race/ethnicity
- population geographic distribution and mobility
- number of single-parent families
- private and parochial school enrollment

Appendix G

Summary of Results

Overall and Group Means and Standard Deviations - Round I

Frequency Distribution - Round I

Additional Items Suggested During Round I

Overall and Group Means and Standard Deviations - Round II

Frequency Distribution - Round II

Overall and Group Means and Standard Deviations - Round III

Frequency Distribution - Round III

Final Results by Environmental Category - Overall Rounded Percents

Final Results by Environmental Category - Practitioners Rounded Percents

Final Results by Environmental Category - Experts Rounded Percents

Overall and Group Means and Standard Deviations
Round I

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
1	4.31	0.92	4.50	0.81	4.00	1.00
2	4.06	0.90	4.30	0.90	3.67	0.75
3	4.06	0.90	4.10	0.94	4.00	0.82
4	4.38	0.86	4.50	0.81	4.17	0.90
5	3.31	1.49	3.00	1.55	3.83	1.21
6	2.94	1.09	2.90	0.54	3.00	1.63
7	4.00	0.94	3.90	1.04	4.17	0.69
8	3.19	0.88	3.30	0.90	3.00	0.82
9	2.31	1.21	1.90	1.14	3.00	1.00
10	2.13	1.17	1.70	1.00	2.83	1.07
11	3.06	1.64	2.60	1.36	3.83	1.77
12	3.38	1.22	3.30	1.49	3.50	0.50
13	3.25	0.90	3.10	1.04	3.50	0.50
14	3.31	1.21	3.20	1.40	3.50	0.76
15	2.69	0.98	2.50	1.02	3.00	0.82
16	3.75	0.83	3.80	0.87	3.67	0.75
17	2.81	1.24	2.70	1.10	3.00	1.41
18	3.25	0.97	3.00	1.00	3.67	0.75
19	2.44	1.17	2.30	1.00	2.67	1.37
20	2.81	1.01	2.50	1.12	3.33	0.47
21	2.63	1.32	2.60	1.28	2.67	1.37
22	2.50	1.17	2.40	1.11	2.67	1.25
23	2.75	1.30	2.60	1.20	3.00	1.41
24	2.13	1.11	1.80	1.25	2.67	0.47
25	2.13	1.17	1.70	1.19	2.83	0.69
26	3.81	1.38	3.70	1.62	4.00	0.82
27	3.81	1.01	3.60	1.02	4.17	0.90
28	3.81	1.01	4.00	1.10	3.50	0.76
29	3.81	1.01	3.60	1.02	4.17	0.90
30	2.63	0.86	2.80	0.87	2.33	0.75
31	2.19	1.01	2.20	1.17	2.17	0.69
32	2.06	1.30	2.00	1.41	2.17	1.07
33	2.31	1.21	2.30	1.49	2.33	0.47
34	2.38	1.17	2.70	1.27	1.83	0.69
35	1.81	1.29	2.00	1.41	1.50	0.96

Overall and Group Means and Standard Deviations
Round I

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
36	2.19	1.33	2.20	1.60	2.17	0.69
37	1.88	0.99	1.70	1.00	2.17	0.90
38	2.88	1.27	3.10	1.22	2.50	1.26
39	2.38	1.17	2.20	0.98	2.67	1.37
40	1.75	1.25	1.60	1.36	2.00	1.00
41	1.69	1.21	1.30	1.00	2.33	1.25
42	2.13	1.17	1.60	1.11	3.00	0.58
43	2.06	1.14	1.70	1.10	2.67	0.94
44	3.69	0.58	3.50	0.50	4.00	0.58
45	1.81	1.18	1.40	0.92	2.50	1.26
46	3.63	0.60	3.50	0.50	3.83	0.69
47	3.25	0.97	3.20	1.17	3.33	0.47
48	3.75	0.66	3.70	0.64	3.83	0.69
49	3.44	0.50	3.30	0.46	3.67	0.47
50	2.25	1.35	2.00	1.26	2.67	1.37
51	2.63	1.17	2.70	1.35	2.50	0.76
52	2.50	1.32	2.20	1.17	3.00	1.41
53	2.25	1.35	1.80	1.08	3.00	1.41
54	2.38	1.32	2.10	1.37	2.83	1.07
55	1.94	1.03	1.80	1.25	2.17	0.37
56	2.13	1.17	1.70	1.00	2.83	1.07
57	2.06	1.14	1.80	1.17	2.50	0.96
58	3.31	0.77	3.30	0.90	3.33	0.47
59	2.38	1.22	2.10	1.30	2.83	0.90
60	3.13	1.36	3.30	1.35	2.83	1.34
61	2.75	1.52	2.70	1.62	2.83	1.34
62	2.50	1.46	2.30	1.73	2.83	0.69
63	2.50	1.37	2.10	1.51	3.17	0.69
64	2.75	1.25	2.80	1.17	2.67	1.37
65	2.25	1.20	2.10	1.14	2.50	1.38
66	2.25	1.27	2.50	1.02	2.67	1.60
67	2.56	1.27	2.50	1.02	2.67	1.60
68	2.69	1.16	2.60	1.02	2.83	1.34
69	2.31	1.36	2.20	1.33	2.50	1.38
70	1.63	1.17	1.40	1.02	2.00	1.29

Overall and Group Means and Standard Deviations
Round I

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
71	1.88	1.17	1.40	1.02	2.67	0.94
72	1.44	1.06	1.30	1.00	1.67	1.11
73	2.75	1.20	2.70	1.00	2.83	1.46
74	2.50	1.32	2.20	1.17	3.00	1.41
75	2.56	1.22	2.50	1.02	2.67	1.49
76	2.44	1.22	2.10	0.94	3.00	1.41
77	2.00	1.32	1.70	1.42	2.50	0.96
78	2.44	1.27	2.10	0.94	3.00	1.53
79	2.56	1.17	2.30	0.90	3.00	1.41
80	2.06	1.25	1.80	1.33	2.50	0.96
81	2.63	1.32	2.30	1.19	3.17	1.34
82	3.19	1.01	3.40	0.66	2.83	1.34
83	3.25	1.20	3.40	0.80	3.00	1.63
84	2.75	1.30	2.80	1.25	2.67	1.37
85	4.44	0.70	4.60	0.66	4.17	0.69
86	2.81	1.18	2.70	1.10	3.00	1.29
87	1.94	1.03	1.80	1.08	2.17	0.90
88	2.56	1.41	2.30	1.35	3.00	1.41
89	2.44	1.17	2.30	1.10	2.67	1.25
90	2.75	1.30	2.80	1.25	2.67	1.37

Frequency Distribution
Round I

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
1	7	1	2	0	0	0	0	3	0	3	0	0
2	6	1	3	0	0	0	1	2	3	0	0	0
3	5	1	4	0	0	0	2	2	2	0	0	0
4	7	1	2	0	0	0	3	1	2	0	0	0
5	2	2	3	1	1	1	3	0	2	1	0	0
6	0	1	7	2	0	0	1	2	1	1	0	1
7	4	2	3	1	0	0	2	3	1	0	0	0
8	2	0	7	1	0	0	0	2	2	2	0	0
9	0	0	4	3	1	2	1	1	2	2	0	0
10	0	1	0	5	3	1	0	1	3	2	0	0
11	1	1	4	2	1	1	3	2	0	0	0	1
12	3	1	4	1	0	1	1	2	3	0	0	0
13	2	0	5	3	0	0	0	3	3	0	0	0
14	1	2	5	1	0	1	1	1	4	0	0	0
15	0	1	5	3	0	1	0	2	2	2	0	0
16	3	2	5	0	0	0	1	2	3	0	0	0
17	0	2	5	2	0	1	0	3	2	0	0	1
18	1	2	3	4	0	0	1	2	3	0	0	0
19	0	1	3	5	0	1	0	1	2	1	0	1
20	0	2	3	4	0	1	0	2	4	0	0	0
21	0	3	3	2	1	1	0	2	2	1	0	1
22	0	0	5	2	1	1	0	1	4	0	0	1
23	0	3	2	4	0	1	0	3	2	0	0	1
24	0	1	2	3	2	2	0	1	3	2	0	0
25	0	1	1	4	2	2	0	0	4	2	0	0
26	5	1	2	1	0	1	2	2	2	0	0	0
27	3	1	5	1	0	0	3	1	2	0	0	0
28	5	1	3	1	0	0	1	1	4	0	0	0
29	3	1	5	1	0	0	3	1	2	0	0	0
30	1	0	5	4	0	0	0	0	3	3	0	0
31	1	0	1	7	0	1	0	0	2	3	1	0
32	0	1	4	2	0	3	0	0	3	2	0	1
33	1	1	2	4	0	2	0	0	2	4	0	0
34	1	1	4	3	0	1	0	0	1	4	1	0
35	0	1	4	2	0	3	0	0	1	3	1	1

Frequency Distribution
Round I

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
36	1	0	5	1	0	3	0	0	2	4	0	0
37	0	0	2	5	1	2	0	0	3	2	1	0
38	2	1	4	2	1	0	0	2	1	2	1	0
39	0	0	5	3	1	1	0	2	2	1	0	1
40	0	1	2	2	2	3	0	0	2	3	0	1
41	0	0	1	4	2	3	0	1	2	2	0	1
42	0	0	2	5	0	3	0	1	4	1	0	0
43	0	0	3	3	2	2	0	1	3	1	1	0
44	0	5	5	0	0	0	1	4	1	0	0	0
45	0	0	1	4	3	2	0	1	3	1	0	1
46	0	5	5	0	0	0	1	3	2	0	0	0
47	0	5	4	0	0	1	0	2	4	0	0	0
48	1	5	4	0	0	0	0	4	2	0	0	0
49	0	3	7	0	0	0	0	4	2	0	0	0
50	1	3	3	1	2	0	0	2	2	1	0	1
51	0	4	2	2	1	1	0	0	4	1	1	0
52	0	0	6	2	0	2	0	3	2	0	0	1
53	0	0	3	4	1	2	0	3	2	0	0	1
54	0	2	2	3	1	2	0	2	2	1	1	0
55	1	0	0	5	3	1	0	0	1	5	0	0
56	0	0	2	5	1	2	0	2	2	2	0	0
57	0	1	1	5	1	2	0	1	2	3	0	0
58	1	3	4	2	0	0	0	2	4	0	0	0
59	0	1	4	2	1	2	0	2	1	3	0	0
60	2	2	5	0	0	1	0	2	3	0	0	1
61	1	3	2	2	0	2	0	2	3	0	0	0
62	1	2	2	2	0	3	0	1	3	2	0	0
63	0	2	3	2	0	3	0	2	3	1	0	0
64	1	0	7	1	0	1	0	2	2	1	0	1
65	0	0	5	3	0	2	0	2	1	2	0	1
66	0	0	4	3	1	2	0	2	2	1	1	0
67	0	1	5	3	0	1	0	3	1	0	1	1
68	0	1	6	2	0	1	0	2	3	0	0	1
69	0	1	5	1	1	2	0	2	1	2	0	1
70	0	0	1	5	1	3	0	1	1	2	1	1

Frequency Distribution
Round I

Item	PRACTITIONERS MSR	SR	R	NR	SNR	U	EXPERTS MSR	SR	R	NR	SNR	U
71	0	0	1	5	1	3	0	1	3	1	1	0
72	0	0	1	4	2	3	0	0	2	1	2	1
73	0	1	7	1	0	1	0	3	1	1	0	1
74	0	0	6	2	0	2	0	3	2	0	0	1
75	0	1	5	3	0	1	0	3	0	2	0	1
76	0	0	4	4	1	1	0	3	2	0	0	1
77	0	1	3	1	2	3	0	1	2	2	1	0
78	0	0	4	4	1	1	0	4	0	1	0	1
79	0	0	5	4	0	1	0	3	2	0	0	1
80	0	0	5	1	1	3	0	1	2	2	1	0
81	0	0	7	1	0	2	1	2	1	1	1	0
82	1	2	7	0	0	0	0	2	3	0	0	1
83	1	3	5	1	0	0	1	2	1	1	0	1
84	1	1	5	2	0	1	0	2	2	1	0	1
85	7	2	1	0	0	0	2	3	1	0	0	0
86	0	2	5	2	0	1	1	1	2	1	1	0
87	0	0	3	4	1	2	0	0	3	1	2	0
88	0	1	6	0	1	2	0	3	2	0	0	1
89	0	1	4	3	1	1	0	1	4	0	0	1
90	1	1	5	2	0	1	0	2	2	1	0	1

Additional Items Suggested During Round I

From Practitioners

- data on student achievement
- perceptual data--from employers, from colleges
- reform, state and federal policies on educational change
- standards, state and federal initiatives to change educational standards
- curriculum, initiatives to change the content of education
- teachers, goals of unions
- teachers, reform in teacher education
- teacher availability
- changing work conditions (e.g. flex time, etc.)
- environmental issues (e.g. hazardous wastes, etc.)
- pre-school programs in community
- households without school-age children

From Experts

- number, age, location of schools
- number of new teachers each year, number of retirees
- education majors--freshmen, sophomore, junior, senior, by discipline
- compensation rates by profession per hour worked
- turnover rate for teachers, where are they going?

Overall and Group Means and Standard Deviations
Round II

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
1	4.50	0.79	4.90	0.30	3.83	0.90
2	4.06	0.55	4.30	0.46	3.67	0.47
3	4.13	0.59	4.00	0.45	4.33	0.75
4	4.81	0.39	4.80	0.40	4.83	0.37
5	3.44	1.17	3.20	1.80	3.83	1.21
6	3.06	0.74	2.90	0.54	3.33	0.94
7	4.00	0.86	3.90	0.94	4.17	0.69
8	3.13	0.69	3.30	0.64	2.83	0.69
9	2.69	0.98	2.30	0.78	3.33	0.94
10	2.44	0.70	2.10	0.54	3.00	0.58
11	3.50	0.93	2.90	0.54	4.50	0.50
12	3.63	0.69	3.50	0.67	3.83	0.69
13	3.50	0.79	3.10	0.70	4.17	0.37
14	3.50	0.79	3.30	0.78	3.83	0.69
15	2.75	0.55	2.70	0.46	2.83	0.69
16	3.88	0.69	3.80	0.60	4.00	0.82
17	3.07	0.57	2.90	0.54	3.40	0.49
18	3.13	0.69	2.80	0.60	3.67	0.47
19	2.63	0.59	2.50	0.50	2.83	0.69
20	3.06	0.74	2.90	0.83	3.33	0.47
21	3.07	0.67	3.10	0.70	3.00	0.63
22	2.80	0.40	2.70	0.46	3.00	0.00
23	3.19	0.72	3.00	0.77	3.50	0.50
24	2.44	0.60	2.20	0.60	2.83	0.37
25	2.25	0.55	2.00	0.45	2.67	0.47
26	4.44	0.60	4.40	0.66	4.50	0.50
27	4.13	0.78	3.70	0.64	4.83	0.37
28	4.25	0.66	4.30	0.64	4.17	0.69
29	3.94	0.82	3.70	0.78	4.33	0.75
30	2.56	0.49	2.70	0.46	2.33	0.47
31	2.19	0.63	2.30	0.64	2.00	0.58
32	2.25	0.43	2.20	0.40	2.33	0.47
33	2.25	0.55	2.30	0.64	2.17	0.37
34	2.50	0.86	2.90	0.70	1.83	0.69
35	2.20	0.74	2.50	0.67	1.60	0.49

Overall and Group Means and Standard Deviations
Round II

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
36	2.44	0.60	2.50	0.67	2.33	0.47
37	2.00	0.35	2.00	0.00	2.00	0.58
38	2.94	1.08	3.10	0.94	2.67	1.25
39	2.67	0.59	2.40	0.49	3.20	0.40
40	2.00	0.63	1.90	0.70	2.20	0.40
41	1.93	0.67	1.60	0.49	2.60	0.49
42	2.38	0.69	2.00	0.45	3.00	0.58
43	2.25	0.75	2.00	0.45	2.67	0.94
44	3.81	0.52	3.70	0.46	4.00	0.58
45	1.56	0.78	1.00	0.00	2.50	0.50
46	3.63	0.59	3.50	0.50	3.83	0.69
47	2.94	0.42	2.90	0.30	3.00	0.58
48	3.69	0.58	3.60	0.66	3.83	0.37
49	3.44	0.49	3.20	0.40	3.83	0.37
50	2.40	0.61	2.10	0.30	3.00	0.63
51	2.50	0.79	2.60	0.80	2.33	0.75
52	2.67	0.69	2.30	0.46	3.40	0.49
53	2.31	0.68	1.90	0.30	3.00	0.58
54	2.31	0.84	2.10	0.70	2.67	0.94
55	2.06	0.65	2.10	0.70	2.00	0.58
56	2.19	0.80	1.90	0.54	2.67	0.94
57	2.19	0.72	2.00	0.45	2.50	0.96
58	3.19	0.63	3.10	0.70	3.33	0.47
59	2.44	0.60	2.30	0.46	2.67	0.75
60	3.31	0.68	3.40	0.66	3.17	0.69
61	3.20	0.74	3.20	0.87	3.20	0.40
62	2.81	0.72	2.70	0.78	3.00	0.58
63	2.75	0.75	2.40	0.66	3.33	0.47
64	3.20	0.65	3.20	0.60	3.20	0.75
65	2.44	0.60	2.20	0.40	2.83	0.69
66	2.44	0.86	2.40	0.49	2.50	1.26
67	2.81	0.88	2.90	0.54	2.67	1.25
68	2.88	0.48	2.80	0.40	3.00	0.58
69	2.40	0.61	2.10	0.30	3.00	0.63
70	1.60	0.71	1.30	0.46	2.20	0.75

Overall and Group Means and Standard Deviations
Round II

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
71	1.88	0.78	1.60	0.66	2.33	0.75
72	1.60	0.71	1.50	0.81	1.80	0.40
73	3.06	0.55	3.00	0.45	3.17	0.69
74	2.80	0.74	2.50	0.67	3.40	0.49
75	3.13	0.69	3.20	0.60	3.00	0.82
76	2.73	0.92	2.30	0.78	3.60	0.49
77	2.25	0.66	2.20	0.60	2.33	0.75
78	2.47	0.80	2.10	0.54	3.20	0.75
79	2.75	0.82	2.40	0.66	3.33	0.75
80	2.38	0.48	2.30	0.46	2.50	0.50
81	2.63	0.92	2.40	0.49	3.00	1.29
82	3.38	0.59	3.60	0.66	3.00	0.00
83	3.31	0.84	3.30	0.78	3.33	0.94
84	3.07	0.57	3.00	0.45	3.20	0.75
85	4.69	0.46	4.80	0.40	4.50	0.50
86	2.88	0.85	2.80	0.40	3.00	1.29
87	2.06	0.65	2.10	0.54	2.00	0.82
88	2.93	0.77	2.70	0.78	3.40	0.49
89	2.73	0.67	2.50	0.67	3.20	0.40
90	3.07	0.67	3.10	0.70	3.00	0.63
91	3.55	0.91	3.56	0.96	3.50	0.78
92	3.70	0.72	3.67	0.67	4.00	0.83
93	2.55	0.63	2.44	0.68	3.00	0.43
94	2.64	0.97	2.56	0.83	3.00	1.09

Frequency Distribution
Round II

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
1	9	1	0	0	0	0	2	1	3	0	0	0
2	3	7	0	0	0	0	0	4	2	0	0	0
3	1	8	1	0	0	0	3	2	1	0	0	0
4	8	2	0	0	0	0	5	1	0	0	0	0
5	1	3	4	1	1	0	3	0	2	1	0	0
6	0	1	7	2	0	0	1	1	3	1	0	0
7	3	4	2	1	0	0	2	3	1	0	0	0
8	1	1	8	0	0	0	0	1	3	2	0	0
9	0	1	2	6	1	0	1	1	3	1	0	0
10	0	0	2	7	1	0	0	1	4	1	0	0
11	0	1	7	2	0	0	3	3	0	0	0	0
12	1	3	6	0	0	0	1	3	2	0	0	0
13	0	3	5	2	0	0	1	5	0	0	0	0
14	1	2	6	1	0	0	1	3	2	0	0	0
15	0	0	7	3	0	0	0	1	3	2	0	0
16	1	6	3	0	0	0	2	2	2	0	0	0
17	0	1	7	2	0	0	0	2	3	0	0	1
18	0	1	6	3	0	0	0	4	2	0	0	0
19	0	0	5	5	0	0	0	1	3	2	0	0
20	0	3	5	2	0	0	0	2	4	0	0	0
21	0	3	5	2	0	0	0	1	3	1	0	1
22	0	0	7	3	0	0	0	0	5	0	0	1
23	0	3	4	3	0	0	0	3	3	0	0	0
24	0	0	3	6	1	0	0	0	5	1	0	0
25	0	0	1	8	1	0	0	0	4	2	0	0
26	5	4	1	0	0	0	3	3	0	0	0	0
27	1	5	4	0	0	0	5	1	0	0	0	0
28	4	5	1	0	0	0	2	3	1	0	0	0
29	1	6	2	1	0	0	3	2	1	0	0	0
30	0	0	7	3	0	0	0	0	2	4	0	0
31	0	1	1	8	0	0	0	0	1	4	1	0
32	0	0	2	8	0	0	0	0	2	4	0	0
33	0	1	1	8	0	0	0	0	1	5	0	0
34	0	2	5	3	0	0	0	0	1	3	2	0
35	0	1	3	5	0	0	0	0	0	3	2	1

Frequency Distribution
Round II

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
36	0	1	3	6	0	0	0	0	2	4	0	0
37	0	0	0	10	0	0	0	0	1	4	1	0
38	1	1	7	0	1	0	0	2	2	0	2	0
39	0	0	4	6	0	0	0	1	4	0	0	1
40	0	0	2	5	3	0	0	0	1	4	0	1
41	0	0	0	6	4	0	0	0	3	2	0	1
42	0	0	1	8	1	0	0	1	4	1	0	0
43	0	0	1	8	1	0	0	1	3	1	1	0
44	0	7	3	0	0	0	1	4	1	0	0	0
45	0	0	0	0	10	0	0	0	3	3	0	0
46	0	5	5	0	0	0	1	3	2	0	0	0
47	0	0	9	1	0	0	0	1	4	1	0	0
48	1	4	5	0	0	0	0	5	1	0	0	0
49	0	2	8	0	0	0	0	5	1	0	0	0
50	0	0	1	9	0	0	0	1	3	1	0	1
51	0	1	5	3	1	0	0	0	3	2	1	0
52	0	0	3	7	0	0	0	2	3	0	0	1
53	0	0	0	9	1	0	0	1	4	1	0	0
54	0	1	0	8	1	0	0	1	3	1	1	0
55	0	1	0	8	1	0	0	0	1	4	1	0
56	0	0	1	7	2	0	0	1	3	1	1	0
57	0	0	1	8	1	0	0	1	2	2	1	0
58	0	3	5	2	0	0	0	2	4	0	0	0
59	0	0	3	7	0	0	0	1	2	3	0	0
60	1	2	7	0	0	0	0	2	3	1	0	0
61	1	2	5	2	0	0	0	1	4	0	0	1
62	0	2	3	5	0	0	0	1	4	1	0	0
63	0	1	2	7	0	0	0	2	4	0	0	0
64	1	0	9	0	0	0	0	2	2	1	0	1
65	0	0	2	8	0	0	0	1	3	2	0	0
66	0	0	4	6	0	0	0	2	1	1	2	0
67	0	1	7	2	0	0	0	2	2	0	2	0
68	0	0	8	2	0	0	0	1	4	1	0	0
69	0	0	1	9	0	0	0	1	3	1	0	1
70	0	0	0	3	7	0	0	0	2	2	1	1

Frequency Distribution
Round II

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
71	0	0	1	4	5	0	0	0	3	2	1	0
72	0	0	2	1	7	0	0	0	0	4	1	1
73	0	1	8	1	0	0	0	2	3	1	0	0
74	0	1	3	6	0	0	0	2	3	0	0	1
75	0	3	6	1	0	0	0	2	2	2	0	0
76	0	1	2	6	1	0	0	3	2	0	0	1
77	0	0	3	6	1	0	0	0	3	2	1	0
78	0	0	2	7	1	0	0	2	2	1	0	1
79	0	1	2	7	0	0	0	3	2	1	0	0
80	0	0	3	7	0	0	0	0	3	3	0	0
81	0	0	4	6	0	0	1	1	2	1	1	0
82	1	4	5	0	0	0	0	0	6	0	0	0
83	1	2	6	1	0	0	1	1	3	1	0	0
84	0	1	8	1	0	0	0	2	2	1	0	1
85	8	2	0	0	0	0	3	3	0	0	0	0
86	0	0	8	2	0	0	1	1	2	1	1	0
87	0	0	2	7	1	0	0	0	2	2	2	0
88	0	2	3	5	0	0	0	2	3	0	0	1
89	0	1	3	6	0	0	0	1	4	0	0	1
90	0	3	5	2	0	0	0	1	3	1	0	1
91	2	2	4	1	0	1	1	2	1	0	0	2
92	1	4	4	0	0	1	1	1	2	0	0	2
93	0	1	2	6	0	1	0	0	3	1	0	2
94	0	1	4	3	1	1	1	0	2	1	0	2

Overall and Group Means and Standard Deviations
Round III

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
1	4.81	0.39	4.90	0.30	4.67	0.47
2	4.06	0.56	4.30	0.46	3.67	0.47
3	4.13	0.60	4.00	0.45	4.33	0.75
4	4.81	0.39	4.80	0.40	4.83	0.37
5	3.75	1.09	3.50	1.12	4.17	0.90
6	3.06	0.75	2.90	0.54	3.33	0.94
7	4.00	0.87	3.90	0.94	4.17	0.69
8	3.13	0.70	3.30	0.64	2.83	0.69
9	2.81	0.88	2.40	0.49	3.50	0.96
10	2.44	0.70	2.10	0.54	3.00	0.58
11	3.69	0.85	3.10	0.30	4.67	0.47
12	3.63	0.70	3.50	0.67	3.83	0.69
13	3.44	0.61	3.20	0.60	3.83	0.37
14	3.56	0.79	3.40	0.80	3.83	0.69
15	2.75	0.56	2.70	0.46	2.83	0.69
16	3.88	0.70	3.80	0.60	4.00	0.82
17	3.07	0.57	2.90	0.54	3.40	0.49
18	3.25	0.56	3.00	0.45	3.67	0.47
19	2.63	0.60	2.50	0.50	2.83	0.69
20	3.06	0.75	2.90	0.83	3.33	0.47
21	3.07	0.68	3.10	0.70	3.00	0.63
22	2.80	0.40	2.70	0.46	3.00	0.00
23	3.25	0.66	3.00	0.63	3.67	0.47
24	2.50	0.71	2.20	0.60	3.00	0.58
25	2.31	0.58	2.00	0.45	2.83	0.37
26	4.44	0.61	4.40	0.66	4.50	0.50
27	4.13	0.78	3.70	0.64	4.83	0.37
28	4.25	0.66	4.30	0.64	4.17	0.69
29	3.94	0.83	3.70	0.78	4.33	0.75
30	2.56	0.50	2.70	0.46	2.33	0.47
31	2.19	0.63	2.30	0.64	2.00	0.58
32	2.25	0.43	2.20	0.40	2.33	0.47
33	2.25	0.56	2.30	0.64	2.17	0.37
34	2.44	0.79	2.80	0.60	1.83	0.69
35	2.07	0.57	2.30	0.46	1.60	0.49

Overall and Group Means and Standard Deviations
Round III

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
36	2.25	0.43	2.20	0.40	2.33	0.47
37	2.00	0.35	2.00	0.00	2.00	0.58
38	2.94	1.09	3.10	0.94	2.67	1.25
39	2.56	0.61	2.40	0.49	2.83	0.69
40	2.00	0.63	1.90	0.70	2.20	0.40
41	2.00	0.63	1.70	0.46	2.60	0.49
42	2.31	0.68	1.90	0.30	3.00	0.58
43	2.25	0.56	2.00	0.45	2.67	0.47
44	3.81	0.53	3.70	0.46	4.00	0.58
45	1.63	0.78	1.20	0.40	2.33	0.75
46	3.63	0.60	3.50	0.50	3.83	0.69
47	2.94	0.43	2.90	0.30	3.00	0.58
48	3.69	0.58	3.60	0.66	3.83	0.37
49	3.38	0.48	3.20	0.40	3.67	0.47
50	2.25	0.75	2.00	0.45	2.67	0.94
51	2.56	0.70	2.60	0.80	2.50	0.50
52	2.56	0.61	2.30	0.46	3.00	0.58
53	2.25	0.75	1.90	0.30	3.00	0.90
54	2.25	0.83	2.20	0.60	2.33	1.11
55	2.06	0.66	2.10	0.70	2.00	0.58
56	2.25	0.75	2.00	0.45	2.67	0.94
57	2.13	0.70	2.00	0.45	2.33	0.94
58	3.19	0.63	3.10	0.70	3.33	0.47
59	2.44	0.61	2.30	0.46	2.67	0.75
60	3.31	0.68	3.40	0.66	3.17	0.69
61	3.20	0.75	3.20	0.87	3.20	0.40
62	2.81	0.73	2.70	0.78	3.00	0.58
63	2.88	0.78	2.50	0.67	3.50	0.50
64	3.20	0.65	3.20	0.60	3.20	0.75
65	2.56	0.61	2.30	0.46	3.00	0.58
66	2.50	0.61	2.40	0.49	2.67	0.75
67	2.81	0.88	2.90	0.54	2.67	1.25
68	2.88	0.48	2.80	0.40	3.00	0.58
69	2.44	0.61	2.10	0.30	3.00	0.58
70	1.73	0.57	1.60	0.49	2.00	0.63

Overall and Group Means and Standard Deviations
Round III

Item	Overall Mean	Overall St D	Pract. Mean	Pract. St D	Expert Mean	Expert St D
71	1.88	0.78	1.60	0.66	2.33	0.75
72	1.60	0.71	1.50	0.81	1.80	0.40
73	3.06	0.56	3.00	0.45	3.17	0.69
74	2.80	0.75	2.50	0.67	3.40	0.49
75	3.13	0.70	3.20	0.60	3.00	0.82
76	2.81	0.88	2.40	0.80	3.50	0.50
77	2.25	0.66	2.20	0.60	2.33	0.75
78	2.50	0.71	2.10	0.30	3.17	0.69
79	2.88	0.78	2.60	0.66	3.33	0.75
80	2.38	0.48	2.30	0.46	2.50	0.50
81	2.75	0.75	2.50	0.50	3.17	0.90
82	3.31	0.58	3.50	0.67	3.00	0.00
83	3.31	0.85	3.30	0.78	3.33	0.94
84	3.07	0.57	3.00	0.45	3.20	0.75
85	4.69	0.46	4.80	0.40	4.50	0.50
86	2.88	0.86	2.80	0.40	3.00	1.29
87	2.06	0.66	2.10	0.54	2.00	0.82
88	2.93	0.77	2.70	0.78	3.40	0.49
89	2.73	0.68	2.50	0.67	3.20	0.40
90	3.07	0.68	3.10	0.70	3.00	0.63
91	3.55	0.91	3.56	0.96	3.50	0.78
92	3.70	0.72	3.67	0.67	4.00	0.99
93	2.55	0.63	2.44	0.68	3.00	0.43
94	2.64	0.97	2.56	0.83	3.00	1.09

Frequency Distribution
Round III

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
1	9	1	0	0	0	0	4	2	0	0	0	0
2	3	7	0	0	0	0	0	4	2	0	0	0
3	1	8	1	0	0	0	3	2	1	0	0	0
4	8	2	0	0	0	0	5	1	0	0	0	0
5	2	3	4	0	1	0	3	1	2	0	0	0
6	0	1	7	2	0	0	1	1	3	1	0	0
7	3	4	2	1	0	0	2	3	1	0	0	0
8	1	1	8	0	0	0	0	1	3	2	0	0
9	0	0	4	6	0	0	1	2	2	1	0	0
10	0	0	2	7	1	0	0	1	4	1	0	0
11	0	1	9	0	0	0	4	2	0	0	0	0
12	1	3	6	0	0	0	1	3	2	0	0	0
13	0	3	6	1	0	0	0	5	1	0	0	0
14	1	3	5	1	0	0	1	3	2	0	0	0
15	0	0	7	3	0	0	0	1	3	2	0	0
16	1	6	3	0	0	0	2	2	2	0	0	0
17	0	1	7	2	0	0	0	2	3	0	0	1
18	0	1	8	1	0	0	0	4	2	0	0	0
19	0	0	5	5	0	0	0	1	3	2	0	0
20	1	0	6	3	0	0	0	2	4	0	0	0
21	0	3	5	2	0	0	0	1	3	1	0	1
22	0	0	7	3	0	0	0	0	5	0	0	1
23	0	2	6	2	0	0	0	4	2	0	0	0
24	0	0	3	6	1	0	0	1	4	1	0	0
25	0	0	1	8	1	0	0	0	5	1	0	0
26	5	4	1	0	0	0	3	3	0	0	0	0
27	1	5	4	0	0	0	5	1	0	0	0	0
28	4	5	1	0	0	0	2	3	1	0	0	0
29	1	6	2	1	0	0	3	2	1	0	0	0
30	0	0	7	3	0	0	0	0	2	4	0	0
31	0	1	1	8	0	0	0	0	1	4	1	0
32	0	0	2	8	0	0	0	0	2	4	0	0
33	0	1	1	8	0	0	0	0	1	5	0	0
34	0	1	6	3	0	0	0	0	1	3	2	0
35	0	0	3	7	0	0	0	0	0	3	2	1

Frequency Distribution
Round III

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
36	0	0	2	8	0	0	0	0	2	4	0	0
37	0	0	0	10	0	0	0	0	1	4	1	0
38	1	1	7	0	1	0	0	2	2	0	2	0
39	0	0	4	6	0	0	0	1	3	2	0	0
40	0	0	2	5	3	0	0	0	1	4	0	1
41	0	0	0	7	3	0	0	0	3	2	0	1
42	0	0	0	9	1	0	0	1	4	1	0	0
43	0	0	1	8	1	0	0	0	4	2	0	0
44	0	7	3	0	0	0	1	4	1	0	0	0
45	0	0	0	2	8	0	0	0	3	2	1	0
46	0	5	5	0	0	0	1	3	2	0	0	0
47	0	0	9	1	0	0	0	1	4	1	0	0
48	1	4	5	0	0	0	0	5	1	0	0	0
49	0	2	8	0	0	0	0	4	2	0	0	0
50	0	0	1	8	1	0	0	1	3	1	1	0
51	0	1	5	3	1	0	0	0	3	3	0	0
52	0	0	3	7	0	0	0	1	4	0	0	1
53	0	0	0	9	1	0	0	1	4	0	1	0
54	0	1	0	9	0	0	0	1	2	1	2	0
55	0	1	0	8	1	0	0	0	1	4	1	0
56	0	0	1	8	1	0	0	1	3	1	1	0
57	0	0	1	8	1	0	0	1	1	3	1	0
58	0	3	5	2	0	0	0	2	4	0	0	0
59	0	0	3	7	0	0	0	1	2	3	0	0
60	1	2	7	0	0	0	0	2	3	1	0	0
61	1	2	5	2	0	0	0	1	4	0	0	1
62	0	2	3	5	0	0	0	1	4	1	0	0
63	0	1	3	6	0	0	0	3	3	0	0	0
64	1	0	9	0	0	0	0	2	2	1	0	1
65	0	0	3	7	0	0	0	1	4	1	0	0
66	0	0	4	6	0	0	0	1	2	3	0	0
67	0	1	7	2	0	0	0	2	2	0	2	0
68	0	0	8	2	0	0	0	1	4	1	0	0
69	0	0	1	9	0	0	0	1	4	1	0	0
70	0	0	0	6	4	0	0	0	1	3	1	1

Frequency Distribution
Round III

	PRACTITIONERS						EXPERTS					
Item	MSR	SR	R	NR	SNR	U	MSR	SR	R	NR	SNR	U
71	0	0	1	4	5	0	0	0	3	2	1	0
72	0	0	2	1	7	0	0	0	0	4	1	1
73	0	1	8	1	0	0	0	2	3	1	0	0
74	0	1	3	6	0	0	0	2	3	0	0	1
75	0	3	6	1	0	0	0	2	2	2	0	0
76	0	1	3	5	1	0	0	3	3	0	0	0
77	0	0	3	6	1	0	0	0	3	2	1	0
78	0	0	1	9	0	0	0	2	3	1	0	0
79	0	1	4	5	0	0	0	3	2	1	0	0
80	0	0	3	7	0	0	0	0	3	3	0	0
81	0	0	5	5	0	0	1	0	4	1	0	0
82	1	3	6	0	0	0	0	0	6	0	0	0
83	1	2	6	1	0	0	1	1	3	1	0	0
84	0	1	8	1	0	0	0	2	2	1	0	1
85	8	2	0	0	0	0	3	3	0	0	0	0
86	0	0	8	2	0	0	1	1	2	1	1	0
87	0	0	2	7	1	0	0	0	2	2	2	0
88	0	2	3	5	0	0	0	2	3	0	0	1
89	0	1	3	6	0	0	0	1	4	0	0	1
90	0	3	5	2	0	0	0	1	3	1	0	1
91	2	2	4	1	0	1	1	2	1	0	0	2
92	1	4	4	0	0	1	1	1	2	0	0	2
93	0	0	4	5	0	1	0	0	4	1	0	1
94	0	1	4	3	1	1	1	0	2	1	0	2

Final Results by Environmental Category
Overall Rounded Percents

Category	Total Items	MSR	SR	R	NR	SNR
SOCIAL	60	3	27	37	33	0
population	5	40	60	0	0	0
family/households	7		43	43	14	0
minorities	9	0	33	67	0	0
women	5	0	0	80	20	0
education	6	0	67	33	0	0
housing	10	0	0	30	70	0
health	12	0	25	25	50	0
crime	2	0	0	50	50	0
transportation	4	0	0	0	100	0
ECONOMIC	25	0	0	72	28	0
income	10	0	0	90	10	0
economic structure	6	0	0	33	67	0
employment	9	0	0	78	22	0
POLITICAL	6	17	0	67	17	0
TECHNOLOGICAL	3	0	0	100	0	0
TOTAL	94	3	17	50	30	0

Final Results by Environmental Category
Practitioners Rounded Percents

Category	Total Items	MSR	SR	R	NR	SNR
SOCIAL	60	3	23	35	37	2
population	5	40	60	0	0	0
family/households	7		29	43	29	0
minorities	9	0	22	78	0	0
women	5	0	0	60	40	0
education	6	0	67	33	0	0
housing	10	0	0	30	70	0
health	12	0	25	25	42	8
crime	2	0	0	0	100	0
transportation	4	0	0	0	100	0
ECONOMIC	25	0	0	52	48	0
income	10	0	0	60	40	0
economic structure	6	0	0	33	67	0
employment	9	0	0	56	44	0
POLITICAL	6	17	17	50	17	0
TECHNOLOGICAL	3	0	0	100	0	0
TOTAL	94	3	16	43	37	2

Final Results by Environmental Category
Experts Rounded Percents

Category	Total Items	MSR	SR	R	NR	SNR
SOCIAL	60	8	28	40	23	0
population	5	40	60	0	0	0
family/households	7	14	29	57	0	0
minorities	9	0	56	44	0	0
women	5	0	20	80	0	0
education	6	33	33	17	17	0
housing	10	0	0	20	80	0
health	12	0	33	50	16	0
crime	2	0	0	100	0	0
transportation	4	0	0	25	75	0
ECONOMIC	25	0	8	76	16	0
income	10	0	10	90	0	0
economic structure	6	0	0	50	50	0
employment	9	0	11	79	11	0
POLITICAL	6	17	0	66	17	0
TECHNOLOGICAL	3	0	0	100	0	0
TOTAL	94	6	27	53	20	0

Appendix H

Comments

Comments Round I

Comments Round II

Comments Round III

Responses to Summary Questions

Observations and Comments Regarding Specific Items

Note: Comments cited in their entirety in the body of the text are not repeated here. The source of the comments is indicated with a P for Practitioner and an E for Expert. All comments regarding specific items appear in the separate section at the end of this appendix.

COMMENTS ROUND I

many items are redundant. I put most of those in the undecided pile. (P)

Good luck! (P)

Areas in which I placed cards as "strongly not recommended" or "probably not recommended" may be vital information for someone else/s survey or scan (P)

Since I took your instructions to mean degree of recommendation for, I did not eliminate any. In other words, I sorted before seeing the definitions on the yellow cards. So, you have a continuous distribution from me. (P)

Well thought out exercise. Good luck. (P)

A number of my cards in file 4 were placed there because you have so much to do in files 1-3! Good luck on your doctoral study. (E)

Sorting can be done with different priorities depending on the interest of the educator - administrator, teacher, curriculum developer, etc. or whether you're looking at data from a national, state, local or building perspective. Discrete ranking is not as important as clustering those trends that can have the most dramatic impact. (P)

[On "Probably Not Recommended" header card] classified reluctantly. How do we know these will not be important in future? [On "undecided" header card] This should be the biggest group. Please don't take letter the wrong way. I really hope your study can be accomplished. I'm sorry I did not respond sooner to your request. I tried to follow your directions, but I question the underlying assumptions of your study. If I understand your study correctly, you are trying to determine what variables are critical to schools in order to

develop a check-list of some sort. It is your belief that most school administrators do not know what variables to scan for because there is no guidance.
The problem with such a check list is two fold. First, what are important variables today are not necessarily important tomorrow and vise versa. The basic rational for scanning is not to track demographic or economic or other forms of data for variables we presently consider important. Rather, it is to look at signals discontinuities that while they might not be or have been important, could be important in the future. The very notion of a discontinuity in the environment of an organizational system is that it is "unique" to our experience (i.e. it has not happened in the past). What a check list represents is what has happened in the past and what we have made part of our experience base. If decision-makers look for those developments that have been experienced in the past, they are going to miss the unique changes/discontinuities of the future. Consequently, their scanning activities will be done through the perceptual filter of a check list reflecting the past or at the very worst, the present. To respond proactively to a turbulent environment is to seek out the atypical/unfamiliar change in the environment, not the familiar.

I'm sure school people will love a check list; it will save time. But, will it really facilitate them truly developing the skills and knowledge necessary to spot emerging change in their environment so that they have time to formulate strategy to either adapt to that change or head the change off. Think about that.

I hope my comments will contribute to strengthening your study.

Tough job--in almost all of the items, a sharp change in trend lines would be important. I do not recommend identifying specific (narrow) categories and telling scanners to find info about these categories. Rather, I ask them to look for potential changes in the broad STEP sectors--social, technological, economic, political. Schools must anticipate potential changes in the external environment for effective, creative planning--not look for which sectors are considered a priori important.
[regarding directions] too laborious

I really do not agree with your premise that some items are much more important than others. The critical factor is degree of actual or potential change in almost any of the items you identified--and this will vary by time and location. (E)

COMMENTS ROUND II

Very confusing, but I managed. (P)

I'm sorry that I didn't send this back sooner--cards are fine in the order as presented. (P)

Went well, interesting information--you are on your way! (P)

If I would have had more time I would provide more supporting comments. In general, employment and economic and finance information are very important for strategic planning. (E)

I'm close to the mean most of the time. Where I differ my "different" opinion seems valid (to me). Good luck on the remainder of your work. I'd like to see a short summary. (E)

Sorry about the delay. (E)

I am late because I am busy and overcommitted. Sorry. Your checklist is really for environmental monitoring--not scanning. That is, you have identified categories that (after you spend some time getting a better handle on measurement) can be used to get data from electronic data banks or local agencies, both historical and projected. This is a slight, but important distinction. I suggest that you include some examples (scenarios?) as to how the information could be used, and do it in such a way as to provide methodological exemplar they could follow as to how to use the information. (E)

COMMENTS ROUND III

The key question in asking for data is "to what END?" If someone cannot answer that, then the data should not be requested. (P)

Sorry--can't give this much time with the press of closing school, etc. (P)

I will be very interested in your results. I enjoyed the process. Good luck in finalizing and writing your paper. (P)

Enclosed you will find the cards, and I wish you well in the pursuit of your degree. Seeing I have put in some time assisting you in that direction I would like to make a couple of comments. One, I found your choice of terms interesting, "expert" vs. "practitioner." I inferred from this that if one is a "practitioner" one certainly cannot be an "expert." Also, that the "experts" are not in local school districts, but are in the universities and in business. Coming from business, having a Ph.D. in statistics and teaching at the university, I feel that the expertise at the local level equals that which I have found at either of the other types of organizations.

In response to your question about a discrepancy, I would say that it is a result of the very notion of having the "experts" removed from what is actually occurring. For example, the "experts" gave a four to item number one, population, size and growth rate; where the "practitioner" gave a score of five. How could one possibly do any strategic planning without knowing the size of the population one is planning for, and the corresponding growth rate of that population. Yet on an item such as number 43, abnormal birth rates including low birthweight infants, the "expert"s recommended that this be included, while the practitioners recommended that it not be included. If one is talking about strategic planning for a school district, I am not sure what information can be gleaned from the birthweight of infants in the overall planning process. It would appear that in most cases the "experts" tended to give a higher weight to the items than did the "practitioners." This was true except for items such as: population size and growth rate, population by age and race/ethnicity, [sic] federal, state and local financial support of education. The "experts" are giving less weight to the size and demographics of the population that they are planning for, and the finances which are needed to deliver education to these populations. They in turn give more weight to the items such as, birthweight and how people get to work. These are items which I fail to see the importance in planning for a local school district, but then as you have indicated I am not the "expert" but only a

"practitioner." I would attribute the overall higher scores to where the "experts" are from. If my assumption is that a number are university professors, then that is their view of their role. That is, to look at as many factors as possible and have some poor graduate student, and I am assuming that you can identify with poor graduate students, pump them through a computer until something pops out. A "practitioner" is more interested in the information that is usable, and can be a valuable piece in an overall strategic planning model.

Again, good luck in your dissertation, but please not use the terms "expert" and "practitioner" in it. A "practitioner" might take umbrage with them and you may have one "expert" who actually has done planning in a real (school district) setting.

P.S. However, if your major professor is one of the "experts" by all means keep her happy. (P)

Well constructed exercise - you administered it admirably. (P)

Good job in conducting a Delphi. (E)

Good luck on your fine venture. I look forward to readinggg your findings. (E)

Again as I've said before discrete ranking is not important in trend selection. The key is the purpose of trend analysis -- what will be important for school building planning will be different from instructional planning, etc. (E)

It is unclear on your listed items if you are referring to national, regional, state or local trend data. My criteria for scanning is to select indicators that are key to implications for public schooling, particularly if they may shift. Although laborious, it would be instructive to obtain rationales for top 10 selections and bottom 10 selections. (E)

RESPONSES TO SUMMARY QUESTIONS

Concerning planning perspective:
mostly facilities: 1 Practitioner
mostly curriculum: 0
equally both: 6 Practitioners, 4 Experts

Concerning titles for the two groups:

Substitute "professional planners" or "theorists" for experts (P)

Not a problem! (P)

Line/staff or practical/clinical (P)

LEA or school district practitioner/expert - nonLEA practitioner/expert (P)

Inside and outside or educational and other (P)

I think Group I and II are significant without any other labels. You simply define the groups as in the cover letter with this form - thus, no one's feathers get ruffled in the labeling process. (P)

Public school planners and futurist-consultants (E)

Planners - managers (E)

I think the distinction and controversy is moot and not worth any time. All it reveals is the ignorance of whoever raised the objection regarding the concept of what constitutes "validity" in forecasting studies. If one thinks of "validity" in the traditional sense, the distinction between practitioner and experts might be important. However the concept of "validity" in futures studies/research and forecasting relates to how useful is the forecast. Forecasts are not thought to necessarily be accurate in the traditional sense of statistical validation because no one knows the future. Thus there are no experts. (E)

Practitioners may well be experts -- but you must define expert to what? (physics, demography, European affairs, management, etc.) I suspect you use the term here vis a vis expert in scanning methodology. (E)

Would you agree that the size of a school district has little effect on the selection of data to collect?

Yes, in most instances. However a very small school 10-20 children - demographics etc. would be of little value. (P)

Generally speaking, I agree. However, in large districts, I'm a bit surprised that the larger scale of the impact of some factors (e.g., population growth, percent of minorities, poverty levels) has not accentuated the perception of those respondents relative to the gravity of items ranked (that is, by your analysis, they haven't). (P)

No. Size may affect what is selected or rather collected because of resources available. In your study however, you asked what "should" be collected not what "do" you or "would" you. (P)

Would you recommend that similar items be combined?

They should be combined, in that you are likely to realize a more significant percent of isngle-parent families and poverty levels, which in my estimation are quite important factors and shouldn't be diminished through "fragmentation by definition." (P)

NO! [underlined twice] You want to scan for items based on a single operative definition of the variable. You are going to get fuzzy information from doing this. (E)

What explanation would you offer why the Practitioners rejected more items than did the Experts?

[The Experts Group] consists of individuals who represent a more universalistic perspective, whereas Group I is composed of individuals with a more particularistic perspective. (E)

Have you any concluding comments?

I hope you will have the opportunity to make use of the research some day in a school setting. Good luck! (P)

Very [underlined twice] complete [underlined once]! (P)

Thanks for the study. This information will be used to plan the data collection in the next round of planning. (P)

Good luck. (P)

Good use of the Delphi. (E)

Please quote as personal communication: Selecting categories of importance to school districts for scanning is not really environmental scanning, but is environmental monitoring. That is, these categories provide key word identifiers to search data banks and literature for historical and forecasted information. Environmental scanning requires searching for signals of change (STEP) that may affect the district. Instead of identifying important categories of information, establishing a scanning system involves identifying information sources across STEP categories, local through global levels, and ensuring that each is regularly and systematically reviewed. (E)

OBSERVATIONS AND COMMENTS REGARDING SPECIFIC ITEMS

NOTE: actual comments from participants are shown in quotation marks followed by a "P" or "E" to identify the subject as Practitioner or Expert and a Roman numeral to indicate the round in which the comment was received. Comments received from the Summary Questions are marked "SQ".

1. population size and growth rate
   - tied with Item 4 for highest Overall Mean
   - highest Practitioner Mean

4. population by age and race/ethnicity
   - tied with Item 1 for highest Overall Mean
   - tied with Item 27 for highest Expert Mean
   - "essential" (E, II)

5. immigration rates by age, sex, and race/ethnicity
   - tied with Item 38 for highest Overall Standard Deviation
   - highest Practitioner Standard Deviation
   - "This data is critical to understanding the market the school system is seeking to provide services to" (P, III)
   - "Not a big factor in our community. I'm sure it may be in others, but not for us." (P, III)
   - "Except in a few geographic areas, immigration is not that important to school district planning." (E, III)
   - "One of the key trends in the 90s will be immigration and its impact on America's mosaic. Thus understanding where people are coming from will be extremely important to education so it can plan to respond to diversity in a relevant manner." (E, III)
   - "need for ESL projection" (P, SQ)
   - "geography sensitive" (P, SQ)
   - "Obviously, some school districts are more impacted by this factor than are others." (P, SQ)
   - "Immigration only affects schools in certain geographic areas of the U.S." (E, SQ)
   - "Problem with [statement including] three variables [age, sex, race/ethnicity]" (E, SQ)

6. number and size of families
   - "essential" (E, II)

9. household composition including non-family households
   - one of three items with widest difference in group scores: Strongly Recommended by Experts, Not Recommended by Practitioners

   "Here, too, is an important distinction playing out in the American family -- the rapid rising of the male-headed household. Thus role modeling and role distinctions will be important to education as well as parenting." (E, III)

   "Although I would not rate this as 'strongly recommended', it <u>is</u> a factor to take into account, particularly in terms of the number of households without school-age children, which has implications for local interest/involvement in the schools and potential for mustering needed resources" (P, SQ)

   "Public school personnel only focus on traditional client group K-12 students -- can not envision an expanded target population of clients." (E, SQ)

   "I don't know how to interpret this item." (E, SQ)

10. marital status of individuals
   - recommended by Experts but not by Practitioners or Overall
   - "percentage single, etc.?" (E, II)

11. number of children in non-parental child care arrangements
   - one of three items with widest differences in group scores though both groups recommended the item: Most Strongly Recommended by Experts, Recommended by Practitioners
   - "Practitioners may see this as redundant with other information they have." (P, III)
   - "School district should be aware of this factor, since it will force districts to expand services." (E, III)
   - "disagreement on value of tracking child care patterns" (P, SQ)
   - "No secific explanation [for group differences] other than conjecturing that Practitioners would tend to be more concerned with the number of children actually seeking child care services from the schools, whereas [Experts] perceive

this from a more global perspective." (P, SQ)

- "I don't know how to interpret this item." (E, SQ)

13. minority population by age and sex
    - "If we focus on success/or every child then this data becomes less important." (P, III)
    - "We have #4 (without sex)" (P, III)
    - "Important for school population integration, balance planning." (E, III)
    - "Of US? local area?" (E, III)

14. geographic distribution of minorities
    - "Within the district? state?" (E, III)

18. educational levels of minorities
    - "Could use for all groups by area." (E, III)

22. female work force participation
    - one of two items with lowest Expert Standard Deviation

23. number/percentage of mothers who work
    - "Important information for school planning" (E, III)

24. female poverty levels by age and race/ethnicity
    - recommended by Overall and Experts, but not by Practitoners

25. female and male earnings and income
    - recommended by Experts, but not by Practitioners or Overall

27. illiteracy rates
    - tied with Item 4 for highest Expert mean

30. number, type, and age of housing units
    - recommended by Practitioners and Overall, but not by Experts

32. percentages of owner and renter housing
    - "Number of children vary by house type." (E, II)

34. rates of occupancy and vacancy of housing
    - recommended by Practitioners, but not by Experts or Overall

35. mean value of housing
    - lowest Expert mean
    - "Overall property assessments are more important than housing only for school district fiscal planning." (E, III)

36. average cost of housing
    - "Useful for interpreting tax levy costs." (P, III)
    - "Rough indicator of SES." (E, III)

37. median percentage of household income spent on housing
    - lowest Overall Standard Deviation
    - lowest Practitioner Standard Deviation

38. number of residential building permits, grants and dollar value
    - tied with Item 5 for highest Overall Standard Deviation
    - "not clear of value" (P, SQ)
    - "growth sensitive" (P, SQ)
    - "Respondents who do not fully appreciate the importance of anticipating future growth impact well in advance probably don't recognize the significance of this item. In high growth areas, it is essential to have this information for long-range, prudent facility planning." (P, SQ)
    - "Some may not see the need to monitor the changes in the base of wealth for school districts -- property valuation. Anticipating revenue base should be an important area to gather information." (E, SQ)
    - "problem with three variables" (E, SQ)

39. size of homeless population
    - recommended by Experts and Overall, but not by Practitioners

41. mortality rates and causes
    - recommended by Experts, but not by Practitioners or Overall

42. infant mortality rates and causes
    - recommended by Experts, but not by Practitioners or Overall

43. abnormal birth rates including low-birthweight infants
    - recommended by Experts, but not by Practitioners or Overall

45. incidence of mental illness by age and race/ethnicity
    - lowest Practitioner mean

49. reported cases of child abuse
    - "Schools should be particularly sensitive to this." (E, III)

50. reported cases of AIDS
    - Recommended by Experts, but not by Practitioners or Overall

51. health-care costs
    - unusually wide range among Practitioners from Strongly Recommended to Strongly Not Recommended
    - "Depends on whose budget these are in and/or whether costs exceed family's ability to pay." (P, III)

52. violent and nonviolent reported crime rates for adults and juveniles
    - recommended by Experts and Overall, but not by Practitioners

53. rates of imprisonment for adults and juveniles by sex and race/ethnicity
    - recommended by Exerpts, but not by Practitioners or Overall

54. availability and use of public transportation
    - "for transporting students" (P, III)

56. percentage of use of various means of transportation to work
    - recommended by Experts, but not by Practitioners or Overall
    - "Recommend only if school system considers using public transportation." (E, II)

59. effective buying income
    - recommended by Experts, but not by Practitioners or Overall
    - "Important in determining tax burden people can afford." (E, III)

65. number of public assistance recipients
    - recommended by Experts and Overall, but not by Practitioners

66. wage earnings by employment sector (manufacturing, construction, government, farming, etc.)
    - recommended by Experts and Overall, but not by Practitioners
    - "Useful for career planning and guidance for students" (E, III)

69. rate of new business birth
    - recommended by Experts, but not by Practitioners or Overall

70. retail sales
    - "More important if sales tax is used as a source of revenue for school districts." (E, III)

72. growth rate of foreign investment and trade
    - lowest Overall mean

76. occupational employment by sex and race/ethnicity
    - recommended by Experts and Overall, but not by Practitioners
    - one of three items with widest difference in group scores: Strongly Recommended by Experts, Not Recommended by Practitioners
    - "economic indicator and career guidance" (E, III)
    - "We already have racial mix data. Occupational data seems of little value." (P, SQ)
    - "I think this data is recommended (though not "strongly" recommended." (P, SQ
    - "Most public schools do not see employment preparation (Voc. Ed.) as a mission of the schools -- thus less concerned." (E, SQ)
    - "Item is confusing because it contains about three position stems (e.g. sex/race/ethnicity)." (E, SQ)

78. part-time and temporary work force
    - recommended by Experts and Overall, but not by Practitioners
    - "economic indicator and career guidance" (E, III)

79. unemployment rates by sector, sex, and race/ethnicity
    - "economic indicator and career guidance" (E, III)

80. frequency of job changes
    - recommended by Experts, but not by Practitioners or Overall
    - "[insert] national" (P, II)

81. amount spent on training/retraining programs for workers
    - "needed by Voc. Ed. planning" (E, II)

82. state and local government budgets: income and expenditures
    - one of two items with lowest Expert Standard Deviation
    - "helps to determine resources available to local districts. Represents 50% of our resources (state) and 50% local." (P, III)
    - "Useful, but not that essential for school district planning." (E, III)

83. tax burden on individuals
    - "How do you measure this? Is it perceived burden?" (E, II)

93. average salary by professional occupation (accountant, dentist, teacher, etc.)
    - "economic indicator and career guidance" (E, III)

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