A futures study on the effects of population, industrial growth, and employment on the public school instructional program in the year 2000

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A FUTURES STUDY ON THE EFFECTS OF POPULATION, INDUSTRIAL GROWTH, AND EMPLOYMENT ON THE PUBLIC SCHOOL INSTRUCTIONAL PROGRAM IN THE YEAR 2000

AN ABSTRACT

SUBMITTED TO THE FACULTY OF THE SCHOOL OF EDUCATION
ATLANTA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

BY

ROBERT J. WILLIAMS

ATLANTA UNIVERSITY
ATLANTA, GEORGIA
MARCH 1982
Abstract
A FUTURES STUDY ON THE EFFECTS OF POPULATION, INDUSTRIAL GROWTH, AND EMPLOYMENT ON THE PUBLIC SCHOOL INSTRUCTIONAL PROGRAM IN THE YEAR 2000

by
Robert J. Williams

March 1982

The Problem. What will be the effect of population size, industrial growth, and employment considerations upon the public school instructional program in the year 2000 in the seven counties of Middle Georgia?

Methodology. The Descriptive Method of research involving modified Delphi Techniques was used to accomplish this futures study. Sixty individuals from the seven counties of Middle Georgia comprised the sample, including educators, elected and appointed officials, and individuals engaged in industrial development. Three instruments were used to obtain the data.

Findings. Twelve of the 75 statements dealt with: parental-school participation; school-business-community cooperation; emphasis on reading, writing, computation, career education, computer training, technical sciences, college preparatory courses, vocational/business education; need for skilled teachers to deal with a diverse and complex student population; criterion reference testing for students
and teacher certification; and cognitive, affective and psychomotor curriculums for regular and exceptional children. On most of the questions the elected/appointed officials and system level educators as two distinct groups were not willing to change their initial response.

Conclusions. School/parent/community cooperation and involvement will be directly proportionate to a decline in academic achievement of students as well as an increase in student disruptive/destructive school behavior. The schools will share with business community some of the teaching duties.

More emphasis will be placed on career education, technical training to help meet the demands of the business community, and sex education. Mechanical teaching devices will allow teachers to become resource persons. Teachers and teaching accountability will become high priority in the year 2000.
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ATLANTA UNIVERSITY 
ATLANTA, GEORGIA 
MARCH 1982
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R.J.W.
CHAPTER I

INTRODUCTION

Rationale

Historically people of all nationalities have been interested in the future. Presently, individuals and groups are spending large amounts of time collecting and analyzing data in their respective fields of concentration, attempting to predict scientifically what will happen in the future. Kauffman states that "the continued stability and survival of our society increasingly depends upon long-range, anticipatory kinds of policy and decision making."\(^1\) This notion has specific implications for the educational process of which children and parents find themselves a part.

Wellborn notes "evidence of a return to excellence in the classroom in many regions of the country. Taxpayers and parents have served notice that they no longer will support incompetence, lax standards, declining student achievement or poor teacher performance."\(^2\)

In order to explore adequately instructional programs of the future, the writer felt it necessary to make brief reference to the public education process in the present with special emphasis upon public opinion and a willingness of people to provide the necessary

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\(^1\) Draper L. Kauffman, Jr., Teaching the Future (Palm Springs, Ca.: ETC Publications, 1976), p. 205.

fiscal support for the operation of public schools. Some individuals feel that many of the ills from which we suffer today, including the lack of adequate school buildings and teachers, are unsolvable because we have not taken advantage of many years of forecasting which is capable simultaneously of predicting the features of the world to come, of alerting us to these matters, and of making the necessary recommendations.

Hipple brings together essays written by ten recognized educators who express varying positions about the future of education as they think it will be, as they think it ought to be, or both. Among the ten essays there are views surfacing that are much different from those generally held today. For example, Hentoff projects a dark view of the place unions may occupy in education's future; Illich calls for the abolition of schools as we know them now; while Weingartner speculates on the possibilities of transcendental meditation in the curriculum.¹ These positions represent a sample of the varying views held by educators and give some indication about projections and the future.

Shane speaks of the need for clear, new social and educational goals and building an educational foundation for coping with alternative futures.² Further evidence of changing trends in education may be noticed in the book edited by Morphet and Jesser in which Daniel Bell, a writer for the New York Times supplement, asserts


that:

... the post-industrial society is primarily a knowledge society in which skill and education become paramount. The singular characteristics of the post-industrial society, particularly in the new relation between science and technology, is that innovation and invention become increasingly dependent on the codification of theoretical knowledge (which is rooted in the university).... For that reason, in the next fifty years the university - and the other centers of research - will become the primary institutions of society, not in the sense of wielding political power, but as possessing the scarcest and most necessary resources of society.¹

Fiscal limitations make it difficult for small school systems to assign staff to planning functions alone. However, if one considers projections reflected in the literature to be valid, it becomes increasingly important for systems to devote more time and effort exploring, analyzing and recommending changes in the instructional programs of the future. Students must have access to quality educational programs allowing them to graduate from high school with adequate coping skills in order that they become contributing citizens in their respective communities. The writer believes that this study will cause chief school administrators to take another look at the need to do more in the area of planning instructional programs of the future in relation to community development and population changes.

Statement of the Problem

What will be the effect of population size, industrial growth, and employment considerations upon the public school instructional

program in the year 2000 in the seven counties of Middle Georgia?

**Purpose of the Study**

The purpose of this futures study is to show that certain events are likely to occur, and these events will have a strong impact on education in the year 2000. The techniques and skills used as well as the data derived from this futures study should serve additional purposes by making the following contributions to educational knowledge, theory or practice:

1. presenting evidence in accord with or different from general results of prior research in this area
2. presenting evidence to show the need for parent-community and school partnership in the education process
3. presenting evidence to show that the economic and physical development of the geographic area will have an effect on the educational program

**Significance of the Study**

This futures study is important because it seeks to make a reasonably adequate assessment of the likelihood of an event occurring and the impact that event will have on education in the year 2000. By making this assessment the public schools of the Middle Georgia area can take well defined and specific steps to plan relevant and meaningful educational experiences for students.
Objectives of the Study

1. To determine the nature and extent of parent-school partnership with respect to the education of children

2. To determine the need for the school to involve business and industry in planning, developing and implementing educational programs for children

3. To determine the need for a career and comprehensive educational program

4. To determine the difference, if any, between the current instructional programs and instructional programs in the year 2000

5. To determine what will be the physical and economical growth of the individual counties of Middle Georgia by the year 2000

6. To predict if the population in the seven counties of Middle Georgia will be sufficient to meet job demands of people with the necessary skills required by industry

7. To ascertain the kinds of skills that should be emphasized in the instructional program as a means of meeting the demands of industrial growth in the counties of Middle Georgia by the year 2000

8. To compare the general educational offerings of the seven counties in Middle Georgia with the educational offerings in other parts of the country

Methodology

The Descriptive Method of research involving modified Delphi Techniques was used to accomplish this study. Futures studies conducted by the Dallas, Texas, Independent School District were used
as a model for the project. Sixty individuals from the seven counties of Middle Georgia comprised the sample of the study, including educators, elected and appointed officials, and individuals engaged in industrial development. The sample was selected from the 1980 Georgia Public Education Directory and the Middle Georgia Area Planning and Development Commission files using a stratified random sampling selection process. The study was accomplished by using three separate instruments. The first instrument required each participant to make independent judgments by responding to eight questions on future instructional needs in the respective counties as the year 2000 approaches. Following an analysis of the narrative responses to the first instrument, a second instrument, comprising seventy-five statements, was developed and forwarded to the same individuals who responded to the first one. Participants were asked to rate each statement on a scale of one to five, indicating their perceptions regarding Likelihood of Occurrence and Impact on Education. In order to treat, analyze and interpret the data, the following statistics were computed: first and third quartiles, percent, difference between percents, standard error of the difference between percents and critical ratio.

A third instrument was forwarded to certain individuals in the population whose response to the second instrument provided the most extreme forecasts as reflected by the upper and lower quartiles of the data. Each such person was requested to reconsider the forecast given in the light of his/her divergence from the group norm. Where individuals did not elect to conform to responses of the majority of
the population, each was asked to give a brief narrative statement supporting his/her position. There was an insufficient number of responses from the participants regarding reasons for changing their original ratings. Therefore, the writer elected not to use this category of data.

Following the completion of the foregoing process, the writer summarized the findings, drew conclusions, stated implications, and made recommendations.

Assumptions of the Study

1. Employment of people in a community is dependent upon their training for available jobs.

2. Knowledge of industrial growth projections for a community will facilitate educational planning.

3. Instructional programs are developed around the educational needs of the clients of the school districts.

4. Population projections provide a reliable means for future educational planning.

Definition of Terms

"Population" is the number of people in the seven counties of Middle Georgia as recorded by the U. S. Census Bureau, 1970.

"Industrial Growth" is anticipated new businesses to be located in the Middle Georgia area by the year 2000.

"Employment" is the economic sector's affording income and fiscal support to the population in the Middle Georgia area by the year 2000.
Limitations of the Study

Forecasting and futures research are not universally accepted. Some individuals have concerns regarding a study using a Delphi design. There are, however, two primary concerns, known to the writer, affecting the value of a study using Delphi techniques: the use of experts as forecasters and consensus as a means of prediction.

This futures study has been confined to the seven counties of Middle Georgia.

Research Questions

1. Should parents become partners with the school in assuming responsibility for educating their children?

2. Should the school involve the business community in planning and implementing educational programs?

3. Is there a need for career and comprehensive educational programs?

4. Will the delivery system of educational services in the year 2000 be different from practices today?

5. What types of new businesses will be locating in the seven counties of Middle Georgia?

6. Will the population in the seven counties of Middle Georgia be sufficient to meet job demands of people with the necessary skills required by these businesses?

7. Will academic education beyond the limits of reading and mathematics in the year 2000 be a part of the instructional program?

8. Is there a difference between the participant's perception
of educational offerings in Middle Georgia and other parts of the
country?

**Period of the Study**

The study was conducted during the 1980-81 school year.

**Locale**

The seven counties of Middle Georgia were the focal point of
the research. Some characteristics of each follow.¹

Bibb County is located in Middle Georgia and is the urban
cultural, transportation and trade center for a large part of the
state. Outside of the Atlanta area, it is the third largest county,
geographically, and the fourth largest county according to population
data included in the 1970 Census Report.² Macon is the county seat;
it was created in 1822 from Indian lands. The population of the
county is approximately 144,145.

Crawford County is situated in Middle Georgia, southwest of
Macon. Much of the county is sand hills covered with scrubs, oaks,
and pines. The southern part of the county has extensive peach
orchards. Crawford County was established in 1822 from a part of
Houston County. The county seat is Knoxville, and the principal town
is Roberta. Approximately 5,930 people make up the population of the
county.


Houston County is in the Upper Coastal Plains of Georgia, just south of Macon, and includes an air base, various small industries, and excellent agricultural products specializing in peaches, pecans and livestock. It was created in 1821 from Creek Indian lands. Perry is the county seat, and Warner Robins is the largest community. The population estimate for this locality is approximately 77,205.

Jones County is found in the Lower Piedmont region of Georgia, just northeast of Macon. The economy is based upon livestock and timber products and some peaches. The county is sharing in the residential and business expansion of Macon. It was established in 1807 from a part of Baldwin County. The county seat is Gray, and the population is approximately 15,085.

Monroe County is located in the Lower Piedmont region of the state, just northwest of Macon. Peaches, pecans and livestock farming with some textile manufacturing comprise the economic base for the county. It was formed in 1821 from Creek Indian lands. Forsyth is the county seat, and the population is approximately 11,410.

Peach County occupies a position in the Upper Coastal Plains region of the state, southwest of Macon. The county is the newest in the state and was established in 1924 from parts of Houston and Macon counties. The chief areas of support for the economy come from peaches, livestock and school bus bodies. The area is a highly productive agricultural one. Fort Valley is the county seat, and approximately 10,100 people live in the area.
Twiggs County lies in the Fall Line Hills of Georgia, just southeast of Macon. It was founded in 1908 with the area being originally a part of Wilkinson County. The economy is supported primarily by kaolin clay and timber products. The county seat is Jeffersonville, and the population is approximately 8,240.
CHAPTER II

A REVIEW OF THE LITERATURE

Introduction

The writer surveyed selected, related literature pertaining to Educational Futurism that were published between 1969 and 1981. He reviewed approximately sixty publications including books, periodicals, abstracts of Educational Research Service Document Reproductions and unpublished materials. For purposes of this study, the related literature is discussed under the following headings: Generalizations About the Future of Education; Specifics About the Future of Education; Population as a Predictor of the Future; Industrial Growth as a Predictor of the Future; Employment as a Predictor of the Future and Techniques of Forecasting.

Generalizations About the Future of Education

Biologically, human beings have not changed significantly during the last twenty-five thousand years. Drastic changes, however, have been noticed in such areas as community development, occupations and education during the same period. Historically, one can notice many and varied instructional designs in delivery systems for the education of children. Unfortunately, the focus, in many instances, has been upon a program or format rather than educational needs of the students themselves.
Hack points out that as the professional educator plans, develops, and works in an educational unit, he finds himself in a reactive posture most of the time. In the educational context, there must be reactions to such concerns as teacher militancy, federal funding and national assessment. Educators stand in double jeopardy as they react simultaneously to such problems as pollution and ecology, overpopulation and the reordering of national priorities.¹ The "Global 2000 Report to the President: Entering the Twenty-First Century" is an example of the foregoing statements. According to this report the world in 2000 will have become more vulnerable to "serious stresses" resulting from such major factors as overcrowdedness and excess pollution. Material output will be insufficient to meet hunger and other needs of the vastly increased poor population.² Consequently, these circumstances will have an effect upon all levels of government as educational decisions are made in the future.

Comish states that "the modern futurist movement which began developing rapidly during the 1960's appears to be gradually forming a coherent philosophy or world view."³ He further supports his argument for a study of the future by pointing to such emerging principles as the "unity or interconnectedness of reality," "the


crucial importance of time," and the "importance of ideas." If people, he emphasizes, reach a consensus of what a desirable world should be, this world could be realized by a systematic study of the ideas generated from their images of the future.

Van Avery points to the fact that societies have employed the futurist perspective successfully for centuries. However, the key to this success was the slowness of change, a factor which no longer exists. On the contrary, today, change occurs much more rapidly, causing a greater number of crises. Yet, change is the essential entity of the context in which the futurists operate.

Schwartz, Tiege, and Harman explain the importance of a futures perspective and its accompanying skill of foresight thus:

In recent years, we have faced an energy crisis, an urban crisis, a food crisis, and many other crises. In each instance, significant responses came only after a manageable problem had developed into a massive crisis. If the pace of social change continues to quicken, we can expect that we shall see crisis mount on crisis until we are overwhelmed. The only alternative is to identify problems before they reach crisis proportions so that appropriate action can be taken.

Today, and in the years ahead, the major focus in education must be upon the ways in which students learn and what they need to learn in order to become functioning citizens. Alvin Toffler points out in the first chapter of Learning for Tomorrow that "all education springs

\[1\]Ibid.

\[2\]Dennis Van Avery, "Futuristics and Education," Educational Leadership 37 (February 1980): 441-442.

from some images of the future. If the image of the future held by a society is grossly inaccurate, its education system will betray its youth.\(^1\) Similarly, Shane states that "if we lack a clear vision of the future we seek, we lack both goals and the guidelines that help us to reach them."\(^2\) He also emphasizes another crucial point when he says that:

> When we make judgments or predictions about a probable world of the future, we are voicing a call to action whether we realize it or not. That is, forecasts tend to initiate processes that will reduce possible problems that are foreseen, and they tend to suggest how we best can adapt to our assumptions about changing conditions. The future is not something that just happens to us; we are partial creators of it.\(^3\)

### Specifics about the Future of Education

A further review of the literature with emphasis upon the above caption includes an abstract of a paper presented to the Education Section of the World Future Society by Fizzell which states that "the American educational system is based upon outmoded premises and should be revised in line with present trends and future needs."

Enumerating the differences in the past society and the present one, the abstract points out that

> Our present system of education was created to serve an industrial society; to develop an elite cadre of well educated professionals, a mass of somewhat educated

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3. Ibid.
technical workers, and a solid base of laborers. It stressed discipline, regimentation, and ranking. However, society has changed from an industrial focus to an informational focus. Most people today are employed in professional, service, and technical jobs that require better education and more self direction. Economic goals are shifting; personal goals of fulfillment are replacing goals of security; and government is experiencing increased citizen awareness and informed participation. To accompany these changes, education must be broadened, stress self direction, become continuous, and allow all people to reach the equivalent of mastery of high school.1

In 1979 Morris presented his notion of what education would be like in the present and coming decade. The essence of his idea is that an educational framework should be based on an understanding of the nature of a future society. In developing this kind of framework, Morris elaborates on three essential concepts: change (in the environment and in personal behavior); conscious awareness of a universal or global nature; and cooperation, both individual and social. "This framework," says Morris, "would not require a curriculum change, but rather a change in how the student experiences the content."2 To illustrate this point, Morris states that

Change in school programs may include greater emphases on physical education, personal development, human relations, self-reliance, relaxation, religion, and recreation. Finally, decision making and problem solving by educational leaders will involve cognitive, affective, and spiritual domains.3


3Ibid.
Goodlad poses and answers the question: "What would we have twenty-first century man be?" He criticizes education for having concerned itself with "only half of each goal for schooling - the behavioral half." His basic contention as he described what we would have twenty-first century man be, is that

... we would have him be a man with a strong sense of himself and his own humanness, with awareness of his thoughts and feelings, with the capacity to feel and express love and joy and to recognize tragedy and feel grief. We would have him to be a man who, with a strong and realistic sense of his own worth is able to relate openly with others, to cooperate effectively with them toward common ends, and to view mankind as one while respecting diversity and difference. We would want him to be a being who, even while very young, somehow senses that he has the capacity for lifelong spiritual and intellectual growth. We would want him to cherish that vision of the man he is capable of becoming and to cherish the development of the same potentiality in others.¹

A shift in educational values in the future may be noticed in a "from/to" list devised by Weber as cited by Dickson (see Appendix A, page 82). He highlights traditional emphasis as well as projected emphasis as anticipated. This listing is a summary of perceptions from his vantage point as director of the Project on Human Potential and the year 2000.²

Shane states that changes in the organizational structure of education in the United States may be summarized in the following four points:


1. The infrastructure of U. S. education should be much more flexible; be less hampered by doctrinaire or "red-tape" regulations.

2. The deployment of instructional personnel should be more imaginative, more varied, and involve greater interaction with the community and with one's colleagues as well as with more transactions among both teachers and learners at more widespread age levels.

3. Deliberate, methodical provisions should be made for education beginning in early childhood and extending into old age.

4. The structural matrices for learning should become more permeated by the third force or humanistic psychology associated with writers such as the late Abraham H. Maslow.¹

Van Avery lists thirteen "elements" which he concludes, "can facilitate a futures orientation for students." Among them, for example, are notions that there is not just one predetermined future but several possible futures; changes in the future will cause lifestyles to be different; and students must learn to group ideas with various levels of consequences, actions and events. Emphasis throughout is on alternative futures as opposed to predetermined futures, change, human choice, true perspective and acquiring forecasting skills, all with the student as the focal point. Change in the traditional pattern is essential to the successful adjustment of students in the future.²

Taking this same point of view is Toffler who expounds the idea that present curriculums should be evaluated for their relevance to the future. Perpetuation of traditional courses simply for the sake of tradition is insufficient to justify keeping them in the curriculum.

¹Shane, The Educational Significance of the Future, 65.

²Van Avery, "Futuristics and Education," 442.
"What it does mean," says Toffler, "is that tens of millions of children today are forced by law to spend precious hours of their lives grinding away at materials whose future utility is highly questionable."¹ Moreover, he says that

The curriculum of tomorrow must include not only an extremely wide range of data-oriented courses, but a strong emphasis on future-relevant behavioral skills. It must combine a variety of factual content with universal training in what might be termed life know-how. It must find ways to do both at the same time, transmitting one in circumstances or environments that produce the other.²

Shane further points to the efforts of the National Education Association through its Bicentennial Committee to reframe the cardinal principles of education. Of especial significance was the committee's stance on the obsolescence of most policy statements regarding today's education. Consequently, the committee proposed cardinal premises to guide curriculum development that anticipate the twenty-first century and affirmed its belief that "educators around the world are in a unique position to bring about a harmoniously interdependent global community based on the principles of peace and justice."³ These Cardinal Premises for Educational Change, 1976-2001, hold specific implications for education and address such major concerns as structure, school organization, educational policy and content, and instruction (see Appendix B, page 85).

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²Ibid.

Also convinced of the need for change in the present direction of the educational system, Theobald views the problem as one of a part "industrial era's mechanistic and hierarchical views" not being attuned to today's "inter-related, subjective, risky world." To meet this challenge, he suggests that policy analyses and decisions incorporate factors such as diversity, learning ability, decision making, creativity and situation assessment, all of which the future requires. Future Frontiers, an organized process to control change between past and present, is the linkage system that has been created to facilitate the necessary shift between the past and the present to insure the maintaining of the "quality of life under the impact of rapid growth."  

Population as a Predictor of the Future

Research resulting in a number of reports indicates the growing concern for population changes as a major factor on school enrollments in the future. Newitt advances the idea that... a demographics-based approach to conjecture on the social future suggests several factors that bear on the social context of education in the 1980's, including shifts in population, economic activity, and political power, implications of the youth decline, possible inter-generational changes in fertility and women's employment, and the cyclical tendencies of national social policy. Results of futures studies indicate that in terms of education: (1) interest in the schools will be keen; (2) many high schools will face several contraction problems; (3) there will be a greater state-level role in

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2 Ibid.
school funding; and (4) the problem of an aging faculty, particularly in colleges, will be of increasing concern in areas with severe enrollment decline.¹

The Education Finance Center of the Education Commission of the United States emphasizes the need for a thorough analysis of the shifts in enrollments during 1980 to determine possible implications for the future. This commission has already noted that "While the current elementary school slump will hit secondary schools hard in the 1980's, grades K through 8 will benefit from projected growth in birthrate."² Supportive of this contention are U. S. Census data which reveal that by 1989, the total school population, estimated to be forty-seven million during 1979 and projected to have dropped to forty-three and five tenths million by 1985, will have begun to increase, exceeding forty-four million again. Significant also is the fact that the number of minority students (aged five to seventeen) will steadily increase during the 1980's while the total school-age population decreases. Although the percentage may be small, the commission points out that analysis of these data should prompt schools to provide extra services and begin planning for methods of coping with these inevitable changes.³

Another view regarding population variations may be noted in a summary statement on population and its relevance to school


³Ibid.
enrollment made by Ravenholt. He states that "there are encouraging signs that the world has begun to turn the tide against runaway population growth and victory can be achieved in the next few decades."\(^1\)

Ravenholt cites Philander P. Claxton, former Special Assistant to the United States Secretary of State for Population Matters, in a speech before the International Population Society, Washington, D. C. in November 1975 as seeing the need to focus on the next generation of reproducers and to develop attitudes moving toward the concept of the two-child family. He further states that "if these children grow up in the belief that it is desirable, sensible and good for them to have no more than two children, the world may still be a reasonably decent place to live twenty-five years from now."\(^2\)

Ravenholt further states that contrary to Claxton's view, the United Nations World Population Conference in Bucharest, August 1974, adopted a World Plan of Action which affirms that

\[\ldots\] all couples and individuals have the basic human right to decide freely and responsibly the number and spacing of their children and to have the information, education, and means to do so; the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities toward the community.\(^3\)

Because of the predominantly agricultural base of most developing nations which values children as workers, combined with the

\(^1\)R. T. Ravenholt, "Winning the Battle Against Overpopulation," The Futurist, 10 (April 1976): 64-68.

\(^2\)Ibid.

\(^3\)Ibid.
fact that most of these nations lack any organized provisions for the elderly, thus capitalizing on children as a social security measure, Ravenholt credits Russell W. Peterson, former Chairman of the President's Council on Environmental Quality, as saying that there is a "vicious circle" in evidence. This condition makes it difficult to generate a capital surplus necessary to speed economic growth, and without economic growth, it is virtually impossible to establish the kind of education system that would develop human potential. The ultimate result, once analyzed, is the perpetuation of the pangs of overpopulation - hunger, malnutrition and periodic starvation.¹

Above, mention was made regarding decline in high school enrollments as the year 2000 approaches. Gordon and Stadman report that "recent developments and the changes projected for the remainder of the century will give dramatically different composition of the national student body than has been the case traditionally in colleges and higher education."²

Besides a drastic classroom change in male-female composition which will have shifted from a predominately young male majority attending full-time in 1960 to a female dominated classroom by the year 2000, there will also be nearly as many part-time students as full-time, and at least one-quarter of these students will be

¹Ibid.

minorities.1 Moreover, this source states that with students more nearly the center of attention on campuses,

They will be recruited more actively, admitted more readily, retained more assiduously, counselled more attentively, graded more considerately, financed more adequately, taught more conscientiously, placed in jobs more insistently, and the curriculum will be more tailored to their tastes.2

Kahn explains the anticipated reduction in the rate of worldwide population growth in terms of the "demographic transition." While he admits that this theory is not a hard and fast one, he considers it a good indicator of "historical experiences, replete with exceptions, anomalies and occasional reverses. It depicts the change that has occurred, and that seems likely to occur in the future, in population growth rates during the successive stages from pre-industrial to post-industrial society."3

Industrial Growth as a Predictor of the Future

Business, industry and trade provide the economic foundation for societal survival. On this point Toffler views society as having undergone two great waves of change: the agricultural revolution and the rise of industrial civilization. However, he predicts a third wave which he says will bring

... a genuinely new way of life based on diversified, renewable energy sources; on methods of production that

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1Ibid.

2Ibid.

make most factory assembly lines obsolete; on new, non-nuclear families; on a novel institution that might be called the 'electronic cottage'; and on radically changed schools and corporations of the future. The emergent civilization writes a new code of behavior for us and carries us beyond standardization, synchronization, and centralization, beyond the concentration of energy, money and power.\(^1\)

Krutilla, as quoted in the book *America's Changing Environment*, speaks of some environmental effects of economic development. He points out that

\[ \ldots \text{the change in the face of North America by reason of industrial man's dominance has resulted in a high standard of material well-being, but the ecological consequences may not yet be understood fully nor the ultimate cost appreciated. Some of the degradation -- but certainly not all -- is the necessary price of the high material standard of living achieved through industrialization. These have been unintended or socially unwarranted side effects of the organization of industrial production that we should have avoided.}^2 \]

Norman projects that "phenomenal advances in microelectronic technology have touched off a Second Industrial Revolution, in which the new technology automates jobs previously reserved for human workers. Such automation promises to improve productivity, but threatens thousands of jobs."\(^3\) He supports his projection by referring to the late Christopher Evans' theory in his book *The Micro Millennium*. Evans says that "The world is on the verge of a computer revolution that will be more rapid, widespread, and overwhelming than

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the Industrial Revolution."¹ Moreover, Norman points to several possible scenarios which Evans has expounded, ranging from immediate cessation to indefinite acceleration of the development of computer technology, and it is Evans' theory that these developments will accelerate through the year 2000.²

Smith advances some ideas regarding things that communities should consider, as new industries begin discussions pertaining to relocating. These factors range from the amount of employment and income to go to local people, the method of distributing income benefits, to the impact of industry upon changing community values, politics, school districts, and even the extent to which poverty will be alleviated. Smith concludes that:

(1) jobs created that will be filled by local people will not greatly exceed total number of direct plant jobs; (2) relatively few people escape poverty as a direct or immediate result of new industry; (3) increased tax base is not likely to offset additional public service costs if industrial property is tax exempt; (4) larger companies headquartered elsewhere may mean less local control by local people; (5) population will probably expand, resulting in greater need for improved public services and greater dependence on wage and salary work; and (6) depending on community and industry structure, a community's social structure will be changed - more impersonal, less family and neighborhood-oriented life style.³

Employment as a Predictor of the Future

Snelling reports that

... at the time of the settlement of this nation, the average citizen could pretty well tell the kinds of jobs available, from able-bodied seaman, blacksmith, cooper (barrel-maker), and so on, through the whole alphabet of opportunities, what there were of them. Today, new kinds of jobs are being created by American science, business, and industry - in electronics, cybernetics, cryogenics, nuclear physics, metallurgy, oceanography, and all the other fields developing so rapidly that the lexicographers cannot invent new words fast enough to describe them.¹

In 1978 a Special Report published in U. S. News and World Report commented on the stiff competition for careers in future decades. Adequate preparation will be the key to taking advantage of the many opportunities that will be available. Consequently, experts have already begun to research the kinds of jobs that will be available in order to provide young people with the kinds of information needed to help them prepare for future careers. To this point these experts have pinpointed health, business and technical fields as the careers with the best opportunities. Moreover, the report reveals that "one in four college graduates entering the labor market between now and 1985 will have to settle for jobs traditionally filled by people without college degrees."² This fact is the result of employers having more people to choose from. Consequently, the message to young people is that they must "make the best use of


their education."

Norman calls attention to the fears frequently arising as a result of new technology. And he quickly points out that "rapid technological advance has generally been accompanied by high rates of job creation." Microelectronics technologies, he predicts, "will have a fundamental impact on both the numbers and types of jobs in the industrial world in the coming decades." While microelectronics technologies, historically, have a tremendously broad application in the workplace, frequently less labor is needed to produce goods. And a final apprehension is that of the speed with which these technologies are advancing. Generally, it is expected that they will be "firmly established in production processes, products, and daily activities over the next two years."

Fullerton projects that by 1995, women in the labor force will account for two-thirds of the growth and that blacks will have grown twice as fast as whites. Further, he says that by the mid-1980's there will be more people in the labor force than out. On the effect of the changing age composition of the population, he says:

This development reflects the changing age composition of the population which, in turn, is caused by the swings

---

1 Ibid.
3 Ibid.
4 Ibid.
in births over the past fifty years. The composition of the younger population will also be affected by the difference in fertility between blacks and whites. Although fertility for both groups has been falling, black fertility rates remain higher. As a consequence, the black population is younger and the youth population will have a greater proportion of blacks than will the population age twenty-five and over. At the same time black youths have lower labor force participation than do their white counterparts, other things remaining the same, the growth of the youth force would be slower.¹

Techniques of Forecasting

Hencley and Yates listed several techniques of forecasting designed to identify trends and alternatives through systems of logic. These techniques provide information and knowledge to upgrade decision making as researchers formulate desirable programs and plans for the future.² They are: Bayesian Statistical Forecasting; Delphi Forecasting; Force Analysis Forecasting; Markov Chain Forecasting; Matrix Forecasting; Monte Carlo Analysis Forecasting; Morphological Forecasting; Precursor Forecasting; Relevance Tree and Contextual Map Forecasting; Simulation Forecasting; and Trend Extrapolation Forecasting (see Appendix C, page 89 for further information).

Other Studies

The writer used such references as Research in Education, Resources in Education and Dissertation Abstracts International and did not find research relevant to this particular study. In lieu of including


other studies here, mention will be made of "Futurism in the Curriculum" and an existing Magnet Elementary School with the future as a focus.

**Futurism in the Curriculum**

Olmo reports that...

... by futuristics, we mean a study of the methods of scientifically studying the future. While most of this type of study is being taught to college students, the younger students are not inquiring into the future as a part of their curriculum. To believe that the future is something that happens to us is one point of view, a fatalistic perspective. But to believe that we are at least the partial creators of our future is a positive, active, and responsible viewpoint.

She further states that curriculum planners must search for new foundations on which to structure knowledge. In the past, more attention was given to discipline or subject matter. The whole has been analyzed into parts, causing university students very often to view their disciplines, history or sociology, as separate bodies of knowledge. Olmo also notes that

High school students are less patient with abstractions and are more likely to be interested in issues which cut across subject matter lines. The new curriculum, then, will be more likely based on synthesizing the parts into a whole. The trend must be towards comprehensive environmental monitoring, community involvement, and civic action.

**The Grove Street Future School**

Dede reports that the Grove Street Future School, Montclair,


2Ibid.
New Jersey, is an example of how an entire elementary curriculum can provide experiences giving students the knowledge, skills and attitudes that they will need as productive twenty-first century adults.¹

Further, Dede credits Marcia Haccok, a teacher at the Grove Street School, as saying that

Kindergarten through third grade children have been engaged in a nine week excursion through an actual time tunnel. As participants in a future studies course, Tools of Time, the children followed a present day Pied Piper, Robbie the Robot, into the tunnel, and they pursued activities which address the following objectives: . . . to understand the meaning of time and measurement; to recreate and create time tools; to observe the relationship between the earth and the universe in the creation of time and time tools; to learn the vocabulary of time; to measure time using senses and creative instincts; and to establish future implications of time.²

Chapter Summary

A review of the literature has revealed that significant changes are expected to occur in education as we approach the twenty-first century. Contributors to the literature regard many goals, objectives and experiences as being outdated as one thinks of preparing kindergarten children for life in the year 2000 and beyond. People will discover that they are in a transition stage, moving from an industrial to a super-industrial society where today's facts will become tomorrow's misinformation. Shifts in the population will have a dramatic effect upon the schools which will have economic as well as


²Ibid.
political implications. A decline in school enrollment at certain grade levels during the coming decades will also have adverse effects upon education. The Third Wave as described by Toffler will have a direct impact upon the family unit, economy, politics and our value system. Employment is still another variable that will be affected in the future because of the number of new jobs and technology coming into existence. The number of individuals in the work force seeking employment will compound the problem even more. Educators apparently must be willing to use the techniques available to them in order to use past history, present day practices, and images of what they wish the future to be in order to prepare adequately the students who present themselves daily for educational experiences.
CHAPTER III

METHODOLOGY

Selected Population

The selected population used in this futures study included individuals from the seven counties of Middle Georgia, namely, Bibb, Houston, Jones, Peach, Monroe, Twiggs and Crawford. The total projected population of the seven counties for the year 2000 is 359,120.\(^1\) Table 1 reflects the projected population for the year 2000, encompassing the numbers of individuals projected to be included at that time. Of this number, forty-four percent of the population, including eighteen percent non-white and twenty-six percent white, will reside in Bibb County; thirty-four percent of the residents, including five percent non-white and twenty-nine percent white, will live in Houston County; seven percent of the households, including two percent non-white and five percent white, will have established themselves in Jones County; and seven percent, including five percent non-white and two percent white will live in Peach County. Monroe County will claim four percent of the population, including two percent each of non-white and white; residents of Twiggs and Crawford counties will each include two percent of the population with one

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### TABLE 1

DISTRIBUTION OF POPULATION IN THE SEVEN COUNTIES OF MIDDLE GEORGIA IN THE YEAR 2000

<table>
<thead>
<tr>
<th>County</th>
<th>Non-White</th>
<th>Percent</th>
<th>White</th>
<th>Percent</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bibb</td>
<td>65,265</td>
<td>18</td>
<td>93,950</td>
<td>26</td>
<td>159,215</td>
<td>44</td>
</tr>
<tr>
<td>Houston</td>
<td>16,540</td>
<td>5</td>
<td>102,250</td>
<td>29</td>
<td>118,790</td>
<td>34</td>
</tr>
<tr>
<td>Jones</td>
<td>6,530</td>
<td>2</td>
<td>18,925</td>
<td>5</td>
<td>25,455</td>
<td>7</td>
</tr>
<tr>
<td>Peach</td>
<td>16,075</td>
<td>5</td>
<td>8,505</td>
<td>2</td>
<td>24,580</td>
<td>7</td>
</tr>
<tr>
<td>Monroe</td>
<td>7,000</td>
<td>2</td>
<td>7,335</td>
<td>2</td>
<td>14,335</td>
<td>4</td>
</tr>
<tr>
<td>Twiggs</td>
<td>4,520</td>
<td>1</td>
<td>4,395</td>
<td>1</td>
<td>8,915</td>
<td>2</td>
</tr>
<tr>
<td>Crawford</td>
<td>4,910</td>
<td>1</td>
<td>2,920</td>
<td>1</td>
<td>7,830</td>
<td>2</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>120,840</strong></td>
<td><strong>34</strong></td>
<td><strong>238,280</strong></td>
<td><strong>66</strong></td>
<td><strong>359,120</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
percent each being non-white and white respectively.

The number of participants, sixty, involved in the study was based on the writer's perception of an adequate sample size and reflects his conception of individuals whose professional affiliation predisposed them to having some knowledge and interest in the future.

Of the sixty participants chosen for this futures study, the number from each county was selected in proportion to that county's projected population in the year 2000 (see table 2, page 36).

Table 2 indicates that forty-four percent or twenty-six participants were from Bibb County; thirty-four percent or twenty persons were from Houston County; seven percent or four individuals were from Jones and Peach Counties, respectively; four percent or two participants were from Monroe County, and two percent each or two persons respectively were from Twiggs and Crawford Counties. Percentages indicated in the table were used as the basis for the breakdown of the number of participants included in the sample. Each county percentage represented approximately the projected population for that location in relationship to the total projected population for the seven counties.

Table 3 reflects the distribution of the four strata of the sixty participants in the study according to their individual pursuits and ethnic identifications. The majority of the respondents were educators; others were elected or appointed city and county officials and business and industrial planners. There were fifteen non-white and forty-five white participants included in the study. Of this number four non-white and six white persons were elected or appointed
<table>
<thead>
<tr>
<th>County</th>
<th>Projected Population</th>
<th>Percent of Projected Population</th>
<th>Number of Potential Participants</th>
<th>Number of Actual Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bibb</td>
<td>159,215</td>
<td>44</td>
<td>26.4</td>
<td>26</td>
</tr>
<tr>
<td>Houston</td>
<td>118,790</td>
<td>34</td>
<td>20.4</td>
<td>20</td>
</tr>
<tr>
<td>Jones</td>
<td>25,455</td>
<td>7</td>
<td>4.2</td>
<td>4</td>
</tr>
<tr>
<td>Peach</td>
<td>24,580</td>
<td>7</td>
<td>4.2</td>
<td>4</td>
</tr>
<tr>
<td>Monroe</td>
<td>14,335</td>
<td>4</td>
<td>2.4</td>
<td>2</td>
</tr>
<tr>
<td>Twiggs</td>
<td>8,915</td>
<td>2</td>
<td>1.2</td>
<td>2</td>
</tr>
<tr>
<td>Crawford</td>
<td>7,830</td>
<td>2</td>
<td>1.2</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>359,120</td>
<td>100</td>
<td>60.0</td>
<td>60</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------</td>
<td>-----------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Bibb</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Houston</td>
<td>0</td>
<td>0</td>
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TABLE 3
DISTRIBUTION OF THE SIXTY PARTICIPANTS IN THE STUDY ACCORDING TO INDIVIDUAL PURSUITS AND ETHNIC IDENTIFICATION
officials from city and county governments; one non-white and four white individuals were parents or business or industrial planners; thirteen participants were white system level educators; and ten non-white and twenty-two white respondents were school based educators. The sample selection was made by using a stratified random process. The 1980 Georgia Public Education Directory and files from the Middle Georgia Area Planning and Development Commission were the two sources from which the samples were drawn.

Research Design

The Descriptive Method of Research involving modified Delphi Techniques employing three rounds of instruments was used to accomplish this futures study. The literature on Delphi studies does not report item analyses, nor are there reports of field testing of instruments used.¹

Collection and Analysis of the Data

Three instruments were used to gather the data for this futures study. The instruments and the statistical analysis are discussed under captions of Rounds I, II, and III (see Appendix D, pages 99 - 118).

Round I

The first instrument, Round I, included eight conceptually developed questions relating to the role of parents, business and industry in the instructional process in the year 2000. Further,

¹ Hencley and Yates, Futurism in Education, 105.
the questions attempted to extract notions about instructional content at that point in time. Each participant in this futures study was asked to provide brief narrative responses to eight questions. The narrative responses reflected the independent judgment of the participants with respect to specific facets of the problem of the study. The narrative responses were used to devise the statements that provided the bases for the second instrument.

Round II

The second instrument, Round II, consisted of seventy-five statements modeled after "futuristic" studies conducted by the Dallas, Texas, Independent School District. In addition to the seventy-five statements, this instrument required the participants to rate each statement on a scale of 1 to 5. A rating of one was least and five was most relative to two axes, namely, Likelihood of Occurrence and Impact on Education. Likelihood of Occurrence relates to Impact on Education in a conceptual and theoretical rather than cause and effect manner. For example, if a majority of the participants rated an event as highly likely to occur, it does not necessarily follow that they would expect each occurrence of that event to have a profound impact on education in the year 2000. On the other hand, it is conceivable that a majority of the respondents may rate an event as having a profound impact on education but perceive that event as having a low probability of occurring.

Fifty-five or 91 percent of the participants responded to the seventy-five statements. These statements were grouped into sets according to the eight questions in Round I. The following statistics were computed for each set of eight questions: first and third quartiles, percent, difference between percents, standard error of difference between percents and critical ratio. The quartiles provided the basis for developing instrument three, Round III. The difference statistics provided empirical information on the respondents' perception of education in the year 2000.

The "flow" for this discussion is limited to the statements within each of the eight sets of questions that received a cumulative percent of 70 or more on ratings 4 and 5 and 1 and 2 under Likelihood of Occurrence and Impact on Education. The reason for this particular discussion flow is to examine the extent to which the respondents perceive likelihood of an event occurring and the corresponding impact that event will have on education in the year 2000. Since Likelihood of Occurrence and Impact on Education have a conceptual and theoretical relationship, it is possible for a statement to receive a large percentage of 4 and 5 ratings on one axis and a correspondingly large percent of 1 and 2 ratings under the other axis.

Round III

The third instrument, Round III, consisted of the same eight questions used in the first instrument. By using the first and third quartile ranges, some participants were given an opportunity to change their initial responses on the eight questions so that their responses
would correspond to the average responses for all of the participants. The difference between the participants' willingness and unwillingness to change their initial response was computed as a critical ratio with alpha set at 0.05 and 0.01 for 50 degrees of freedom.

**Chapter Summary**

A description of the procedures employed in order to accomplish this futures study was outlined in this chapter. Specifically, the population included in the study was described, the research design was stated and the process used to collect and analyze the data was explained.
CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The results of this study are summarized in thirteen tables. Tables 1, 2 and 3 are addressed in chapter III. Tables 4 through 11 present the basic data on two aspects of the study relative to the instrument used in Round II. Tables 12 and 13 deal with responses to Round III. The basic data in Round II are: (1) the number and percent of a condition occurring and the likely impact that the condition will have on education in the year 2000; (2) Quartiles 1 and 3 for both ratings (Likelihood of Occurrence and Impact on Education) were used to establish cut-off levels for Round III.

Presentation of Data

The following paragraphs are statements pertaining to the data for this study. These statements are subsumed under captions: Distribution of Responses to the second instrument in Round II; Distribution of Responses to the third instrument in Round III. Statements 1 through 75 in Round II were generated from narrative responses to questions in the first instrument in Round I (see Appendix D, page 99).
Distribution of Responses to the Second Instrument in Round II

The 75 statements were developed by the researcher from the participants' answers to the eight questions in Round I. Ten statements were developed from the answers to each of the first seven questions and five statements from question eight.

Responses to statements in Round II were considered appropriate for further review and analysis only if they reflected a cumulative value of 70 percent or greater for ratings 4 and 5 or 1 and 2. The ratings of 4 and 5 are moderately high to high, and the ratings of 2 and 1 are moderately low to low.

Question One

The results of Question One are summarized in table 4, page 44. Statement four under Likelihood and statement three under Impact have been isolated for the first set of ten statements. These were rated moderately high to high.

Statement four reads:

Parents will demand more input into the running of schools but will continue to expect schools to shoulder the major responsibility for educating their children.

Under Likelihood, 41, or 75 percent, of the respondents rated statement 4 as moderately high to high; under Impact, 36 or 65 percent.

Statement three reads:

Parents will become more involved in the education of their children if the rate of decline in academic performance and acceptable behavior continue.

Under Impact, 43, or 78 percent, of the respondents rated statement 3 as moderately high to high; under Likelihood, 35, or 63.6 percent.
TABLE 4
QUESTION 1 - ALL COUNTIES
DISTRIBUTION OF RESPONSES TO INSTRUMENT - ROUND II
ON STATEMENTS 1 THROUGH 10 THAT WERE GENERATED FROM
NARRATIVE RESPONSES TO QUESTION 1 - ROUND I

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</table>

Q₁ = 1.75  Q₃ = 4.81
Q₁ = 1.95  Q₃ = 5.01
Question Two

The results of Question Two are summarized in table 5, page 46. Four statements were singled out. Statement fifteen under Likelihood was rated moderately high to high.

Statement fifteen reads:

Jobs will become more technical and skills oriented and more businesses will become involved as training sites providing technical skills instruction.

Under Likelihood, 42, or 76 percent, of the respondents rated statement 15 as moderately high to high; under Impact, 36, or 65 percent.

Conversely, statement fourteen under Likelihood has been isolated. It was rated low to moderately low.

Statement fourteen reads:

Only Vocational-Technical Schools should be involved with business and industry in the planning of educational programs.

Under Likelihood, 41, or 74 percent, of the respondents rated statement 14 as low to moderately low.

Statements eleven and twelve under Impact have been isolated from this second set of ten statements. They were rated moderately high to high.

Statement eleven reads:

Schools will become involved with business and industry in the process of planning, developing and implementing educational programs.

Under Impact, 41, or 75 percent, of the respondents rated statement 11 as moderately high to high; under Likelihood, 37, or 67 percent.
### TABLE 5

**QUESTION 2 - ALL COUNTIES**

**DISTRIBUTION OF RESPONSES TO INSTRUMENT - ROUND II**

**ON STATEMENTS 11 THROUGH 20 THAT WERE GENERATED FROM**

**NARRATIVE RESPONSES TO QUESTION 2 - ROUND I**

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<td>5</td>
<td>9.0</td>
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<tr>
<td>20</td>
<td>12</td>
<td>21.8</td>
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\[ Q_1 = 1.67 \quad Q_3 = 4.77 \]

\[ Q_1 = 2.13 \quad Q_3 = 4.99 \]
Statement twelve reads:

Schools will involve business and industry in the process of planning and developing curriculum in order to meet individual needs of students as they become prepared for selected employment.

Under Impact, 39, or 71 percent, of the respondents rated statement 12 as moderately high to high; under Likelihood, 33, or 60 percent.

Question Three

The results of Question Three are summarized in table 6, page 48. Statements twenty-one, twenty-three and twenty-five under Likelihood and Impact have been isolated for the third set of ten statements. They were rated moderately high to high. Statement twenty-two under Impact has been isolated. It was rated moderately high to high.

Statement twenty-one reads:

All students must be able to master the three basic skills of reading, writing and computation.

Under Likelihood, 47, or 85 percent, of the respondents rated statement 21 as moderately high to high; under Impact, 45, or 82 percent.

Statement twenty-three reads:

Career awareness must be an effective part of the school experience and must be generally related in a meaningful way to courses that are taught.

Under Likelihood, 44, or 80 percent, of the respondents rated statement 23 as moderately high to high; under Impact, 40, or 73 percent.

Statement twenty-five reads:

Career and comprehensive oriented educational programs must include college preparatory, vocational, business, industry,
### TABLE 6

**QUESTION 3 - ALL COUNTIES**

DISTRIBUTION OF RESPONSES TO INSTRUMENT - ROUND II
ON STATEMENTS 21 THROUGH 30 THAT WERE GENERATED FROM
NARRATIVE RESPONSES TO QUESTION 3 - ROUND I

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</table>

\[ Q_1 = 2.11 \quad Q_3 = 5.09 \quad Q_1 = 2.43 \quad Q_3 = 5.23 \]
technical sciences and computer experiences.
Under Likelihood, 47, or 85 percent, of the respondents rated statement 25 as moderately high to high; under Impact, 43, or 78 percent.

Statement twenty-two reads:
Schools must guarantee that all students graduate from high school with entry level skills for both business and college entrance.

Under Impact, 39, or 71 percent, of the respondents rated statement 22 as moderately high to high; under Likelihood, 30, or 55 percent.

Question Four

The results of Question Four are summarized in table 7, page 50. Statements thirty-three and thirty-five under Likelihood and Impact have been isolated for the fourth set of ten statements. They were rated moderately high to high.

Statement thirty-three reads:
Programs will involve greater use of computers and individualized teaching mechanisms with the teacher serving as a resource person and monitor. College level courses may be introduced at the senior high level along with a greater emphasis on sex education.

Under Likelihood, 39, or 71 percent, of the respondents rated statement 33 moderately high to high; under Impact, 40, or 73 percent.

Statement thirty-five reads:
There will be increased emphasis on accountability; increased emphasis on least restrictive environment for all children and individual education plans for all children, both in regular and special education.

Under Likelihood and Impact respectively, 39, or 71 percent, of the respondents rated statement 35 as moderately high to high.
### Table 7

**Question 4 - All Counties**

**Distribution of Responses to Instrument - Round II**

On Statements 31 through 40 that were generated from narrative responses to Question 4 - Round 1

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<th>Impact on Education Rating</th>
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\[ Q_1 = 2.06 \quad Q_3 = 4.86 \quad Q_1 = 2.19 \quad Q_3 = 5.15 \]
Questions Five and Six

The results of Questions Five and Six are summarized in tables 8 and 9, pages 52 and 53. No statements under Likelihood and Impact have been isolated for the fifth and sixth sets of ten statements because they did not show a cumulative percentage of 70 or more for ratings 4 and 5 or ratings 2 and 1.

Question Seven

The results of Question Seven are summarized in table 10, page 54. Statement sixty-three under Impact has been isolated for the seventh set of ten statements. It was rated moderately high to high.

Statement sixty-three reads:

More highly skilled teachers, better planned facilities and increased staff support designed to reduce 'burnout' will be needed in order to cope with demands associated with industrial growth.

Under Impact, 43, or 78 percent, of the respondents rated statement 63 as moderately high to high; under Likelihood, 37, or 67 percent.

Question Eight

The results of Question Eight are summarized in table 11, page 55. No statements under Likelihood and Impact have been isolated for the final set of five statements because they did not show a cumulative percentage of 70 or more for ratings 4 and 5 or ratings 2 and 1.

Distribution of Responses to the Third Instrument in Round III

The distribution of responses to the instrument in Round III is presented in table 12, page 56. The data in this table represent
## Table 8

**Question 5 - All Counties**

Distribution of Responses to Instrument - Round II

On Statements 41 Through 50 That Were Generated From


Narrative Responses to Question 5 - Round I

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\[ Q_1 = 1.31 \quad Q_3 = 4.57 \]

\[ Q_1 = 1.57 \quad Q_3 = 4.85 \]
## Table 9

**Question 6 - All Counties**

Distribution of Responses to Instrument - Round II

On statements 51 through 60 that were generated from narrative responses to Question 6 - Round I

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\[ Q_1 = \frac{1.83}{4.69} \]

\[ Q_3 = \frac{2.00}{4.80} \]
### Table 10

#### Question 7 - All Counties

Distribution of responses to instrument - Round II on statements 61 through 70 that were generated from narrative responses to Question 7 - Round I

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<tr>
<th>Statements</th>
<th>Likelihood of Occurrence Rating</th>
<th>Impact on Education Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>61</td>
<td>8</td>
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<tr>
<td>62</td>
<td>4</td>
<td>7.2</td>
</tr>
<tr>
<td>63</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>64</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>65</td>
<td>8</td>
<td>14.5</td>
</tr>
<tr>
<td>66</td>
<td>6</td>
<td>10.9</td>
</tr>
<tr>
<td>67</td>
<td>3</td>
<td>5.4</td>
</tr>
<tr>
<td>68</td>
<td>5</td>
<td>9.0</td>
</tr>
<tr>
<td>69</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>70</td>
<td>2</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Q₁ = 1.87   Q₃ = 4.75

Q₁ = 2.07   Q₃ = 5.01
TABLE 11

QUESTION 8 - ALL COUNTIES
DISTRIBUTION OF RESPONSES TO INSTRUMENT - ROUND II
ON STATEMENTS 71 THROUGH 75 THAT WERE GENERATED FROM
NARRATIVE RESPONSES TO QUESTION 8 - ROUND I

<table>
<thead>
<tr>
<th>STATEMENTS</th>
<th>LIKELIHOOD OF OCCURRENCE RATING</th>
<th>IMPACT ON EDUCATION RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4  5  TOTAL</td>
<td>1  2  3  4  5  TOTAL</td>
</tr>
<tr>
<td></td>
<td>%  %  %  %  %</td>
<td>%  %  %  %  %</td>
</tr>
<tr>
<td>71</td>
<td>2  3.6 9 16.3 23 41.8 17 30.9 4 7.2 55 99.80</td>
<td>2  3.6 9 16.3 18 32.7 18 32.7 8 14.5 55 99.80</td>
</tr>
<tr>
<td>72</td>
<td>7 12.7 5 9.0 17 30.9 24 43.6 2 3.6 55 99.80</td>
<td>6 10.9 6 10.9 20 36.3 18 32.7 5 9.0 55 99.80</td>
</tr>
<tr>
<td>73</td>
<td>7 12.7 11 20.0 19 34.5 15 27.2 3 5.4 55 99.80</td>
<td>5 9.0 9 16.3 17 30.9 20 36.3 4 7.2 55 99.70</td>
</tr>
<tr>
<td>74</td>
<td>11 20.0 18 32.7 13 23.6 9 16.3 4 7.2 55 99.80</td>
<td>9 16.3 4 7.2 17 30.9 15 27.2 10 18.1 55 99.70</td>
</tr>
<tr>
<td>75</td>
<td>14 25.4 15 27.2 14 25.4 8 14.5 4 7.2 55 99.70</td>
<td>10 18.1 11 20.0 13 23.6 12 21.8 9 16.3 55 99.80</td>
</tr>
</tbody>
</table>

Q₁ = 1.33  Q₃ = 4.39

Q₁ = 1.58  Q₃ = 4.78
TABLE 12

DISTRIBUTION OF RESPONSES TO INSTRUMENT - ROUND III REGARDING THE PARTICIPANTS BEING WILLING TO CHANGE ORIGINAL RESPONSES WHEN COMPARED TO INTER-QUARTILE RANGE ESTABLISHED BY RESPONSES OF THE TOTAL POPULATION OF THE STUDY

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>QUARTILE RANGE</th>
<th>WILLING TO CHANGE</th>
<th>UNWILLING TO CHANGE</th>
<th>DIFFERENCE</th>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st 3rd</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>1.</td>
<td>1.75 4.81</td>
<td>21</td>
<td>40</td>
<td>31</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>1.67 4.77</td>
<td>34</td>
<td>65</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>3.</td>
<td>2.11 5.09</td>
<td>14</td>
<td>27</td>
<td>38</td>
<td>73</td>
</tr>
<tr>
<td>4.</td>
<td>2.06 4.86</td>
<td>11</td>
<td>21</td>
<td>41</td>
<td>79</td>
</tr>
<tr>
<td>5.</td>
<td>1.31 4.57</td>
<td>30</td>
<td>58</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>6.</td>
<td>1.83 4.69</td>
<td>22</td>
<td>42</td>
<td>30</td>
<td>58</td>
</tr>
<tr>
<td>7.</td>
<td>1.87 3.51</td>
<td>17</td>
<td>33</td>
<td>35</td>
<td>67</td>
</tr>
<tr>
<td>8.</td>
<td>1.33 4.39</td>
<td>24</td>
<td>46</td>
<td>28</td>
<td>54</td>
</tr>
</tbody>
</table>

| IMPACT ON WILLING TO CHANGE | QUARTILE RANGE | 1st 3rd | #     | %      | 1st 3rd | 21    | 34     | 14     | 11     | 30     | 22    | 17    | 24     | 40     | 65     | 27    | 21     | 58     | 42     | 33     | 46     | 60     | 66     | 15.15 | 4.3570** |
| EDUCATION UNWILLING TO CHANGE | D%  | SED% | CR  |
| DIFFERENCE | DATA | 1.95 5.01 | 13    | 17     | 39    | 83     | 66  | 15.15 | 4.3570** |
|          |       | 2.13 4.99 | 23    | 44     | 29    | 56     | 12  | 13.87 | 0.8650 |
|          |       | 2.43 5.23 | 06    | 12     | 46    | 78     | 66  | 19.85 | 3.3250** |
|          |       | 2.19 5.15 | 08    | 15     | 44    | 85     | 70  | 18.76 | 3.7312** |
|          |       | 1.57 4.85 | 28    | 54     | 24    | 46     | 08  | 13.96 | 0.5729 |
|          |       | 2.00 4.80 | 13    | 25     | 39    | 75     | 50  | 15.54 | 3.2181** |
|          |       | 2.07 5.01 | 12    | 23     | 40    | 77     | 54  | 15.72 | 3.4347** |
|          |       | 1.58 4.78 | 14    | 27     | 38    | 73     | 46  | 15.22 | 3.0229** |

** Significant at the 0.01 percent level of confidence with 50 degrees of freedom
* Significant at the 0.05 percent level of confidence with 50 degrees of freedom

Number of Original Participants from all Counties: 60
Number of Original Participants remaining in Round III: 52
Number of Original Participants dropping out in Round III: 8
the responses given by a select group of participants whose original responses were markedly different from the overall responses made by the total sample in this case study. The inter-quartile range (Q₁ and Q₃) as established by the overall responses was the basis for asking this group of participants to review their original responses on Likelihood and Impact in order to test the strength of their views which diverged from the total sample.

The data from this table are presented according to the eight questions in Round I. Special emphasis is placed on the statistical significance of the difference between percent of response relative to the respondents being willing or not willing to change their response. Willingness to change the rating given to the initial response so that it would correspond to the overall group's rating suggests a relatively weak commitment to the initial rating. Conversely, unwillingness to change the initial rating implies a strong commitment to that response. This notion is supported by the Delphi Model. The Critical Ratio (CR), which is a test of the significance of the difference between two statistics, was used to test the difference between willingness or unwillingness to change a response on Likelihood and Impact.

Under Likelihood, the CR of 2.0619 and 2.3084 for questions two and seven show that the difference between willingness and unwillingness to change response was statistically significant at the 0.05 percent level of confidence. Question four yielded a statistically significant difference at the 0.01 percent level of confidence. All other differences were not statistically significant.
More specifically, for question one, the CR of 1.4154 was not statistically significant, because it was less than 2.008 with 50 degrees of freedom. In that same connection, approximately 84 percent of the cases in a normal distribution fall between the mean and ±1.4154 standard error of the difference; and 16 percent fall outside these limits, consequently, a difference as large as ±20% might readily arise as a sampling fluctuation from zero and is not statistically significant.

Similarly, question three yielded a CR of 1.7086 with a percent difference of 26. This difference was not statistically significant at the 0.05 percent level of confidence with 50 degrees of freedom. In this case about 91 percent of the cases in a normal distribution fall between the mean and ±1.7086 standard error of the difference; and 9 percent fall outside these limits; consequently, a difference as large as ±26 might readily arise as a sampling fluctuation from zero and is not statistically significant.

The CR for question five and six was 1.1462. Approximately 74 percent of the cases in a normal distribution fall between the mean and ±1.1462 standard error of the difference; and 26 percent fall outside these limits; consequently, a difference as large as ±16 might readily arise as a sampling fluctuation from zero and is not statistically significant.

Finally, the CR of 0.5729 for question eight was not significant. In this case, about 43 percent of the cases in a normal distribution fall between the mean and ±0.5729 standard error of the difference; and 57 percent fall outside these limits; therefore, a difference
as large as ±8 might readily arise from sampling error.

Under Impact, questions one, three, four, and six through eight yielded CR values that were statistically significant at the 0.01 percent level of confidence. All other differences in percent of responses were not statistically significant. More specifically, a CR of 0.8650 for question two means that 61 percent of the cases in a normal distribution fall between the mean and ±0.8650 standard error of the difference; and 39 percent fall outside these limits; consequently, a difference as large as ±12 might readily arise as a result of sampling fluctuation from zero.

Similarly, the CR of 0.5729 for question five was not statistically significant. According to the areas and ordinates of the normal probability curve, approximately 43 percent of the cases fall between the mean and ±0.5729 standard error of the difference; and 57 percent fall outside these limits.

The data in table 13, page 60, represent a distribution that compares/contrasts by groups the respondents' perception of the Future. An examination of this table shows those groups of respondents who were willing to retain their initial belief about the likelihood of an occurrence and the impact that occurrence will have on education in the year 2000 even after they were told that their initial responses were markedly different from the average or overall group response. The four groups of respondents were: elected/appointed officials; parents/business/industrial planners; system level educators; and school level educators.
### TABLE 13

**DISTRIBUTION OF RESPONSES IN ROUND III BY GROUP OF RESPONDENTS RELATIVE TO WILLINGNESS OR UNWILLINGNESS TO CHANGE INITIAL RESPONSES**

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ELECTED APPOINTED OFFICIALS</th>
<th>PARENTS BUSINESS INDUSTRIAL PLANNERS</th>
<th>EDUCATORS SYSTEM LEVEL</th>
<th>EDUCATORS SCHOOL LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WILLING TO CHANGE INITIAL RESPONSE</td>
<td>UNWILLING TO CHANGE INITIAL RESPONSE</td>
<td>WILLING TO CHANGE INITIAL RESPONSE</td>
<td>UNWILLING TO CHANGE INITIAL RESPONSE</td>
</tr>
<tr>
<td>I</td>
<td>1 50</td>
<td>1 50</td>
<td>2 100</td>
<td>2 100</td>
</tr>
<tr>
<td>II</td>
<td>1 17</td>
<td>5 83</td>
<td>6 100</td>
<td>3 100</td>
</tr>
<tr>
<td>III</td>
<td>1 33</td>
<td>2 67</td>
<td>3 100</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>2 100</td>
<td>2 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>1 25</td>
<td>3 75</td>
<td>4 100</td>
<td>1 50</td>
</tr>
<tr>
<td>VI</td>
<td>1 20</td>
<td>4 80</td>
<td>5 100</td>
<td>2 100</td>
</tr>
<tr>
<td>VII</td>
<td>1 25</td>
<td>3 75</td>
<td>4 100</td>
<td>1 100</td>
</tr>
<tr>
<td>VIII</td>
<td>3 100</td>
<td>3 100</td>
<td>1 100</td>
<td></td>
</tr>
</tbody>
</table>
Question One

Of the two elected/appointed officials, one was willing and one was unwilling to change the initial response. For the group parents/business/industrial planners, the two respondents were willing to change their initial response. Six or 86 percent of the system level educators were willing to change as opposed to one, or 14 percent, who was unwilling to change. Twelve, or 72 percent, of the school level educators indicated a willingness to change; whereas 5, or 29 percent, were unwilling to change. In terms of percent, the parent/business/industrial planners group was more willing to change their ranking of the statements under this question so that it would correspond to the overall response. The elected/appointed officials group was least willing to make a change. The school level educators when compared with system level educators were not willing to make a change in response.

Question Two

Of the six elected/appointed officials, five, or 83 percent, did not change their response. The three respondents in the parent/business/industrial planners group were willing to change their response. Eight, or 80 percent, of the system level educators were willing to change and two, or 20 percent, were unwilling to change. Twelve, or 75 percent, of the school level educators were willing and four, or 25 percent, were unwilling to change their initial response. In terms of percent of respondents by groups, parents/business/industrial planners were willing to reverse their ranking of the
statements under this question so as to conform to the overall rank for the total sample of respondents. Conversely, the group of elected/appointed officials were not willing to make the change. Both the system level and school level educators' groups were more willing to change than not willing to change.

Question Three

Of the three elected/appointed officials, two, or 67 percent, of them were unwilling to modify their initial response and one, or 33 percent, indicated a willingness to change. There were no requests made to the parents/business/industrial planners to change their initial response because their response was in agreement with the average or overall rating for this question. Four, or 80 percent, of the system level educators were willing to change and one, or 20 percent, was not willing to change. Five, or 71 percent, of the school level educators were willing and two, or 29 percent, were unwilling to change, in terms of percent of respondents by groups, system level educators were more willing to change their initial response to the statements under this question. On the other hand, the group of elected/appointed officials refused to change their initial response to this question. A contrast between system level and school level educators groups shows that there were more school level respondents who were not willing to modify their ranking of this question.

Question Four

The two elected/appointed officials who were asked to consider
changing their initial ranking of this question were unwilling to make a change. There were no requests made to the group of parents/business/industrial planners to consider changing their initial response because their ranking of Question Four was comparable to the overall rating of the total sample of respondents. Three, or 75 percent, of the system level educators were willing to change and one, or 75 percent, was unwilling to change. Four, or 57 percent, of the school level educators were willing to change and three, or 43 percent, were unwilling to change. In terms of percent, all of the elected/appointed officials were not willing to change their ranking of the statements under this question; most of the system level educators were willing to change. The school level educators were almost evenly divided on whether to change or not to change their initial response.

**Question Five**

Of the four elected/appointed officials, three, or 75 percent, were not willing to change and one, or 25 percent, was willing to make a change. The two respondents in the parent/business/industrial planners group were evenly divided on willingness and unwillingness to change. Eight, or 80 percent, of the system level educators were willing to change, and two, or 20 percent, were unwilling to change. Eleven, or 73 percent, of the school level educators were willing to change and four, or 27 percent, were unwilling to change. In terms of percent most of the elected/appointed officials were not willing to change and most of the system level educators were willing to change their ranking of the statements under this question. When system
level educators were compared with school level educators, there was a greater percentage of the latter group who were not willing to change.

Question Six

Of the five elected/appointed officials, four, or 80 percent, indicated an unwillingness to change and one, or 20 percent, was willing to change. The two respondents in the parent/business/industrial planners group were willing to change. Four, or 80 percent, of the system level educators were willing to change and one, or 20 percent, did not change. Nine, or 81 percent, of the school level educators were willing to change, and two, or 18 percent, were not willing to change. In terms of percent, the elected/appointed officials as a group of respondents were not willing to change their initial ranking of the statements under this question. When system level educators are compared to school level educators as a group, it appears that more school level educators were willing to change their response.

Question Seven

Of the four elected/appointed officials, three, or 75 percent, did not change their initial ranking of the statements under this question; whereas, one, or 25 percent, made the change. The one respondent in the parent/business/industrial planners group who was asked to consider making the change, did in fact change. Three, or 60 percent, of the system level educators made a change, and two, or 40 percent, refused to change. Six, or 86 percent, of the school
level educators changed, and one, or 14 percent, did not change. In terms of percent, the elected/appointed officials resisted the request to change their initial ranking of the statements under this question. There were considerably more system level educators who refused to change than school level educators.

**Question Eight**

The three elected/appointed officials who were asked to consider changing their initial ranking of the statements under this question refused to make a change. The one respondent in the parent/business/industrial planners group did make a change. Five, or 71 percent, of the system level educators were willing to change, and two, or 29 percent, were unwilling to change. Eleven, or 78 percent, of the school level educators were willing to change, and three, or 22 percent, were not willing to change. In terms of percent, the elected/appointed officials were adamant in their initial ranking of the statements under this question, and they refused to modify their response. When system level educators are contrasted with school level educators, it appears that the former group showed a higher percent of respondents who were not willing to change.

A review of table 13, page 60, shows that the elected/appointed officials as a group in the total sample were not inclined to reverse their initial ranking of the statements under the eight questions. Their adamant stance may very well be attributed to this group having access to privileged/intuitive knowledge about the Future with regard to their geographic locale. A further examination of this
table shows that on the first five questions, the school level educators resisted the request to change at a higher percent level than the system level educators. That phenomenon may also reflect that school level educators have some grass root or intuitive information about the Future.

Chapter Summary

This chapter presented or analyzed the basic data for this study. The presentation and analysis were made under two captions. The first caption was Distribution of Responses to the Second Instrument, Round II. Under this distribution, several statements were identified, isolated and discussed for each of the eight questions. The discussion was limited to those statements within each of the eight sets of questions that received a cumulative percent of 70 or more on ratings 4 and 5 or 1 and 2 under Likelihood of Occurrence and Impact on Education. The second distribution was entitled Responses to the Third Instrument in Round III. This distribution consisted of two tables. The first table dealt with the respondents' willingness or unwillingness to change their initial response to the statements that were derived from the overall response for the total sample. This deviation was defined in terms of the first and third quartiles. A critical ratio was computed to determine the significance of the difference. A second table dealt with the respondents as four discrete groups (elected/appointed officials, parent/business/industrial planners, system level educators and school level educators). This analysis showed the percent of
respondents who were willing or unwilling to change their response.
CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS
AND RECOMMENDATIONS

Summary

The major emphasis of this futures study was to ascertain the effects, if any, of population size, industrial growth, and employment considerations upon the public school instructional program in the year 2000 in the seven counties of Middle Georgia (Bibb, Crawford, Houston, Jones, Monroe, Peach and Twiggs). The Delphi Forecasting Technique involved three rounds or phases.

Round I dealt with eight conceptually developed questions to which a select group of respondents from the geographic area was asked to give narrative statements expressing independent judgments regarding each one. Returns from this instrument provided the information used to develop Round II.

Round II included statements representing a summary of the responses to the eight questions. Ten statements were formulated for each of the first seven questions from Round I; five, for question eight which had a smaller number of statements due to similarity of responses. The instrument used in Round II consisted of 75 statements relative to the major emphasis of the study. Participants rated these statements on a scale from 1 to 5 under two categories (Likelihood of Occurrence and Impact on Education). The
scale values are as follows: 1 is low likelihood or impact; 2 is moderately low likelihood or impact; 3 is average likelihood or medium impact; 4 is moderately high likelihood or moderately high impact and 5 is high likelihood or high impact.

For purposes of this study, the writer singled out only those statements in Instrument - Round II that received a cumulative percentage of 70 or more ratings on Likelihood and/or Impact. That is, the cumulative percentage ratings for 4 and 5 ratings or ratings 2 and 1 were isolated for discussion purposes.

Findings

There were three categories of data identified in this study, five statements under High Likelihood and High Impact, two statements under High Likelihood but Low Impact, and five statements under Low Likelihood but High Impact. All of these statements received a cumulative percentage of 70 or more and were rated moderately high to high.

High Likelihood and High Impact

1. All students must be able to master the three basic skills of reading, writing and computation. (Statement 21)

2. Career awareness must be an effective part of the school experience and must be generally related in a meaningful way to courses that are taught. (Statement 23)

3. Career and comprehensive oriented educational programs must include college preparatory, vocational, business, industry, technical sciences and computer experiences. (Statement 25)

4. Programs will involve greater use of computers and individualized teaching mechanisms with the teacher serving as a resource person and monitor. College level
courses may be introduced at the senior high level along with a greater emphasis on sex education. (Statement 33)

5. There will be increased emphasis on accountability; increased emphasis on least restrictive environment for all children and individual education plans for all children, both in regular and special education. (Statement 35)

High Likelihood but Low Impact

1. Parents will demand more input into the running of the schools but will continue to expect schools to shoulder the major responsibility for educating their children. (Statement 4)

2. Jobs will become more technical and skills oriented and more businesses will become involved as training sites providing technical skills instruction. (Statement 15)

Low Likelihood but High Impact

1. Parents will become more involved in the education of their children if the rate of decline in academic performance and acceptable behavior continue. (Statement 3)

2. Schools will become involved with business and industry in the process of planning, developing and implementing educational programs. (Statement 11)

3. Schools will involve business and industry in the process of planning and developing curriculum in order to meet individual needs of students as they become prepared for selected employment. (Statement 12)

4. Schools must guarantee that all students graduate from high school with entry level skills for both business and college entrance. (Statement 22)

5. More highly skilled teachers, better planned facilities and increased staff support designed to reduce "burnout" will be needed in order to cope with demands associated with industrial growth. (Statement 63)

Conclusions

The respondents' perception of the Future as reflected by their
rating of the 75 statements generated from the eight questions in Round I, forms the bases for the findings of this study. Assuming these visions of the future portray accurately the future of this region, such findings seem to warrant certain conclusions or expectations about education in the year 2000 for the Middle Georgia area.

The conclusions germane to this study reflected either high likelihood and high impact, or high likelihood but low impact, or low likelihood but high impact on education in the year 2000.

High Likelihood and High Impact

1. There will be considerable emphasis on reading, writing and computation skills. -- These skills for the most part will be the support base for all cognitive, affective and psychomotor experiences for students. Included in the cognitive area will be career awareness. It will be integrated with other academic experiences, rather than treated as a separate and distinct course of study. Moreover, career and comprehensive education will be geared to at least five formal training modes: college preparatory, general, business, vocational, technical sciences and computers.

2. The use of computers as a teaching device will characterize the teaching-learning situation. -- Additional instructional media will alter the role of teachers in the traditional sense. Teaching techniques will allow teachers to serve as human resources rather than a repository of information. The overall educational environment will focus on personalizing and individualizing instruction. This type of
instruction will allow high school seniors to earn academic credit for college level courses. Sex education will also characterize this type of instructional atmosphere.

3. More emphasis will be focused on teaching-learning-accountability for all levels of the educative milieu. -- In addition to classroom performance, high school seniors must demonstrate certain competencies before they are issued a diploma. Similarly, teacher certification is now predicated on demonstrated competencies. Considerable attention is given to mainstreaming children enrolled in exceptional education programs.

High Likelihood but Low Impact  
1. Parents may be expected to influence the running of the schools. -- Professional and lay school people will be required to confer with the individual parent as well as parent groups. By the same token parents will not allow the schools to abdicate their major role of educating children.

2. Jobs will be more technical and skills oriented. -- The business community will be used as training sites for students. The major subject-matter content at these training sites will be limited to technical skills.

Low Likelihood but High Impact  
1. The nature and extent of parental involvement with the schools will be influenced by a decline in academic achievement and an increase in disruptive and destructive behavior. -- When there is marked decline in the quality of student learning, parents can be
expected to exert a profound influence on the school. Further, when
the social demeanor of students becomes disruptive, parents will
again become involved in the operation of the school. Parent groups
will not tolerate a poor teaching-learning situation.

2. The business and industrial segments of the Middle Georgia
community are expected to exert considerable influence on the
school. -- This influence for the most part would be focused on:
(a) planning, developing and implementing educational programs;
(b) planning and developing curriculum so that students are prepared
for selected employment; and (c) influencing instructional activities
so that high school graduates have acquired entry level skills for
business and college.

3. The business and industrial sectors will continue to expand
in the Middle Georgia area. -- This expansion will have an effect on
the teaching profession. Hence, teachers will need to be assisted in
order to reduce "burnout." This assistance will provide for the
recruitment of teachers, physical facilities that are properly
conceived and constructed, and the institutionalizing of a series of
coping skills for teachers through pre-service and in-service
activities.

Implications

Taken collectively, the conclusions or expectations of this
futures study appear to suggest, in the form of a scenario, implica-
tions on education in the year 2000. The salient and relevant aspects
of that education for a child enrolled in the public schools of Middle
Georgia are complex. Some of the aspects find their parallel in the Cardinal Premises for Educational Change. Others are found in the assumptions delineated earlier in this case study.

1. The teaching-learning-situation in the year 2000 will be multiplex with well-defined focal points. -- In view of present trends, some children who will enroll in the public schools of Middle Georgia will be four years old or less. There is current evidence of this fact in the larger counties of Middle Georgia. These children will reside with working parents in a multiethnic and multicultural community. English will more than likely remain the principal spoken and written language in the home. However, there will be other secondary languages spoken in the community. Consequently, there will be a need for language tutors in the form of teacher aides and other paraprofessionals. These paraprofessionals will help facilitate the personalization of teaching and learning as it relates to oral and written communication. Moreover, this multiplex educational setting will utilize industry and business to personalize vocational, business, technical and scientific course of study. This multiplex educational community will use two resources from the private sector, namely, business and industry.

2. There will be fewer certificated school-based personnel. Education for some adults will serve self-actualization functions. -- The satisfaction of increased teacher-student ratio condition will not be restricted to traditional credentialed personnel. Instead, there will be some noncredentialed personnel. On the other hand, some school based personnel will have multiple credentials and
certification. Teaching and learning in this educational setting will be continuous rather than fragmented. That is to say, formal learning will begin at an early age and continue until death. Some adults will return to school for a variety of reasons. Among them are: (a) to improve knowledge and skills for job advancement; (b) to acquire specific content for personal fulfillment or self-actualization; (c) to enroll in post-secondary courses not just for academic credit or to satisfy requirements for a degree/graduation.

3. The local business and community needs will permeate the instructional programs of the school. -- Instead of emphasizing the needs of the local, state and national economy, more focus will be placed on the needs of the individual student and the business sector. Career awareness, exploration and development will assume an important position in the total school environment. Specialized community help-people will be loaned by industry and business to the schools to provide relevant teaching strength to the curriculum offerings and practice. Some students will find meaningful help in the business sector as student-employees.

4. Career exploration and development will emphasize personal life-long goals. -- The curriculum focus will be on the needs of the individual students who are preparing for life in all of its nuances. This emerging student is influenced by a multitude of ecological, physical, cultural and emotional factors. Such a student needs to develop "a spirit of global community" in maintaining and enhancing self. It is because of those influences, that the school will emphasize career development, life styles and emotional/psychological
fulfillment. Teaching will encourage active learning as opposed to passive student activities.

5. Parental participation will evolve into parent pressure groups to affect all facets of teaching and learning. -- There will be a balance between cognitive, affective and psychomotor teaching and learning. The community will assume some of this responsibility. That is to say, the schools and the parents will be active partners in educating children. Some parents will organize and form pressure groups to effect organizational/structural and functional/personnel changes in the schools. These pressure groups will also be competing for limited educational funds since fiscal support for education will be limited.

6. The business sector will develop teaching centers and/or their personnel will become teachers who are on loan to the schools for special instructional functions. -- Some students are currently being transported to industrial sites. Those extended teaching-learning centers will have the authority to issue academic credit for courses of studies that were successfully completed by students. Students will have on-the-job/first-hand experiences by working with professionals in factories, hospitals, industrial plants, professional offices and other work sites. Such a diverse educational opportunity will necessitate teaching students a multitude of human relationships skills. For example, students will need to improve their verbal and nonverbal communication skills, acquire feedback skills, values clarification skills, problem solving skills and decision making skills.
Additionally, student transportation will serve primarily instructional or programatic purposes. That is, if the special instruction is not available at the neighborhood school, either the instruction or the student will be transported. Such instruction will be geared to serve specific and identified functions as determined through at least two types of needs assessments; students and the business community. Having assessed needs in a systematic manner, curriculum planners (system level, school level educators, parents/business/industrial planners, elected/appointed officials) will make instructional activities relevant.

**Recommendations**

The conclusions and implications derived from an analysis and interpretation of the data appear to merit the recommendations to follow.

1. It is essential that before the year 2000, the public schools in the Middle Georgia area establish, maintain and use effectively a variety of compatible parent/community/teacher groups. These groups should have clearly defined objectives for assisting the schools in personalizing the teaching-learning situation. By personalizing instruction with parent-community cooperation, the school would in fact give support to the ninth Cardinal Premise for Educational Change. To facilitate the personalization of the instructional process adequately, the school must include at least process/product evaluative components so that parental participation is not motivated only by poor student academic and social behaviors.
2. It is important that before the year 2000, the public schools in the Middle Georgia area identify the businesses in the region that will function as training sites for technical-skill training. -- The training at these sites should be specific and not general. It should relate to employment opportunities and needs of the industry with comparatively high employability of the student after training. This particular recommendation relates to assumption number one in this case study; namely, "employment of people in a community (or work force) is dependent upon their training for available jobs."

3. It is important for the public schools in the Middle Georgia area before the year 2000 to treat career education as comprehensive education. -- Such an education will emphasize reading, writing, and computation skills. These skills are essential for post-secondary training (college, vocational-technical schools); adequate and literate citizenship in a democratic society. These skills are sequential and cumulative. This recommendation is consistent with the Life Role Skills that have been mandated by the Georgia Legislature and developed by the State Department of Education. Also, this recommendation takes on added significance in view of Cardinal Premise for Educational Change, number 16. There is some degree of similarity between this recommendation and assumption number three of this case study; namely, "instructional programs are developed around the educational needs of the clients of the school districts."

4. It is important for schools in the Middle Georgia area before the year 2000 to develop a valid system for making school personnel
accountable for the quality of their professional work. -- This recommendation requires central office personnel to assume a more viable and direct role in staff development training for teachers and principals. The training should focus on cognitive, psychomotor and affective education. That is, teachers and principals should acquire a variety of skills to successfully work with the students as a total, unique and self-actualizing individual.

5. It is important that school personnel become cognizant of the pending significant economic and physical growth in the Middle Georgia area. -- This growth will have a profound effect upon the public schools. Hence, the school must respond in definite ways to the needs of business and the total community. Emphasis should be placed on the technical sciences, which will require special training for teachers. Also, the revamping of the curriculum will be a significant undertaking by the schools, thus making instruction related to identified needs.

6. It is essential that the public schools of the Middle Georgia area recognize that education is an interdependent process. -- The business community as well as the total community are partners with the school in the educative enterprise. The responsibility for educating children will continue to rest with the professional educator, but parents and other laymen have begun to assume a more active role in dictating or influencing the manner in which professional educators carry out their assigned responsibilities, and this trend will continue.
Suggestion for Similar Studies

It is important that anyone desiring to conduct a similar futures study take a clear look at the use of conceptually developed questions as a process for constructing the instruments for Rounds II and III. Particular attention should be given to the use of Factor Analysis as one statistical technique. This technique will allow the researcher to have the generated statements empirically grouped rather than grouped conceptually. Ambiguously generated statements lead to spurious responses, therefore, it would be helpful to develop factors that were statistically identified and isolated. By using this technique, the researcher should reduce the number of inconsistent and contradictory responses to the statements generated from the questions in Round I. The writer did not employ that statistical technique because he elected to rely exclusively on the Delphi Model.
APPENDICES
APPENDIX A

A "FROM/TO" LIST ON THE FUTURE OF EDUCATION

From old emphasis on

closed systems

traditionally credentialed personnel

inefficient information transfer

authoritarianism

arbitrary curriculums

input measurement

white working and middle-class orientation

mass education

the needs of the economy

lock step

rote learning

K-12 (kindergarten through 12th grade)

"cells and bells" learning

To new emphasis on

open systems

noncredentialed personnel and those having multiple credentials

educational technology

humanism

life itself and student interests

output measurement

cultural pluralism

individual education

the needs of the individual and society

primacy of individual differences

discovery

early childhood development and adult continuing education

home learning, independent study, learning when you feel like it
<table>
<thead>
<tr>
<th>From old emphasis on</th>
<th>To new emphasis on</th>
</tr>
</thead>
<tbody>
<tr>
<td>poor instructional art</td>
<td>scientific basis of instruction</td>
</tr>
<tr>
<td>passive learners</td>
<td>active learners, student-initiated learning</td>
</tr>
<tr>
<td>prohibition of use of peer resources</td>
<td>maximum utilization of peer resources, especially cross-peer teaching</td>
</tr>
<tr>
<td>external rewards</td>
<td>internal rewards</td>
</tr>
<tr>
<td>&quot;student as nigger&quot;</td>
<td>highly valued individual</td>
</tr>
<tr>
<td>purely cognitive</td>
<td>balance between cognitive, affective, and conative</td>
</tr>
<tr>
<td>conforming behavior</td>
<td>divergent behavior</td>
</tr>
<tr>
<td>discipline</td>
<td>academic excellence</td>
</tr>
<tr>
<td>fragmentation of knowledge</td>
<td>unity and synthesis of knowledge</td>
</tr>
<tr>
<td>grades</td>
<td>continuous progress</td>
</tr>
<tr>
<td>arbitrary grouping</td>
<td>grouping based on educational mission</td>
</tr>
<tr>
<td>competition</td>
<td>cooperation</td>
</tr>
<tr>
<td>memorization/regurgitation</td>
<td>learning to learn</td>
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<tr>
<td>suspicion</td>
<td>trust</td>
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<tr>
<td>punitiveness</td>
<td>encouragement</td>
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<tr>
<td>rewards for only academic learning</td>
<td>value of extra-academic learning</td>
</tr>
<tr>
<td>competency based on attendance/course completion</td>
<td>student-initiated &quot;challenge&quot; exams</td>
</tr>
<tr>
<td>school/state requirements</td>
<td>self-actualization</td>
</tr>
<tr>
<td>limiting of potential</td>
<td>expanded consciousness</td>
</tr>
<tr>
<td>teacher autonomy</td>
<td>learner autonomy</td>
</tr>
<tr>
<td>From old emphasis on</td>
<td>To new emphasis on</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------</td>
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<tr>
<td>student dependency on teacher</td>
<td>chemical/electrical enhancement of learning receptivity</td>
</tr>
<tr>
<td>stimulus</td>
<td></td>
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<tr>
<td>limited curriculum</td>
<td>vastly expanded curriculum</td>
</tr>
<tr>
<td>book learning</td>
<td>meditation, sentics, biofeedback</td>
</tr>
<tr>
<td>classroom learning</td>
<td>monastic learning, environmental learning</td>
</tr>
</tbody>
</table>

APPENDIX B

CARDINAL PREMISES FOR EDUCATIONAL CHANGE:
1976-2001

General Premises

1. The need to develop a spirit of "global community" in an increasingly interdependent world has re-affirmed an important task for education: to recognize and to respect the concepts of multiethnic, polycultural, and multilingual education in pluralistic societies both in the United States and abroad.

2. Education has assumed new significance as a positive force for peace in a world capable of destroying itself.

3. Learning is a lifelong process, and education, therefore, should be seen as a seamless continuum of experiences from early childhood to old age.

4. The value to the learners of their experiences obtained through education is more important than the routes they may follow in obtaining those experiences.

5. There are standards that are essential to life on a planet sometimes imperiled by the less thoughtful of its human population.

Premises Pertaining to Process

6. The aspirations and abilities of the student are best served when the student's learning experiences are at least partly self-directed rather than selected entirely by teachers.

7. Because of the impact of the attitudes, comments, and actions of teachers (the "hidden curriculum," reflecting what teachers really value) greater efforts should be made to insure that this latent curriculum becomes clear and provides wholesome input for the learner.

8. Because the experiences of each learner are unique, teachers should expect a wide range of performance from children, youth, and adults.
9. Good instruction is personalized rather than individualized.

10. The opportunity for universal early childhood education should be an integral part of the structure of education in a seamless learning continuum.

11. Adult education that exceeds more literacy should receive worldwide emphasis.

12. Continuing educational opportunities should be designed to serve both mature (past 30) and senior (past 60) learners.

13. Particularly at the transnational level, the application of instructional systems and technologies can make important contributions to education as ideas, knowledge, and know-how are shared with the illiterate and the semiliterate in order to further their education. However, the use of systems and of media must be consonant with carefully reasoned human values.

14. Sharply delineated segments of education based on K-6-6 type grade levels ought to be eliminated as soon as feasible. Ability, motivation, and readiness rather than certificates or diplomas should serve as the learner's prime credentials.

15. When and where teaching and learning occur must not be bounded either by the school's walls or by our preconceived ideas as to what should be learned at the once-traditional age for learning it.

16. Persons in the field of career or occupational education should develop their programs in ways which recognize even more fully that vocational activity - the jobs held and services performed - often is sequential and will require greater versatility from members of the work force in the years ahead.

17. Traditional patterns of home-school relations need to be reconsidered and perhaps sharply modified in recognition of changes in the family which, in many instances today, is often an "affinity group" rather than the nuclear family consisting of mother, father, and children.

18. Present social trends, which are characterized by accelerating change and increasing complexity, have enhanced the need for basic communication skills such as the ability to handle the
written and spoken word and to deal with number concepts.

19. Valid methods of instruction vary from one learner to another, hence the goal of equitable educational opportunity can be approached only when schooling provides - at least in some respects - experiences that are different for each student.

20. Traditional instructional methods should be expanded to include problem-solving approaches, and their emphasis on cognition and on valuing should be renewed.

21. Interdisciplinary learning should be stressed and the art of comprehending and anticipating complex relationships should be fostered.

22. Good vocational or occupational education should be more thoroughly permeated by the content of a general or "liberalizing" education; conversely, it should be recognized that a sound liberal education also will be inherently vocational in the years ahead.

23. Because human differences and educational uniformity cannot be reconciled, the testing and measurement of content skills should be evaluated on an individual basis.

24. There is a need to teach the concept of alternative futures since, lacking a desirable image of tomorrow's possible world, one lacks purpose, goals, and the motivating spirit of community that are needed to serve as guides to action.

25. Instruction in subject matter fields should develop a deepening understanding of contemporary threats to the biosphere, include socially useful service in its maintenance, and communicate to youth the need for achieving balance or equilibrium between humans and their environment.

26. So that desirable alternative futures can be envisioned, work in the social studies should be redesigned so as to promote a grasp of human geography and of planetary cultures as they exist today.

27. In studying possible futures the natural and physical sciences, both in content and methodology, should serve as illustrations of truth-validating inquiry.

28. In the symbolic sciences - language arts, foreign language, mathematics, linguistics, and the like - more heed should be given both to basic communication skills as well as to the ability to
recognize propaganda, shoddy advertising, and political doubletalk.

APPENDIX C

TECHNIQUES OF FORECASTING

Bayesian Statistical Forecasting

This process is a systematic method for drawing statistical inferences about the uncertain future; decision making under uncertainty. The Bayesian approach statistically incorporates the available relevant information to reduce the uncertainty of forecasts, assessments, and decisions about the future. It is a useful technique for:

- assessing uncertain alternatives to arrive at probability statements for the occurrence of the most likely alternative;
- assigning and refining, via Bayes' Theorem, probabilities of occurrence to alternatives for the purpose of arriving at decisions or forecast about the future;
- identifying the impact of what happens in the early stages of a development (in the past) in affecting outcomes;
- "systematizing" the decision/forecasting process using Bayes' decision rule for generating alternative solutions.

Delphi Forecasting

A Delphic probe is a multistep (reiterative) systematic process for extracting "expert" intuitive expectations (forecasts) of alternative possible futures. In conducting a Delphic probe, "experts" are systematically polled and repolled to arrive at a
consensus of opinion about the future. Intuitive forecasting is particularly useful for estimating and identifying:

- intuitive estimates (judgments of alternative futures);
- expected time scale estimates of future events;
- expected paths that evolving multifold change could take;
- expected breakthroughs (e.g., possibility of social or technological inventions);
- future opportunities, problems, needs, desires, and threats;
- useful data in areas where historical information (trends) is not available;
- "programming opinions," a tool for teaching participants (the panel of experts polled).

Typical methods for conducting a Delphi forecast or probe involve sending questionnaires in rounds to individual panel members in order to obtain anonymous feedback. The usual rounds are:

**Round 1:** Questionnaire asks: What is expected to happen? opinion of possibility of listed alternatives; additional possible alternatives; Purpose - to determine and expand awareness of real (plausible) alternatives.

**Round 2:** Questionnaire asks: When is it expected to happen? opinions about the expected time scale; when will each alternative be a part of the future (the criteria of expectation are usually stated).

**Round 3:** Questionnaire asks for refinements: usually the earliest (first quartile) mean or mode and latest (last quartile) time expectancy are submitted to panel members for each alternative as obtained and averaged from round two; for each question on which an individual panel member has previously deviated from the mean, that person is asked to reevaluate the response; for those alternatives on which the response still deviate from the mean, the panel member is asked to justify the reasoning and assumptions that led to the response.
Round 4: Questionnaire asks for additional refinements: same procedures as round 5, plus; respondents are asked to evaluate major justifications of other panel members; that is, individuals are asked to evaluate the "truthness/falseness" of differing opinions on those alternatives that have not reached a consensus. This procedures is useful for identifying polarizations and multiple possibilities.

Force Analysis Forecasting

Forces (sets of events, pressures, problems, population, opportunities, technologies, societal reactions), and change are identified, analyzed and forecasted as to their probable future impact upon the area being investigated. This method provides a systematic way of detecting the dynamics and composition of the environment of forces impelling an area (such as educational administration) through change and into the future. It is an especially useful forecasting technique for:

- identifying the forces and their interactions (dynamics) bearing upon future change in specific areas;
- forecasting "forces-at-work as causative agents";
- forecasting the impact and diffusion of on-going efforts, such as evolving technology, or today's decisions.

Markov Chain Forecasting

Markovian (rules) analysis is part of probability theory and is a stochastic process using mathematical models of random phenomena (empirical phenomena obeying probabilistic, rather than deterministic, laws). Markov chains are a mathematical model for describing processes that move in a sequence of steps through a set of states (e.g., for forecasting future states over time) and are used to
analyze current movement (trends) for the purpose of forecasting (predicting) future movement. It is a technique especially useful for:

- assisting policy-making processes through their expression in numerical or mathematical terms;
- constructing analytical planning models;
- constructing optimizing models designed to yield best or preferred alternatives for the future; and
- modeling analytically either for developing (designing) alternative futures or for forecasting (inquiry or discovery prediction).

**Matrix Forecasting**

This process involves cross impact, decision, mission, and cross correlation matrices; matrices which break down the complex future into many independently decidable components allowing each component or each alternative future to be compared separately against each of the others from various positions, such as cost-performance, cost-benefit, possibilities, and desirabilities. Results are recombinable to obtain estimates about the future. When such comparisons are done Delphically, matrices are especially useful for:

- assessing and comparing alternatives; trade-off investigations;
- delineating priorities (rank ordering), and establishing goals for the future;
- determining the most probable futures; attaching probabilities of occurrence to forecasts;
- structuring thinking;
- forcing the assignment of values to each alternative; making cross-correlation analyses;
answering such questions as, If this alternative exists, what impact will it have on (or how does it support) other alternatives; and

determining desirable future parameters, such as a powerful tool for designing new educational, technological, or social system.

Monte Carlo Analysis Forecasting

This approach is a statistical method for the operations research (OR) field for relating probabilities of occurrence based on constrained randomness. This method stochastically forecasts or predicts nondeterministic aspects of the future. The Monte Carlo technique is usually used in conjunction with other forecasting methods, and is especially useful for:

- making probabilistic approximations of possible futures, such as identifying the most probable trends from sets of manifold trends;
- generating probabilistic change data (estimates of future parameters) for inputs to models for simulating possible futures;
- projecting certain parameters into the future on a probability basis to arrive at estimates of possible future time states;
- making probabilistic trade-off analyses between alternatives; and making predictions.

Morphological Forecasting

This procedure is a systematic technique for analysing present or future problems or opportunities for the purpose of identifying and formulating solutions to be used as goals. The technique assumes that if a solution or a set of alternative solutions exist for solving a problem, that it will be implemented and thus become a
forecast; that is, that the future will be "invented." This process attempts to systematize the invention of the future through the morphological approach of identifying and educating problems with their possible solutions. Morphological forecasting is extremely useful for:

setting goals for the future;

designing social and technological systems;

providing a tool for "inventing" the future;

systematically examining problems, opportunities, needs, and desires;

breaking problems and opportunities down into solvable components;

evolving/inventing new products or methods;

combining a multiplicity of forecasts obtained from the application of other forecasting techniques into a coherent compatible forecast;

controlling "self-fulfilling" forecasts for planning and managing the future;

identifying feasible futures (solutions/opportunities).

Precursor Forecasting

This approach directs the researcher to look for signals for change, problems, and opportunities and further requires the forecaster to look beyond the specific area, such as education, being forecast. It involves the analysis of multiple forecasts which together give patterns pointing to the change signals that normally would be buried in the inaccuracies of single forecasts. The real value of such forecasting is to identify "what will or could happen if . . .," that is, to discover that part of the future which is controllable.
Relevance Tree and Contextual Map Forecasting

This approach involves a network of alternative pathways for reaching selected future goals; goal oriented forecasting. These are powerful management tools for controlling the attainment of a chosen future. Trees and maps graphically and sometimes pictorially depict the time flow or hierarchy of events, together with their interconnectivity. Relevance trees and contextual maps are useful in identifying and forecasting:

- key decision points and events in the pathways to the future;
- how to reach a desirable future or to avoid an undesirable future;
- determination that a particular future is mappable, attainable, or feasible;
- the sequence or hierarchy of events and their relevance in the pathways to the future;
- relevance of multiple forecasts and future decisions (detecting precursor events);
- relevance of projected sequential events for reaching specific goals;
- considerations of relationships by forcing "value weighting" mapping of possibilities;
- planned control over future actions and decisions for reaching future goals;
- identification of the taxonomy of objectives at differing specific levels;
- deducing specific developments/implications/decisions/actions from long-range goals; goal directed futures planning;
- hierarchies of controls, organization, alternatives, paths, decisions for or on the way to the future;
- goal directed forecasting (forcing); and
pathways to future alternatives and goals (identifying and mapping).

Simulation Forecasting

This method involves Models simulating the future that are designed and used to predict future probabilities (usually computer "gaming"). Models depict the structure and dynamic interactions in the process leading to possible futures. Such models are useful for:

- dynamic modeling of the future;
- simulating possible futures in order to experiment with the future;
- determining what might happen ahead of time;
- generating new ideas;
- predicting results of current actions;
- testing alternative futures, trade-off analysis, and evaluating alternative;
- questionnering (asking and testing the important "what if ..." type questions) to test a possible decision outcome before deciding;
- forcing a detailed communicable description of a future in order to construct its model;
- designing complex experiments economically or for systems that cannot be experimentally tested physically or socially; and
- managing and planning; implementing forecasting systems.

The purpose of models of future systems of the world, of a technological device or system, of a social system, or of an educational system is to formalize a detailed description of a simulatable "real world" of the future in order that it may be studied. A model is a set of entities and their interactions that can be
studied to discover what can be or should be controlled, what can
be or needs to be designed, and what needs to be forecast.

Trend Extrapolation Forecasting

This process plots of the past with their discovered curves
extrapolated into the future. Trend extrapolations and envelopes of
multiple trends provide an insight into possible futures based on
data from the past giving an indication of:

evolving trends: future-bearing trends; the future that
we are currently moving toward;

trend curves: plots over time of specific measures of
performance - e.g., "learning curves"; or curves showing
the evolution of impact of an idea;

discovery of how things change using "growth" trend
curves;

long-term trends; envelope trend curves;

pointers toward expected change;

estimates of minimum current growth curves and maximum
envelope curves; bounds of expectation for the future; and

the most likely near future and possibly the least likely
far future.

Most forecasting begins with trend extrapolation, which
includes:

persistence forecasting; assumes that the future will be
the same as the past;

trajectory forecasting; assumes a constant rate of change
and at the same rate as the past (includes change
acceleration);

cyclic forecasting; assumes that the past cyclic pattern
of change will continue;

associative forecasting; assumes that a given event or
force always follows or is associated with another specific
event or force; the causality approach; and

analog forecasting; assumes that analogous trends can be used as "models" for other trends.

APPENDIX D

EFFECTS OF POPULATION, INDUSTRIAL GROWTH AND EMPLOYMENT
ON THE PROJECTION OF THE PUBLIC SCHOOL INSTRUCTIONAL
PROGRAM IN THE YEAR 2000

INSTRUMENT - ROUND I

Instructions: Please respond to the following questions by making independent brief statements based upon your perception of changes that will take place between now and the year 2000. If more space is needed, please attach additional pages.

1. Will parents become partners with the school in accepting the responsibility for educating their children?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

2. Will schools deem it necessary to involve business and industry in the process of planning, developing and implementing educational programs?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
3. What do you regard as the essentials of a career and comprehensive oriented educational program designed to meet the needs of all pupils?

_________________________________________________________________

_________________________________________________________________

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4. How do you perceive the Public School Instructional Program in your county to be different in the year 2000 from the way it is today?

_________________________________________________________________

_________________________________________________________________

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5. Do you think that the county in which you live will be economically and physically developed by the year 2000? Please state the reason for your answer.

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

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6. What type of industrial development or growth do you envision in your county by the year 2000 and how will it affect the population and the instructional program in the public schools?

_________________________________________________________________

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_________________________________________________________________
7. What implications will anticipated industrial growth and development have for your school district and the instructional program?

8. Do you perceive the Public School educational offerings in your county in the year 2000 to be any different from that which might be offered in other parts of the country.

NOTE: Please use the following lines to continue the response to any of the questions. The number of the question must be shown with the continuation of the response.
EFFECTS OF POPULATION, INDUSTRIAL GROWTH AND EMPLOYMENT ON THE PROJECTION OF THE PUBLIC SCHOOL INSTRUCTIONAL PROGRAM IN THE YEAR 2000

INSTRUMENT - ROUND II

Instructions: Instrument - Round II includes statements representing a summary of the compilation of responses to the eight questions in Instrument - Round I received from all individuals included in the sample. There are ten statements pertaining to each of the questions from Instrument - Round I except item eight which has a fewer number due to similarity of responses. Please react to each statement using the two scales provided below. You will notice that to the left of the statement space is provided for a rating headed LIKELIHOOD OF OCCURRENCE and space is provided for a rating to the right of the statement headed IMPACT ON EDUCATION. Please remember that the focus is on the year 2000. As you read each statement, please react by using the following scales.

Likelihood of Occurrence Impact on Education
(Left of statement) (Right of statement)
1 - low likelihood (0-20% change) 1 - low impact
2 - moderately low (21-40%) 2 - moderately low
3 - average (41-60%) 3 - medium
4 - moderately high (61-80%) 4 - moderately high
5 - high likelihood (81-100%) 5 - high impact

Each response should represent your independent judgment. As an example, if you feel that what the statement expresses is likely to occur by or during the year 2000 your response under the heading LIKELIHOOD OF OCCURRENCE should be a 4 or 5. If you feel that the statement expresses a notion that will likely not occur by or during the year 2000 your response should be a 1 or 2.

As you respond to the IMPACT ON EDUCATION scale, please reflect on the statement such that if the event occurs, what will be the impact on education? If a profound impact would take place, enter 4 or 5. If in your judgment the opposite would take place, enter 1 or 2.

Results of Round II will be reported to each respondent. Where differences of opinion exist you may elect to change your responses if you should desire to do so.
### Likelihood of Occurrence

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<table>
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<tbody>
<tr>
<td></td>
<td>In the year 2000....</td>
</tr>
<tr>
<td>1.</td>
<td>Parents will become more aware of school demands and will become more involved.</td>
</tr>
<tr>
<td>2.</td>
<td>Parents will less likely accept unilateral school decisions.</td>
</tr>
<tr>
<td>3.</td>
<td>Parents will become more involved in the education of their children if the rate of decline in academic performance and acceptable behavior continue.</td>
</tr>
<tr>
<td>4.</td>
<td>Parents will demand more input into the running of the schools but will continue to expect schools to shoulder the major responsibility for educating their children.</td>
</tr>
<tr>
<td>5.</td>
<td>Because of the advanced technological capabilities such as computers and two-way video, parents will become both participants as well as monitors in the educational process.</td>
</tr>
<tr>
<td>6.</td>
<td>Parents will become partners with the schools by accepting the responsibility for educating children in non-academic areas; thus, forcing schools to return to basic academic instruction.</td>
</tr>
<tr>
<td>7.</td>
<td>Parents will not become partners with the schools but will expect more and more of the schools regarding the education of their children.</td>
</tr>
<tr>
<td>8.</td>
<td>Parents will promote the acquisition of funds from private sources and will encourage community people to support public education.</td>
</tr>
<tr>
<td>9.</td>
<td>The survival of public education depends upon parents becoming partners in the process.</td>
</tr>
</tbody>
</table>
In the year 2000....

10. Parents will continue to be interested partners with the schools but will not involve themselves with the children's educational activities due to socio-economic reasons.

11. Schools will become involved with business and industry in the process of planning, developing and implementing educational programs.

12. Schools will involve business and industry in the process of planning and developing curriculum in order to meet individual needs of students as they become prepared for selected employment.

13. School programs will lag behind in preparing students for the world of business and industry; it seems logical that the schools should involve business and industry in the process of planning, developing and implementing educational programs.

14. Only Vocational-Technical Schools should be involved with business and industry in the planning of educational programs.

15. Jobs will become more technical and skills oriented and more businesses will become involved as training sites providing technical skills instruction.

16. Much pressure will be placed on the schools by business and industry to include them in planning because of the need for adequately trained employees brought in by the growth of industry.

17. Schools will become increasingly dependent upon business and industry for additional funding which will require that they be given an increasing position in the planning, developing and implementing of educational programs.
In the year 2000....

18. Individuals from business and industry will become directly involved in the teaching of certain phases of the educational program.

19. Business and industry will be packaging curriculum for schools and will do more in the future.

20. Business and industry will assist in the identification of needed skills and provide alternative channels for learning and practicing identified skills as schools assume responsibility for student preparation for life-role skills.

21. All students must be able to master the three basic skills of reading, writing and computation.

22. Schools must guarantee that all students graduate from high school with entry level skills for both business and college entrance.

23. Career awareness must be an effective part of the school experience and must be generally related in a meaningful way to courses that are taught.

24. Because of the rapid change in supply and demand for various careers, colleges and technical schools should assume more of the responsibility for career orientation and planning pertaining to the high school instructional program.

25. Career and comprehensive oriented educational programs must include college preparatory, vocational, business, industry, technical sciences and computer experiences.

26. Career training should begin in the primary grades and should include both blue collar and white collar jobs including both affective and skills training.
**Likelihood of Occurrence**

<table>
<thead>
<tr>
<th></th>
<th>Impact on Education</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>In the year 2000....</td>
</tr>
<tr>
<td>27.</td>
<td>More Magnet Schools should be in existence designed to provide more choices allowing for total involvement of parents and students who wish to be well prepared for higher educational experiences.</td>
</tr>
<tr>
<td>28.</td>
<td>Schools will include a &quot;noncategorical&quot; resource room where any child, special, gifted, or regular, may receive an individually planned program designed to meet their needs where they exist.</td>
</tr>
<tr>
<td>29.</td>
<td>Basic education including the 3R's in early grades with no social promotion. Skills needed by local industries should be added at grades eleven and twelve for those students whose next step will be job entry.</td>
</tr>
<tr>
<td>30.</td>
<td>School programs will include an exploratory program of career awareness in the elementary and middle grades followed by a high school program that contains both academic and vocational tracks with the flexibility of students moving from one to another.</td>
</tr>
<tr>
<td>31.</td>
<td>Instructional experiences will furnish a more selective base of knowledge including a wide strata of &quot;training&quot; in reasoning abilities, much more geared toward vocational education.</td>
</tr>
<tr>
<td>32.</td>
<td>Instructional programs will be basically the same with a much broader base and a greater number of academic and vocational options.</td>
</tr>
<tr>
<td>33.</td>
<td>Programs will involve greater use of computers and individualized teaching mechanisms with the teacher serving as a resource person and monitor. College level courses may be introduced at the Senior High level along with a greater emphasis on sex education.</td>
</tr>
<tr>
<td>34.</td>
<td>There will be less emphasis on acquisition of facts and greater emphasis on teaching problem solving methods, deductive and inductive thinking, research methodology, use of</td>
</tr>
</tbody>
</table>
In the year 2000....

35. There will be increased emphasis on accountability; increased emphasis on least restrictive environment for all children and individual education plans for all children, both in regular and special education.

36. The instructional program will have clearly defined expectations and many of the present management tasks and instructional activities will be handled by computers.

37. Enrollments will continue to drop and there will be more vocational or comprehensive type schools. The programs which stress communication skills, math skills, history and geo-political theory will do the best job.

38. Schools will return to "absolute" discipline and teachers will be tested and checked to determine that they know the material and that they can teach same to the students.

39. Classes will be larger and instructional materials will be limited to basics rather than frills. Support from central office level personnel will be limited due to lack of public tax dollars to support schools.

40. The curriculum will be more structured with more required courses in the "basics" and fewer options for students. Math and Science courses will have to start being taught to students at a more elementary level in order for them to use available technology.

41. Tuition tax credits will cause rapid change in the school population to the point that only children from the lowest socio-economic element of society would be in public schools.

42. The county in which I live will have made moderate economic and physical gains due to extra sales and property taxes.
In the year 2000....

43. There will be little change in economic and physical growth due to inadequate water supply and the attractiveness of the area to new industry.

44. Water supply, transportation and climate will attract more industry to the area which will be an asset economically and physically.

45. The county in which I live has great potential regarding industrial growth; however, integration problems have had adverse effects from both an economic and physical standpoint.

46. The county in which I live will not be totally economically and physically developed due to the impact that surrounding counties will have on it.

47. If the county in which I live stabilizes, it has the natural resources, location and population to move forward toward economic and physical development.

48. Economic growth will be great in the county in which I live because it will be the financial center of Middle Georgia with residential/satellite office centers connected by commuter trains to Atlanta.

49. New industries will continue to move into the county in which I live causing greater and greater economical and physical development.

50. The area in which I live will not have grown emotionally and kept pace with its physical growth. It will possibly continue to maintain a small-town orientation in spite of its increase in physical size.

51. The county in which I live will be significantly developed but not completed. Because of the activities of governmental agencies the locality is constantly seeking new business and industry.
<table>
<thead>
<tr>
<th>LIKELIHOOD OF OCCURRENCE</th>
<th>IMPACT ON EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the year 2000....</td>
<td></td>
</tr>
<tr>
<td>52. Growth will be in Agriculture rather than industry. Advances in Agriculture will become more dependent upon technology causing more technical courses to be offered in the schools.</td>
<td></td>
</tr>
<tr>
<td>53. Industrial growth is anticipated, which will have some effect upon the curriculum in keeping with the needs and skills required by employers.</td>
<td></td>
</tr>
<tr>
<td>54. Because of expected continued expansion of defense installation, the population will continue to grow which will cause citizens and business to demand more technical training.</td>
<td></td>
</tr>
<tr>
<td>55. Industrial growth, requiring blue collar workers and limited administrative personnel, will cause instructional programs to become more skills oriented.</td>
<td></td>
</tr>
<tr>
<td>56. More industry will attract more labor and possibly more welfare needs which could require remedial education to be continued.</td>
<td></td>
</tr>
<tr>
<td>57. Industrial development will increase greatly and thus the population will likewise increase. Educational change will take place in keeping with needs of business and industry and skills required of their labor force.</td>
<td></td>
</tr>
<tr>
<td>58. Growth will be experienced in the electronics industries in support of Robins Air Force Base. More firms will be attracted to this area which will require highly skilled labor which will have an impact on the instructional program of the schools.</td>
<td></td>
</tr>
<tr>
<td>59. Industrial growth will bring about a corresponding growth in population. The diversity of the population will require an instructional program that must be designed to meet the needs of industry.</td>
<td></td>
</tr>
<tr>
<td>60. Technically oriented industries will grow. Fewer workers per unit of production will be</td>
<td></td>
</tr>
</tbody>
</table>
In the year 2000....
hired but will be better paid. The standard of living will improve for the underemployed who will be educated to cope with this change. Instructional programs will need to expand to keep pace with the changing environment.

61. If present trends continue, the area will become an insurance center and a haven for other light, clean, sophisticated industries. In order for the work force to match this, a more clerical and science oriented instructional program will be necessary.

62. Instructional programs will need to include courses to prepare students for industrial growth even though the industrial growth may be in adjoining cities rather than the local county. Students must be prepared to live in a world which is coming closer together due to technological advances.

63. More highly skilled teachers, better planned facilities and increased staff support designed to reduce "burnout" will be needed in order to cope with demands associated with industrial growth.

64. Growth in industry suggests a growth in available funds for a school system. This will mean broad financial support for the school system which would lead to a more comprehensive instructional program.

65. Foreign industry moving into school districts will require systems to place greater emphasis on bilingual education which will have an impact on the already burdened fiscal support for education.

66. People will be more definite regarding what they expect school district programs to include. The instructional program will probably be traditional with greater emphasis in the area of vocational education.
In the year 2000...

67. School instructional programs will retain and improve upon basic values courses while introducing new academic and training programs attuned to an era of near runaway technological change with computer and electronic technology leading the way.

68. The future need for clerical and especially managerial talent will increase. Extraordinary care must be given to planning the instructional program in order to supply the number of blue collar workers needed while white collar workers, for the most part, will come from elsewhere.

69. Increased industrial development makes the financial situation look brighter. More tax money will be paid to the county, making it possible to provide improved and additional programs and better facilities and higher salaries for educators.

70. Business and industry will expect the schools to train people to work in their establishments. A highly technical skilled labor force will be required to maintain operational efficiency.

71. Industrial growth and development will cause a more diversified school population to come into existence which may require more remedial programs as well as more programs for the disadvantaged.

72. There will be no appreciable difference in the educational offerings in my county than might be offered in other parts of the country.

73. Educational offerings will be very similar with little or no variation pertaining to all parts of the country because sections of the country are becoming characteristically more alike than unalike.

74. Public school offerings will continue to lag behind other parts of the country.
75. Public school educational offerings will be negatively influenced by the rural mentality which exists in the localities that approach metropolitan classification.
EFFECTS OF POPULATION SIZE, INDUSTRIAL GROWTH AND EMPLOYMENT
ON THE PROJECTION OF THE PUBLIC SCHOOL INSTRUCTIONAL
PROGRAM IN THE YEAR 2000

INSTRUMENT - ROUND III

Instructions: This is the last instrument associated with the study as captioned above. The purpose for forwarding this instrument to certain respondents is due to the deviation of their response in comparison to the population of the study. Scores deviating from the average response patterns of Q1 to Q3 are being sent back for review. Questions requiring your attention are checked in RED. Respond only to the area or areas checked. If you wish to maintain your position, please provide a one sentence statement supporting your position. ONLY respond to the category or categories marked.

__LIKELIHOOD OF OCCURRENCE__

1. Will parents become partners with the school in accepting the responsibility for educating their children?

   Q1  1.75  Q3  4.81

   a. I am agreeable for my responses to be changed in support of the majority of the study's population. ___YES

   b. I am not in agreement. ___NO

   My reason for not wishing to conform is as follows:

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

__IMPACT ON EDUCATION__

1. Will parents become partners with the school in accepting the responsibility for educating their children?

   Q1  1.95  Q3  5.01

   a. I am agreeable for my responses to be changed in support of the majority of the study's population. ___YES

   b. I am not in agreement. ___NO

   My reason for not wishing to conform is as follows:

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

   __________________________________________________________

113
2. Will schools deem it necessary to involve business and industry in the process of planning, developing and implementing educational programs?

Q1 1.61  Q3 4.77

a. I am agreeable for my responses to be changed in support of the majority of the study's population. YES

b. I am not in agreement. NO

My reason for not wishing to conform is as follows:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. What do you regard as the essentials of a career and comprehensive oriented educational program designed to meet the needs of all pupils?

Q1 2.11  Q3 5.09

a. I am agreeable for my responses to be changed in support of the majority of the study's population. YES
b. I am not in agreement.  
   ____NO

My reason for not wishing to conform is as follows:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

LIKELIHOOD OF OCCURRENCE

4. How do you perceive the Public School Instructional Program in your county to be different in the year 2000 from the way it is today?

   Q1  2.06     Q3  4.86

a. I am agreeable for my response to be changed in support of the majority of the study's population.  ____YES

b. I am not in agreement.  ____NO

My reason for not wishing to conform is as follows:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

IMPACT ON EDUCATION

5. Do you think that the county in which you live will be

   a. I am agreeable for my response to be changed in support of the majority of the study's population.  ____YES

   b. I am not in agreement.  ____NO

My reason for not wishing to conform is as follows:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
economically and physically developed by the year 2000? Please state the reason for your answer.

Q1 1.31  Q3 4.57

a. I am agreeable for my response to be changed in support of the majority of the study's population.  _____YES

b. I am not in agreement.  _____NO

My reason for not wishing to conform is as follows:

____________________

____________________

____________________

____________________

LIKELIHOOD OF OCCURRENCE

6. What type of industrial development or growth do you envision in your county by the year 2000 and how will it affect the population and the instructional program in the public schools?

Q1 1.83  Q3 4.69

a. I am agreeable for my response to be changed in support of the majority of the study's population.  _____YES

b. I am not in agreement.  _____NO

My reason for not wishing to conform is as follows:

____________________

____________________

____________________

____________________

IMPACT ON EDUCATION

6. What type of industrial development or growth do you envision in your county by the year 2000 and how will it affect the population and the instructional program in the public schools?

Q1 2.00  Q3 4.80

a. I am agreeable for my response to be changed in support of the majority of the study's population.  _____YES

b. I am not in agreement.  _____NO

My reason for not wishing to conform is as follows:

____________________

____________________

____________________

____________________
to conform is as follows:

________________________
________________________
________________________
________________________

LIKELIHOOD OF OCCURRENCE

7. What implications will anticipated industrial growth and development have for your school district and the instructional program?

Q₁ 1.87 Q₃ 4.75
a. I am agreeable for my response to be changed in support of the majority of the study's population. ____YES

b. I am not in agreement. ____NO

My reason for not wishing to conform is as follows:

________________________
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IMPACT ON EDUCATION

7. What implications will anticipated industrial growth and development have for your school district and the instructional program?

Q₁ 2.07 Q₃ 5.01
a. I am agreeable for my response to be changed in support of the majority of the study's population. ____YES

b. I am not in agreement. ____NO

My reason for not wishing to conform is as follows:

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LIKELIHOOD OF OCCURRENCE

8. Do you perceive the Public School educational offerings in your county in the year 2000 to be any different from that which might be offered in other parts of the country?
Q1 1.33  Q3 4.39

a. I am agreeable for my response to be changed in support of the majority of the study's population.  ____YES

b. I am not in agreement.  ____NO

My reason for not wishing to conform is as follows:

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

Q1 1.58  Q3 4.78

a. I am agreeable for my response to be changed in support of the majority of the study's population.  ____YES

b. I am not in agreement.  ____NO

My reason for not wishing to conform is as follows:

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References on request