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ABSTRACT

The Needs Asses. ent Project will construct a computerized simulation model to evaluate the educational needs of all the community in order to keep educational changes compatible with community needs. This paper presents the approach to be taken in developing the Needs Assessment Model: a description of the study with a review of related literature, the procedure to be followed in the analysis and computerization of the simulation model, and the significance of the Needs Assessment Model to the educational system and society. The six phases in the development of the model are: Data Base Development, Initial Prototype Development, Model Testing, Model Evaluation and Verification, Model Revision, and Complete Documentation. The educational system selected for analysis and implementation of the system is Florida Junior College, with the Jacksonville area providing the community base in which the model will operate. Within the community, the Needs Assessment Model will result in greater job and class mobility, higher individual self-concept, better knowledge for the individual with which to compete in society, more help to problem youth, and economic impact predictions for local environmental planning. The model's main contribution to the community is in its forcefulness on ending isolation through more experience and exposure so that more realistic goals for career choices can be made. Through effective evaluation and followup procedures, the community college can place primary emphasis on the students it serves. (DB)

EDUCATIONAL NEEDS ASSESSMENT

A SIMULATION MODEL FOR HUMANISTIC PLANNING

CENTRAL FLORIDA COMMUNITY COLLEGES' CONSORTIUM

CENTER FOR COMMUNITY NEEDS ASSESSMENT
UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA
MAY 1973

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I

INTRODUCTION

For too long, the needs being met by the educational system have been those needs implied from the past by evaluating the existing course offerings and emphasizing general academia, rather than evaluating the individual needs for curriculum change based on community improvement. Educators have rarely been aware of the educational needs of the changing community they serve and their planning efforts have suffered accordingly. The project will construct a computerized simulation model to dynamically evaluate the educational needs of all the community to keep educational changes compatible with community needs.

Education can no longer hope that it is meeting the needs of all the people. It must know! Education must create a method to evaluate what the needs are, which needs are most important, and how they can be best met. If the educational system wishes to continue to serve as th agent for shaping each person into a valuable, well-adjusted, and productive citizen, it must develop a vehicle to methodically determine the changing needs of society, and give valid results with which decision makers can change the internal functions of education.

Since resources must be allocated within budget constraints, the educational system, in order to make effective decisions, must not only be aware of resource requirements but also the value of one service as compared to another.

This paper presents the approach to be taken in developing the Needs Assessment model in three parts: A description of the study with a review of related literature, the procedure to be followed in the analysis and computerization of the simulation model, and the significance of the Needs Assessment model to the educational system and society.

II

PROBLEM DIAGNOSIS

The educational system has existed to help the individual realize his full potential through self-improvement and skill training. However, the offerings of education often fail to meet the needs according to the priorities of the community served.

For too long, the needs being met by the educational system have been those needs vociferously expressed by a selective group of active citizens. Therefore, educators rarely are aware of the educational needs of all citizens -- especially those citizens who lack a truly effective voice in the educational process.

Change for the sake of change is not the answer. Millions of dollars have been spent in the attempt to reach and to serve, with no real attempt being made to determine what the true needs are. Educators must have an in-depth, objective, consistent vehicle to dynamically evaluate the educational needs of all the community – not just the needs of one segment of the community, who by virtue of birth or position is most audible.

The Needs Assessment Project (NAP) will provide the vehicle through the development of a computerized simulation model by which the community educational needs can be sensed. The model will be developed using a community college as the prototype, and will be flexible for replication in any educational system. The community college was chosen because it is an institution working to fill the gap left in the formal education system. Its curriculum is broad, encompassing community interest courses, career education programs, technical and adult continuing education programs, university transfer courses and both pre-professional and para-professional training.

Description of Proposed Project

The model's primary purpose is to classify, organize, and prioritize community needs so that the educational system can assign these needs to the proper administrative unit for changes to be planned and implemented.

The broad objective is to develop a model that will allow the educational system to: (a) rank the community's educational needs in their order of importance, (b) develop alternative plans to meet those needs, (c) determine budget allocation guidelines according to need priorities, (d) monitor the benefit or value of a need as compared to its cost, i.e., discover if fulfilling a need is economically feasible, and (e) develop a continuing, dynamic system to evaluate the educational system's effectiveness in meeting community needs.

The following details the objectives, as well as list specific benefits of the comprehensive model to education and the communities served by the educational system.

Immediate and Long Term Objectives

1. Develop a data collection model to determine needs of the total population.
2. Establish a hierarachy of community education needs.
3. Relate the assessed needs according to the geographical distribution of the community population characteristics.
4. Enable education to compare its present status with the assessed needs identified by the study.
5. From assessed needs, state measurable, meaningful goals and objectives that can be interpreted into short and long range plans.
6. Develop and apply cost/utility analysis to acceptable alternatives designed to meet objectives.
7. Implement selected solution from alternatives to meet each objective.
8. Monitor the results of implemented solutions to evaluate effectiveness through follow-up analysis (validity of data).
9. Give direction for "new money requirements" when priorities are beyond budget constraints.
10. Improve community relations through greater understanding and involvement with the educational system.
11. Improve lines of communications between the community and the total educational system, leading to continuous educational exchange.
12. Increase awareness of administrators as to how their educational institution can meet community needs through an improved management process.

Benefits to Agents Implementing Objectives

Individual Educational systems

1. Bring Needs Assessment into the administrative process as a successful on-going division serving as a constant and valid link between institutions of education and community.
2. Increase the emphasis on information sharing among administrators, de-emphasize autonomy, stress freedom of operation.

3. Encourage use of advanced technology allowing the administration to make direct use of the Needs Assessment's continuous findings.
4. Show that needs data can become more variable by using alternatives derived from advances in technology and data gathering methods.
5. Provide for better course offerings on a long-range sequential planning scale to assist students in their course sequence planning, thereby enabling them to enter the employment market on a planned schedule.
6. Encourage more innovation and flexibility in scheduling course offerings and in making long-range projections. This can assist administrators in:
   (a) determining the number of instructors needed,
   (b) achieving the fullest possible utilization of facilities,
   (c) making faculty retraining and placement more effective,
   (d) increasing the student's choice of course offerings, and
   (e) improving teacher selections based on student and community needs.
7. Make available timely information to the various administrations so that faculty training and coordination can be brought in line with the priority of needs.
8. Improve total student services through better information as to community needs.

Community

1. Provide geographic breakdowns concerning the needs of the community so specific needs can be determined for each area.
2. Provide a capable, well-adjusted student to fill a real community need.
3. Bring about within the community a more favorable impression of education, resulting in voluntary action and involvement on the part of the community.
4. Increase community awareness of its own needs in terms of:
   (a) growth and its effect on the employment market,
   (b) social pride and citizenship,
   (c) cultural involvement and appreciation,
   (d) a sound community economy,
   (e) ecological requirements for community improvement,
   (f) communication among the many heterogeneous groups to minimize the gap in socio-economic differences (low income vs. high income, educated vs. non-education, veteran vs. non-veteran, laborer vs. professional, etc.);

(g) a joint community planning effort, and

(h) a reduction of apathy, misunderstanding, and breakdowns in communication.

Infinite Education Exchange (Total Sharing)

1. Links among the community educational information systems will:
   (a) provide optimum information ıg,
   (b) eliminate duplication of effort,
   (c) provide better planning and input data for decision making, and
   (d) create better inter-institutional re'ationships.
2. Educational institutions will be better able to:
   (a) relate to one another through planning flexibility in the curriculum,
   (b) provide students with more transfer mobility,
   (c) reduce rigidity of programs,
   (d) emphasize individual student needs rather than fixed academic requirements, and
   (e) improve transferability of financial aid, thus helping the disadvantaged of the community.
3. The information flow for planning, organizing, and evaluating long-range curriculum will be provided via a computerized simulation model to:
   (a) improve budgeting techniques,
   (b) project long-range objectives accurately,
   (c) improve facility planning,
   (d) allocate human resources accurately, and
   (e) utilize resources optimally through a humanistic systems approach.
4. The value of the model to the individual citizen will be evident through an increase in the number of expressed community needs and a decrease in the time interval between an expressed need and the educational system's meeting that need.

Related Research

A review of literature indicates that the identification of educational needs has become a focal point in community and educational conferences and assemblies [1]. Legislatures

and state departments have also begun to state their concern for immediate efforts in Needs Assessment. In Florida, the Department of Education has clearly stated its commitment to a program of statewide needs assessment. The Department stated that:

> "The effort to secure clear goals and objectives is supported at the state level by needs assessment activities designed to identify broadly those goals which education should pursue and to collect information for assigning priorities. Such needs assessments encompass general education, occupational education, and advanced professional education." [6, pg. 10]

At the national level, President Nixon, in an address to Congress on March 3, 1970, stated, "The greatest need in the school systems of the nation is to begin the responsible open measurement of how well the educational process is working." [4, pg. 24]

In California, studies similar in purpose to the Needs Assessment Project are being conducted by the North California Development Center in Chico.In 1972, they published a manual titled "Educational Goals and Objectives - A Model Program for Cummunity and Professional Involvement". [5] It is considered a program to measure and rank community needs, setting goals and objectives, based entirely on the opinions of a cross section of the community. Needs Assessment will go beyond this initial step by collecting actual community data, place emphasis on the dynamic nature of the model to continually monitor the community, evaluate the effectiveness of education in meeting needs, and incorporate cost-benefit analysis.

A project complamentary to NAP was proposed in 1964 and today is known as National Assessment. [14, 15] The first six years of the project were focused on information gathering and in the fall of 1969, data collection in three subject areas began. Development of the information dissemination activities, however, are still in the early stages.

National Assessment begins with the basic premise that educational needs and goals are already determined. Thus, their project concentrates on the setting of standards by which students from across the country can be measured. While this is a worthwhile project, NAP will differ in two respects. First, NAP will assess actual needs and provide the information to help set more realistic goals. Second, NAP, while developing a model that can be generalized to all areas of the nation, is not concerned with national needs. Its primary purpose is to determine community needs and aid community educational systems in best meeting those needs.

Battelle Memorial Institute in "A Survey of Educational Needs," [18] developed a questionnaire covering all aspects of the community college, from management analysis

to course requirements. This questionnaire was designed for a cross section of administrators, parents, students and community groups. While this procedure established an important vehicle for feedback from the community, it did not provide the type of in-depth information that is needed for a constructive needs assessment and also lacks a dynamic feature of continuous updating. Needs Assessment must be an on-going effort if it is to keep the education in touch with the changing needs of the community.

The National Laboratory For Higher Education has developed a tool for the involvement of community groups in the process of assigning priority to educational goals. [2, 3] GOALS (Goal Setting for Organizational Accountability: A Leadership Strategy) emphasizes face-to-face communication with up to 30 participants representing community and college. The purpose is to reach an overall consensus on the rank order of Overall Purpose Goals, Institutional Ends Goal, and Management Support Goals.

The major constraints of this model are: (1) it has predetermined the set of goals from which to choose, and (2) it assumes that a maximum of 30 people represent a sufficient cross section of the community such that the consensus they reach will be unbiased. However, the model does have a value in establishing an initial assumption in terms of overall educational goals (evaluation over time will establish the actual goals) and further study of its implications for NAP will be necessary.

Louis Parker, [17] in his doctoral dissertation, looks at different mechanisms that have been used for innovation in many fields and their application to educational innovation. He is primarily concerned with the innovator himself, describing him as an "innovational champion", and the best ways which he or she can operate to achieve desired change. Parker is primarily considering the second step of a two step process; i.e., what the innovator must do after he has recognized the need for change. NAP complements his concern with the first step, that of providing the information necessary to recognize those needs.

Walter J. Foley, [8] as principal investigator of a Management Information System Project under an Office of Education grant, is interested in developing an MIS covering all aspects of the educational process. A specific area of interest in this system is titled "Missions and Goals Statement." In it, Foley is concerned with developing a system that would be responsive to the information needs of decision-makers. He recognizes the need for the development and construction of a common data base and the need for making information gathering an on-going process. This study appears to have major

implications to NAP in establishing the educational data bank for (a) Resources, (b) Financial Allocation, (c) Pupil requirements, (d) Personnel requirements and (e) Instructional programs. Needs Assessment will move beyond the immediate education system, however, to draw data from the total community concerning prospective students, trends in skill needs for the community, and the changing social-cultural environment.

Current educational philosophy is one of the main areas of related resources to the concept of needs assessment. The call to battle against the irrelevance of education to human needs has been sounded by such men as: Neil Postman and Charles Weingartner with Teaching As a Subversive Activity (a teachers' handbook to more relevant education), their other book The Soft Revolution (a students handbook to overthrowing the irrelevance of the system), Jerry Ferber's the student as nigger which protests against the subordination of genuine student needs, and Will the real teacher please stand up? by Mary Greer and Bonnie Rubinstein which is simply entitled "A primer in humanistic education."

The idea of educating for human needs is nothing new, but to do something about it is. Just to prove this point:

> "....the doctrine of formal discipline previously spoken of, is not to be found by substituting a doctrine of specialized disciplines, but by reforming the notion of mind and its training. [pg. 132]
>
> "There is nothing peculiar about educational aims. They are just like aims in any directed occupation. The educator, like the farmer has certain things to do. ....The conditions with which the farmer deals, whether as obstacles or resources, have their own structure and operation. It is the same with the educator. ....It is as absurd for the latter (the teacher) to set up his 'own' aims as the proper objects of the growth of the children as it would be for the farmer to set up an ideal of farming irrespective of conditions." [pg. 106-107]

Would you believe these were stated in 1916 by one of the most revered men in education -- John Dewey, Democracy and Education!

It is time these calls to battle were not put on the shelf, but activated to renovate our existing education to fulfill human needs. We propose to take the first step to action by assessing human needs.

The Needs Assessment Project offers a different approach to the assessment of educational needs. It focuses on the community from which education draws its input and into which it sends its output NAP upon its completion will act as a catalyst between the community and the educational system, providing an unbiased medium in which the two can interact to better solve problems and meet community educational needs.

One of the strongest of these needs has been highlighted by United States Commissioner of Education, Sidney Marland. He charged that half of the high school students in the United States are being offered "what amounts to irrelevant general educational pap." He stated that although the educational system is largely geared toward college preparation, only 20 percent of the students ever receive a degree. Of the other 80 percent, fully one-half receive no occupational training [21, pg. 1]. Thus, 40 percent of all students leaving school have been given no training with which to find a job equal to their capabilities and to smoothly make transitions between jobs. Supporting empirical evidence beyond the review of literature presented in this section is lacking because education has not been concerned with evaluating how well it has satisfied the realistic needs of the community it serves. The reason why evaluation has not been a main concern of education is because it has been assumed that the educators know best what necessary knowledge should be imparted. The old adage has been that "any education is better than no education." Conventional wisdom must no longer be relied on to guide the educational process. Learner-centered change must be achieved through better placement of the students in curriculum, continuous follow-up to evaluate both the courses offered and effectiveness in producing students who can positively integrate themselves into society. The Needs Assessment Project, through the measurement of community needs and the evaluation of the educational system, is making this effort.

III

PROCEDURE TO IMPLEMENT THE PROJECT

To develop a simulation model that is realistic and to evaluate the effectiveness of the computerized model in sensing educational needs, an educational system must be selected for analysis and implementation. That system will be Florida Junior College. The Jacksonville area will provide the community base in which the model will operate.

Florida Junior College and Jacksonville are chosen because of their size, complexity, and responsiveness to Needs Assessment. The needs in Jacksonville are dynamically changing as a result of the industrial expansion and population boom. [11] Jacksonville, the "Gateway to Florida," is one of the foremost transportation and distribution centers in the Southeast. Population growth has been a persistent element in the total area for the past 100 years. The problems brought on by the population explosion (528,865 in 1970) [20] have fallen into many areas in addition to education such as taxation, bond in-debtedness, public works, inadequacies, recreation and health needs, public safety, and crime delinquency. Because of the widespread effect on all citizens of this area, much concern is being generated about keeping pace with the changing community needs. If the population continues to rise (and it is expected to double by 1990), then the changing population distribution, shifting the emphasis in educational needs, must be continuously studied and improved. [9, pg. V] The most severe problems are concentrated in the inner city, but suburbia is contributing significantly to the changing needs also.

Florida Junior College, as a comprehensive community educational system, can effectively serve as the prototype for the overall model development. It is a multi-campus institution with over 100 community centers located throughout the city to serve the broad area covered by consolidated Jacksonville, the largest incorporated city in the nation. Florida Junior College opened its doors in September, 1966 with 2,579 students. [16] In 1971-72, 41,543 students were enrolled. [7] It is expected that the enrollment will reach 65,000 by 1980. Thus, it becomes extremely important that the allocation of resources and planned curriculum reflect the educational needs of the extremely diverse groups that constitute the potential student body.

It is on the basic assumption that Jacksonville and Florida Junior College indeed provide a reliable base for the development of a computerized simulation model that they are proposed for use in the prototype. The macro approach that will be built into the

model to accommodate the many aspects of the community will be all-encompassing and result in an in-depth, total simulation model, replicable throughout the country.

Data Acquisition and Analysis:

There will be three (3) approaches taken in data acquisition and analysis. These are the collection of baseline data, identification of critical decision making data, and continuous updating data files. The purpose of the modular approach to the data base is to move from using past data to predict future, to using present data to predict future . . . a major achievement.

Baseline Data:

The retrieval of existing data from already well-studied areas will be accomplished. (See Figure 1 for the data base collection in flowchart form.) This, of course, is a time-consuming effort since decisions must be made about the data available based on the quality, relevance, and iterative approaches for keeping the data current. The preliminary stage in analysis of existing data will be through the use of census information available in summary tapes.

Data will be retrieved through DUALABS-MOD3 [10] programs, merged and converted for mapping by MATCH [19 pg. 128], and mapped to gain visual perspective as to geographic relationships via SYMAP. [12] An example of mapping via computers is presented in Figure 2 of the Jacksonville Metropolitan Area mapped by tract for school age population.

Knowledge of factors unique to certain areas could play an important role in the final assessment of needs by locale, as well as portray where to locate new services. It could be that changes will be occurring that will have a major effect on population shift, population growth, the emphasis in education, etc., that only the professional planners of the community have knowledge about. Therefore, the professional planners involved in schools and the total education of the community should be included in the study of community needs to insure that the model represents the changing and growing population.

The factors used for the analysis of educational needs must be dynamic so that changes can be made constantly to reflect the changing community requirements occurring through time. Some of the factors that should be studied include future school population

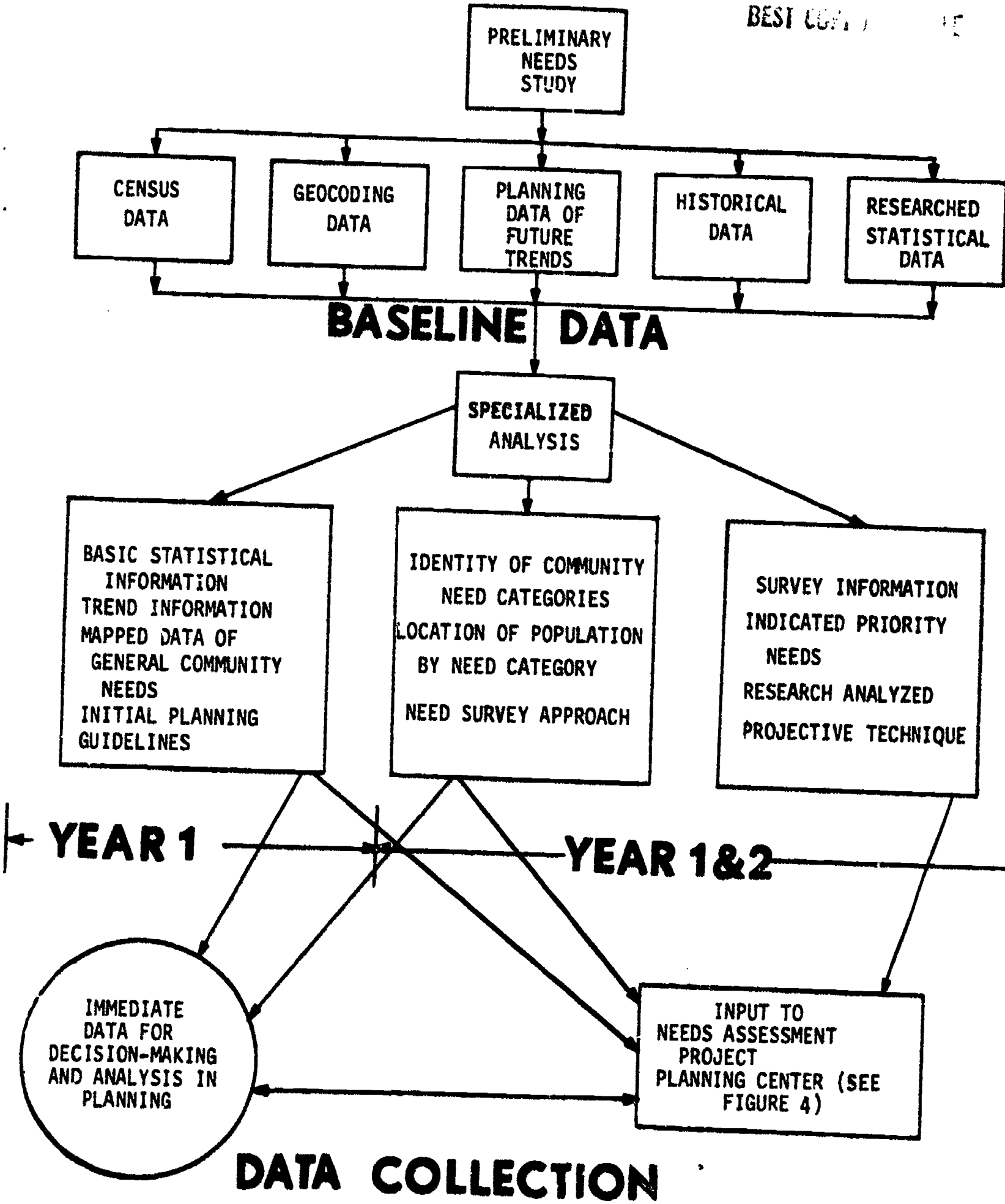

FIGURE 1

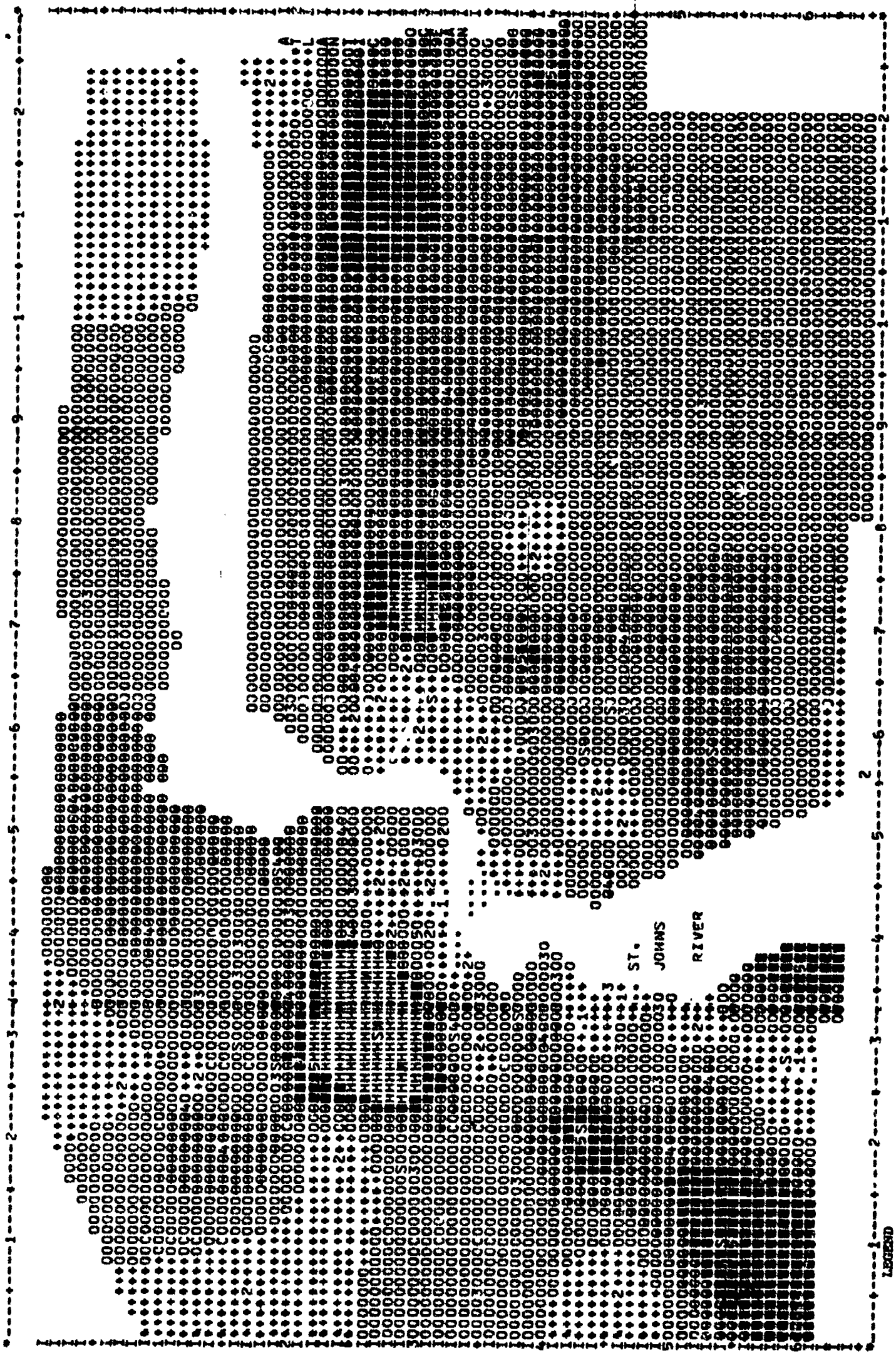

FIGURE 2

SCHOOL AGE POPULATION FOR JACKSONVILLE BY CENSUS TRACT

FOR JACKSONVILLE SMSA

> VALUES HAVE GREATER DENSITY

DATA VALUE EXTREMES ARE 1.10 60.00

ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL
(*MAXIMUM* INCLUDED IN HIGHEST LEVEL ONLY)

						ABOVE
MINIMUM	1.10	8.08	15.06	22.04	29.02	36.00
MAXIMUM	8.08	15.06	22.04	29.02	36.00	

PERCENTAGE OF TOTAL ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL

20.00	20.00	20.00	20.00	20.00	

FREQUENCY DISTRIBUTION OF DATA POINT VALUES IN EACH LEVEL

LEVEL	1	2	3	4	5	H
	.....	+++++++++	000000000	000000000	#########	HHHHHHHHH
	.....	+++++++++	000000000	000000000	#########	HHHHHHHHH
SYMBOLS	....1....	++++2++++	000030000	000040000	####5####	HHHHHHHHH
	.....	+++++++++	000000000	000000000	#########	HHHHHHHHH
	.....	+++++++++	000000000	000000000	#########	HHHHHHHHH
FREQ.	6	29	29	21	10	4
1	I..1..I	I++2++I	I00300I	I00400I	I##5##I	IHHHHHI
2	I..1..I	I++2++I	I00300I	I00400I	I##5##I	IHHHHHI
3	I..1..I	I++2++I	I00300I	I00400I	I##5##I	IHHHHHI
4	I..1..I	I++2++I	I00300I	I00400I	I##5##I	IHHHHHI
5	I..1..I	I++2++I	I00300I	I00400I	I##5##I	
6	I..1..I	I++2++I	I00300I	I00400I	I##5##I	
7		I++2++I	I00300I	I00400I	I##5##I	
8		I++2++I	I00300I	I00400I	I##5##I	
9		I++2++I	I00300I	I00400I	I##5##I	
10		I++2++I	I00300I	I00400I	I##5##I	
11		I++2++I	I00300I	I00400I		
12		I++2++I	I00300I	I00400I		
13		I++2++I	I00300I	I00400I		
14		I++2++I	I00300I	I00400I		
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16		I++2++I	I00300I	I00400I		
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25		I++2++I	I00300I			
26		I++2++I	I00300I			
27		I++2++I	I00300I			
28		I++2++I	I00300I			
29		I++2++I	I00300I			

.745 SECONDS FOR HISTOGRAM

DATE.. 72/07/30., CLOCK.. 23.22.48., CP.. 44.132, PP.. 44.134, IO.. 44.135

FIGURE 2A

FREQUENCY DISTRIBUTION FOR

SCHOOL AGE POPULATION FOR JACKSONVILLE BY CENSUS TRACT

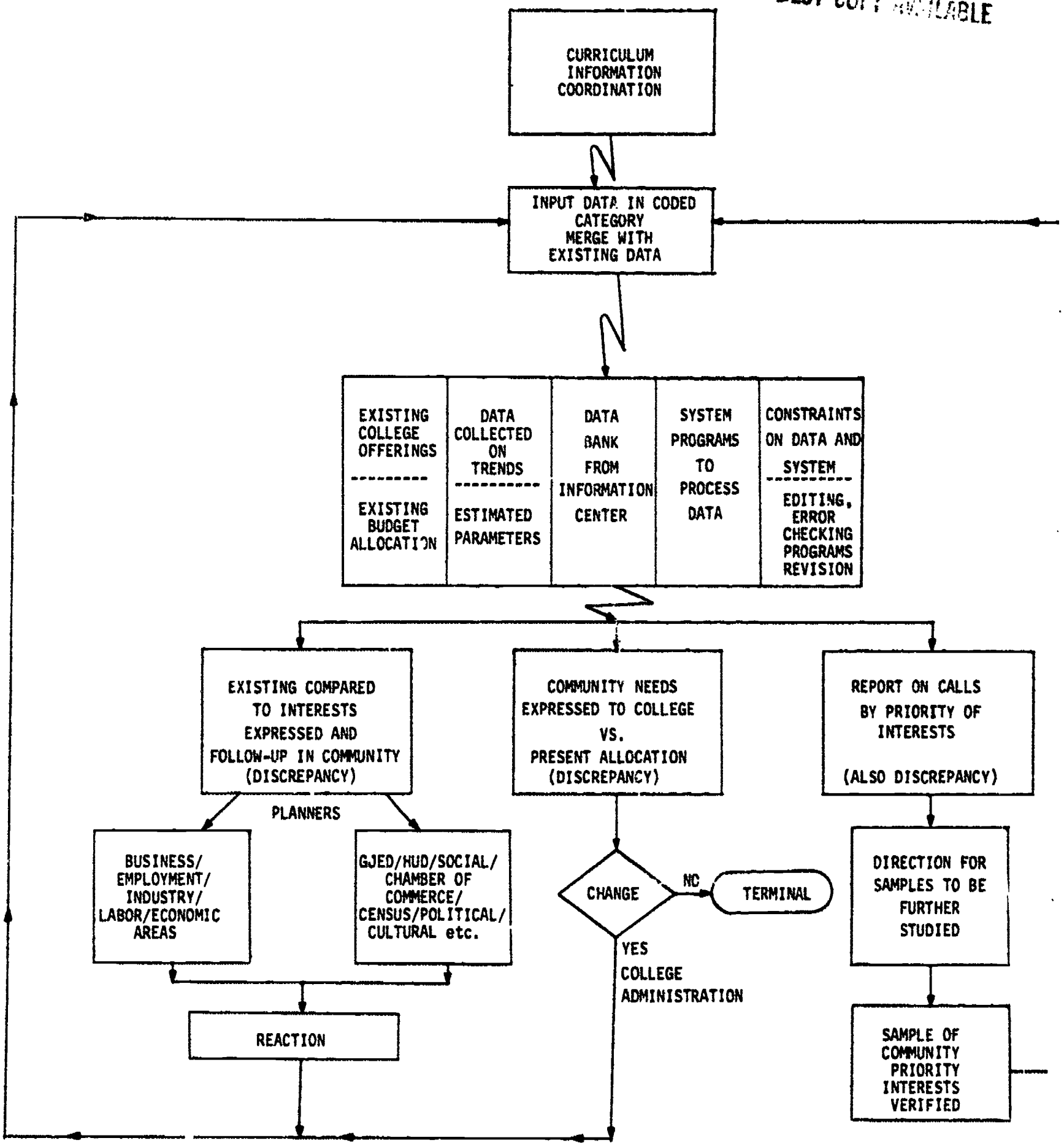

Figure 3

which the educational system can research the educational needs of the community -- dynamically/continuously -- and have the quantified data on which to base its decision for service to the community. It is further intended to computerize the model, and test the simulation processes over time until we can truly say that the model is the best possible vehicle available for sensing the educational needs and providing educational management with the best data for decision making. The model will then be exportable to any educational system in the nation for effective educational planning. It will be programmed in a computer language compatible with most operating systems to insure its universality and optimum usefulness. (See Figure 4 for interaction resulting in Prototype Development.)

To guarantee that this project is assimilated into educational planning, it is very important that the college administration be trained to understand and work with the needs assessment process. This process, when finally installed within the college administrative framework will become an integral part of it, involved on all levels. It will play a dual role, functioning both as a disseminator of information and as an information gathering network. For example, in student counseling, the information supplied by the project concerning community trends will be invaluable in giving the student realistic advice on career choice and placement. The counseling officer will also be a valuable part of the information gathering function, providing feedback on student interests and needs. The admissions office and the office of the registrar can provide other trending information on what is occurring.

These offices receive a wide variety of inquires on possible course offerings and other college services that reflect the needs of a large segment of the population. This represents a primary information source that should be incorporated in any needs assessment project. Therefore, the analysis will hopefully result with the creation of a center that takes those inquiries regarding course offerings giving a central place where potential students can request information. It would also allow for an on-going analysis of those inquiries getting an indication of demand in curriculum.

On the other hand, direction can be given for continuous follow-up studies to evaluate the significance and/or effect of the changing instruction on the students. The follow-up analysis would, therefore, improve the budget distribution based on the effectiveness of one program as compared to another in meeting the individual needs of the citizens of the community. See Figure 4 for the ways in which the Needs Assessment model is integrated with all aspects of the college environment.

NEEDS ASSESSMENT MODEL

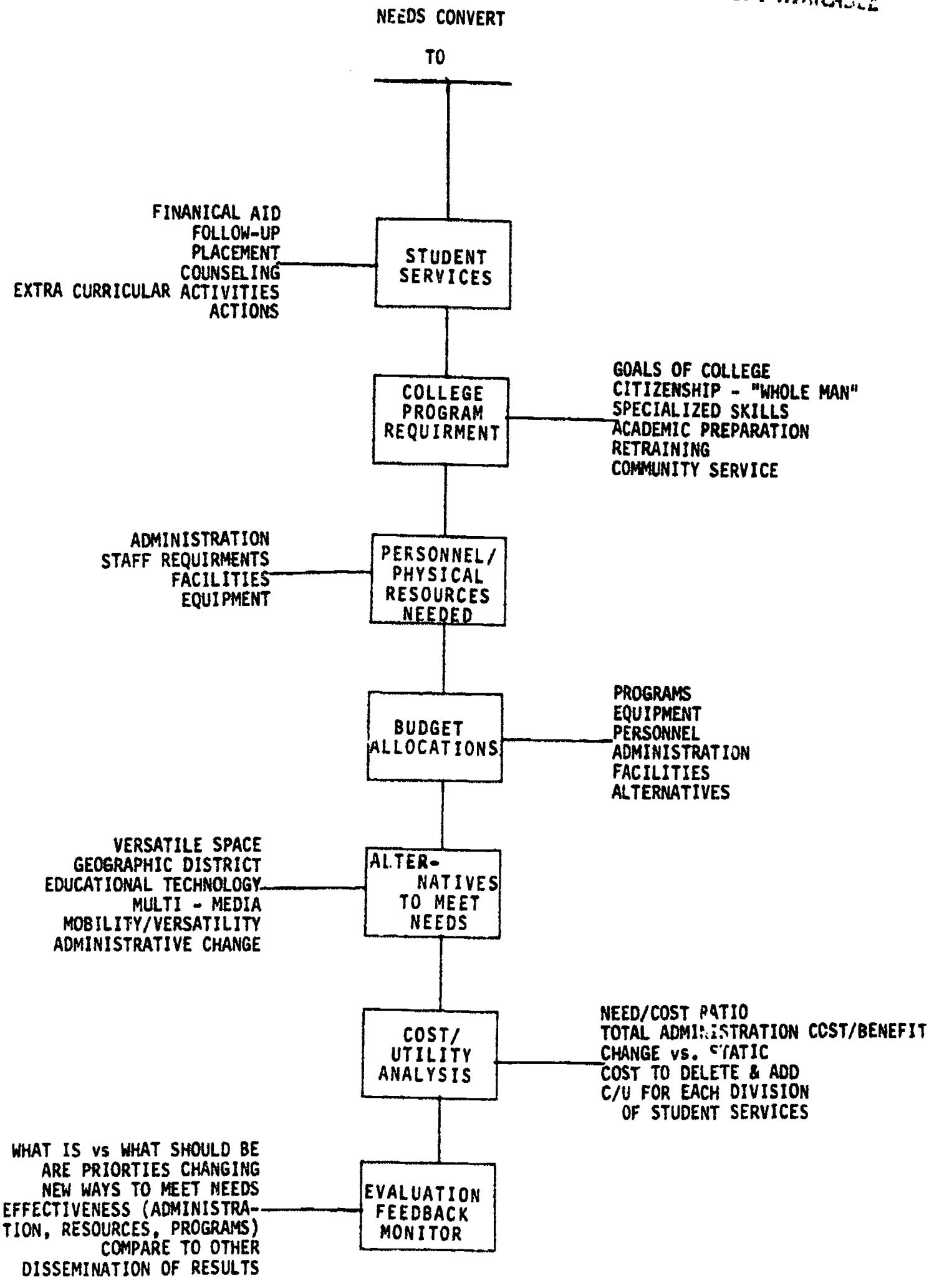

FIGURE 4

	MAN DAYS		
	YEAR I	YEAR II	YEAR III
PHASE I: DATA BASE DEVELOPMENT			
A. Preliminary Identification of The Areas of Education Need	30		
B. Define Statements of Educational Need Relative to Job	60		
C. Define Statements of Individual Educational Assets Relative to Job	40		
D. Determine Classification System for Research and Social Characteristics	130		
E. Identify Tentative Match Relationships	40		
PHASE II: INITIAL PROTOTYPE DEVELOPMENT			
A. Establish Basic Prototype Structure	70		
B. Develop Computerized Model		90	
PHASE III: MODEL TESTING			
A. Test Model for Validities of Operating Characteristics		80	
B. Test Dynamic Capability of Model		70	170
C. Test the Reliability of Model Data		90	160
PHASE IV: MODEL EVALUATION AND VERIFICATION			
A. Accuracy of Model in Describing Actual Workings of Needs Assessment Logic Flow	60		
B. Obtain Unbiased and Consistent Parameter Estimates	70		
C. Evaluate Individual Modules	100		
PHASE V: MODEL REVISION			
A. Incorporate Phase IV Evaluations in Model	20		
B. Continuous Monitoring of Models Progress	100		
PHASE VI: COMPLETE DOCUMENTATION			
A. Identify Potential Recipients for Initial Destribution	30		
B. Document for Complete Replicability	35		
C. Develop Recipient / Developer Coordination	30		

SEQUENCE OF ACTIVITIES

Phase I: Data Base Development

This phase will lay the basic foundation upon which the model is to be built. It is extremely important that the model have an accurate and comprehensive data base if it is to provide a productive link between community and college.

First, there must be an identification of areas of educational need. This will follow a two-market approach; that is, needs will be identified relating to the provision of education for the job market and for continuing education. Educational needs will also be studied from the personal level, identifying needs for social and cultural development.

Since the basic model approach is that of a discrepancy model, this phase will also define specific items of educational need relative to the jobs under study. Thus, each job can be defined by the set of items which compose it. This same procedure can be followed in defining individual educational assets relative to jobs. The specific items of education that an individual may have can be broken down so that an individual may be identified for the purposes of the model in terms of these items.

From these two sets of items, the model will then match the individual who possesses a given set of educational items with a job which requires a given set of educational items and produce the educational need that must be fulfilled by the school system.

The term "educational need" here does not only apply to job requirements. The Needs Assessment model will be extended to include personal, social and cultural needs as well.

Phase II: Initial Prototype Development

This phase consists of two basic parts. First is the establishment of the basic prototype structure. To be determined is the internal logic sequence the model will follow and what algorithmic procedures will be used in establishing relationships among variables. In order to do this, a preliminary hierarchy of needs will have to be determined and combined with the algorithmic subsets to develop a detailed program flow-chart.

Second in this phase is the development of a computerized framework for the model. To be determined here will be the appropriate computer language and the numerical techniques to be used for data generation. The detailed flow-chart will have to be converted into computer language and tested for inconsistencies with sample data.

Phase III: Model Testing

This phase will test the model in three areas. First is the validity of its operating characteristics. This includes checking for errors in the variables themselves. Have variables that add little to the predictive capability of the model been included or have variables that are important not been included? Also, errors in the logic of the model must be tested for.

Second, tests will be made on the dynamic capabilities of the model. Static characteristics will be removed where possible and tests run to insure that changes over time in the basic variables are incorporated properly in the model.

Third, the reliability of the model output data will be tested. Simulated data will be compared with historical data to determine predictive capabilities. The model will be studied for realism and also to insure the understandability of model output.

Phase IV: Model Evaluation and Verification

This phase is primarily interested in two areas. First, the accuracy of the model in describing the actual workings of the Needs Assessment logic flow will be evaluated. The evaluation will be in terms of whether or not the output data is in a suitable form for decision makers, sufficiently disaggregated to form judgements by area, and practical given the institutional framework in which it must be implemented.

And second, the parameter estimates of the model will be evaluated for bias and consistency. This involves continuous monitoring, evaluation and corrective feedback into the model.

Phase V: Model Revision

As a continuation of Phase IV, this phase will incorporate into the model the results of the previous evaluations. The model will also continue to be closely monitored and

evaluated according to defined benchmark checkpoints in order to maintain control as progress occurs. At each checkpoint, if any deviation occurs from the guidelines, it will result in either a correction of the model itself or a revision of the guidelines to bring them more closely into accord with the developing recognition of the true needs.

Phase VI: Complete Documentation

One of the most important goals of the project is to build the model in such a way that it is replicable in other areas. This phase will identify potential recipients of the model and describe for them the models hardware constraints, software characteristics and application areas and uses. This involves extensive development of recipient/developer coordination in the distribution, training and follow-up procedures to insure optimum utilization.

IV

SIGNIFICANCE OF NEEDS ASSESSMENT

The public education system exists to serve the society that operates it. The programs it offers, the type of education it gives its student, should reflect the needs of the society. In the 19th century that society was very uncomplicated with little need for highly trained workers. If a person was going to leave the farm to find work he had two major choices -- either work in large assembly line-type factories that required very little skill or enter into apprenticeship programs in which he was trained on the job. Thus the gap that public education filled in meeting the needs of the society was that of providing a literate populace. They were required to teach no specialized skills and as a result could work from the one classroom -- all grade-type school.

Many of the 19th Century concepts have been carried over to the present day. Schools seem to still operate from the premise that they should provide only a general education aimed at producing a literate populace. This is no longer enough for today's complicated society. The community needs many and varied skills which can and should be provided by public education.

While not nearly enough has been done in this area, community colleges have taken major steps towards filling the gap. They are providing, at the community level, the wide variety of specialized training that is needed. But too often these colleges have operated on only intuition or political influence in providing programs, with little or no effort at assessing true community needs, or evaluating the college output, i.e., student, in terms of the assessed needs. This is not to say that the college should only be interested in meeting the job needs of the community. There are many personal and social needs of the student that can be provided by the community college to produce a better adjusted, well-rounded individual. Needs assessment and evaluation should be directed at both areas.

To move from subjective decision-making, with no assurance of data accuracy on educational needs, to objective decision-making based on accurate data requires a continuous simulation and analysis of relevant variables. The decision made at time t + 1 should be based therefore, on a higher degree of empirical quality than the decision made at time t. This is dependent upon two forms of evaluation: (a) the on-going evaluation of the realism of the data simulated as compared to the actual social system being analyzed,

and (b) the continuous evaluation of the degree of change occurring in the social system (community), as well as the educational system (school). Thus, the major effect of Needs Assessment surfaces - planned change through effective evaluation of community educational needs for all citizens.

A comprehensive evaluation program with an accurate needs assessment process behind it can be an effective instrument of change within the college and within the community. In the college, it should provide a more flexible and realistic program for the student, allowing him more opportunity to take what he needs for social and cultural growth and more channels of training according to his own potential in job skills. The student will become more responsible for his own development deciding more for himself, and earlier, what course of study he wants to follow. This puts greater responsibility on the student advisory personnel of the college, and requires a better job placement relationship with the community.

Within the community, the needs assessment model results in greater job and class mobility, higher individual self-concept, better knowledge to the individual for competing in his society, more help to the problem youth, and economic impact predictions for local environmental planning. As education becomes more responsive, it builds positive communication links between the community and educational system such that referendums presented to the public and legislation can gain greater acceptance. It also keeps education responsible to the clients for which it exists. The major contribution to the community, however, is in its forcefulness on ending isolation through more experience and exposure so more realistic goals for career choices can be made -- beyond whatever is available at the time they enter the job market.

> "Had God anticipated the eventual structure of the public school system He surely would have shaped man differently. Perhaps with a square little head to match his square little books and his square little classrooms. Surely He would have made man uniform in height to make lining up easier, in thought to make testing easier, and in sensitivity to make teaching him easier. Whether the Creator thought this work too dull, or too unimportant, He nevertheless ducked it and we kindly picked it up and have been occupying ourselves with it for a number of years." [13, p. 11]

The Educational System often becomes so bogged down in the maze of procedures, standards, divisions, and tradition that it forgets that its purpose and existence in the first place is for services necessary to help citizens realize their full potential. That is,

education and any activities within the educational system, should exist only for the purpose of complementing instructional service.

Thus, in many cases, what the NAP is proposing is to turn the education system upside down — literally. Too often administration has assumed responsibility for determining what courses are taught and what methods are used, without any real feedback on how effective these are in actually teaching students. The communication flow has been almost entirely one way — administrator to instructor to students. One of the primary goals of the NAP is to reverse this flow.

This involves a two-step process, with the key word being evaluation. First, a means must be found to assess the students true needs providing the standard against which evaluation will occur. The lack of this information is what forced administrators to take over the educational decision making. They had no real data on students or community needs to base their decisions.

The second step in this process is the evaluation itself. To insure that the flow of communication is in the proper direction, giving the student the voice he deserves in the educational process, the evaluation must be strongly anchored in a realistic assessment of student and community needs and highly oriented to the improvement of educational output at the instructional level. Are students actually learning what we are trying to teach them? If so, what teaching methods are most effective and what teacher characteristics are best for student learning? If not, why not and what can be done to improve teaching performance? This means continuous feedback on which teaching methods and structures are most effective and how these can be implemented on a broader scale. It also means greater freedom for the individual instructor to experiment in the new methods and have greater access to the resources of the college. The classroom instructor has the most direct contact with the student and is in the position to do the most in developing new lines of communication to him. The administrators' role should be that of implementing the formal student and community needs assessment function, providing the evaluation framework, and providing the medium in which innovation and change can take place.

Through effective evaluation and follow-up procedures, the community college can place primary emphasis on the students it serves. Rarely has enough real information been available for administrators to move beyond intuition in decision making. To do

this, needs must first be assessed so that the priorities within instruction can be determined. It follows that discrepancies can be identified, resources be allocated more in line with needs, and valid decisions can be made through reliable quantification to evaluate the effectiveness and need of all management areas.

Needs Assessment can be a tool to help education be more responsive to the needs of the citizenry — showing up discrepancies based on facts rather than guesswork. It is a tool so much better than anything we have now and can be revolutionary in bringing about positive change for the most important human process of all — the education of man. It can be the vehicle by which the formal system moves from its existing state to what it should be.

BUDGET

		Year I	Year II	Year III
1.0 PERSONNEL				
1.1 Central Staff				
	Research and Development Officer	16,500	17,325	18,191
	Demographer	12,000	12,600	13,230
	Behavioral Scientist	7,800	8,190	8,600
	Business Researcher	10,000	10,500	11,250
	Statistician	9,200	9,660	10,143
Clerical Support				
	Office Fiscal Manager	7,200	7,560	7,938
	Programmers (2)	19,000	19,950	20,948
	Key-Punch Operator / Clerk (2)	13,000	13,650	14,333
	Secretary III	6,800	7,140	7,497
	Clerk - Typist III (3)	18,000	18,900	19,845
1.2 Contractural Personnel				
	Contracted Services	5,500	4,000	3,500
	Interviewers	1,200	2,400	1,600
2.0 TRAVEL				
2.1 Central Staff				
2.11 Local		4,800	4,800	4,800
2.12 Research and Development Officer		5,100	5,500	4,500
2.2 Contracted Personnel		2,500	2,000	1,800
2.3 Interviewers		200	400	300
3.0 SUPPLIES, MATERIALS AND COMMUNICATIONS		7,000	6,000	6,000
4.0 SERVICES				
4.1 Computer Terminals		1,000	1,800	1,800
4.2 Key Punchers		1,200	1,200	1,200
4.3 Computer Time		6,000	5,000	6,500
5.0 REPORT PRODUCTION		300	300	600
	Sub-total	155,100	158,875	164,575
6.0 EVALUATION @ 5%		7,755	7,944	8,229
	Sub-total	162,855	166,819	172,804
7.0 INDIRECT COSTS @ 10%		16,286	16,682	17,280
	TOTAL	179,141	183,501	190,084

3 YEAR TOTAL BUDGET -- $526,406

BUDGET EXPLANATION

1.1 Coordinating the project and responsibility for the development of the basic data gathering and evaluation model will be the Research and Development Officer. This person will need experience in education planning with a strong technical background in the analysis and design of systems. These qualifications, plus exposure to many different projects will enable the Officer of Research and Development to effectively coordinate the activities of the project, giving it the depth and breadth needed in its development, as well as function effectively in response to the direction of the Needs Assessment Central Staff.

The officer will be backed up by a supporting staff with highly diverse backgrounds. This is to insure that, in breadth, the project covers the entire spectrum of its local community. These personnel will be responsible for assisting in the development of the prototype model and for developing and maintaining a comprehensive data base, with strong lines of communications to and from the community. This staff will consist of a person with a strong background in demographic techniques, a behavioral scientist, a business researcher or operations research specialist, and a statistician.

Giving support to both the Officer of Research and Development and the staff will be two computer programmer/analysts. They will be responsible for assisting in the computerization of the prototype model itself, planning the specific computer logic to be used and also they will aid in the storage and analysis of the data base.

Clerical support for the central staff will be provided in the form of one office fiscal manager with an accounting background, to handle funds and otherwise manage the office. Other office personnel will include a secretary of the Research and Development Officer and three clerk-typists working for the other members of the central staff. Two key-punch operator-clerks will be needed to handle computer clerical activities.

Benefits for these persons have been computed at a rate of 12% and include Social Security, State Retirement, and Medical Insurance.

1.2 The services of specialists will be utilized in the highly structured phases of the project to provide professional services that include brainstorming, design definitions and data classifications, systems documentation, overall procedural effort, and a critique in total performance. They will also be used to train staff members on the special problems to be encountered in working with people from the diverse backgrounds the project will encompass.

Also contracted for will be student interviewers at $2.00 an hour to collect primary source data from within the community on community needs and college performance.

All contracted personnel will be lined with performance criteria detailed out and with specific objectives to be accomplished within a specified time-frame.

2.0 To insure that all avenues of investigations have been explored, the central staff will make research trips to study existing systems complementary to the project, attend conferences, workshops and assemblies relevant to the project, visit with consultants, and make necessary trips to Tallahassee for computer programming, testing, debugging and systems maintenance. Travel here is divided into local travel for the central staff and other travel for the Research and Development Officer making research trips to other sites.

Because the best possible professionals will be contracted to assist in this project, then actual location of residence will be a secondary factor. They will travel to other sites as necessary to complete their assigned objectives. This may be in terms of interfacing an existing system into the prototype or supportive research trips within the range of the contractural agreement and performance objectives.

3.0 The third category will be used to acquire computer software, for questionnaire development, for data acquisition and for communications.

4.0 This category represents the computer services needed to fully computerize the model. Data base terminals will be used in the development of the prototype and will become an integral part of the projects' on-going data collection model, analysis, and data base updates on an interactive decision-making basis.

5.0 The fifth category represents on-going documentation of the prototype model from initial data collection through the final procedures.

6.0 This money will be used to contract with outside evaluation agencies to assure that work on the project is continuing at a satisfactory pace and is valid in relation to the stated objectives. This will occur at the end of each funding year so that necessary corrections if any can be incorporated into the next years plans. This is figured at the rate of 5% of all direct costs.

7.0 The HEW approved rate of 44.7% of salaried personnel who qualify for benefits is shown by a letter of authorization in the Appendix. However, we believe that the indirect costs calculated at a rate of 10% sufficiently satisfies overhead requirements.

VI

EVALUATION

The following pages represent a three-year external evaluation plan based on the stated objectives.

Traditionally, needs assessments of educational agencies of all sizes have consisted of random inputs from people from all walks of life. As stated in the Winter, 1973 Federal Aid Planner:

> "The trouble is that random talk about 'needs' tends to be related and unfocused. The so-called 'needs' are stated in idealistic, angry or nebulous terms, depending on who is demanding what. There's no assurance that shrill outcries represent the feelings of the total school community or the majority. And free-wheeling, personal talk about needs does not culminate in a plan for meeting either present needs or future ones.
>
> "A systematic needs assessment is different. As Roger A. Kaufman of the U. S. International University (San Diego) has put it, it can delineate the difference between 'what is' and 'what should be.' It can identify the relative priorities among the full range of potential needs and can provide justification for focusing attention on some needs, and not on others."

The objectives stated previously on Page 2 will be evaluated in accordance with the following general guidelines:

Objective 1 Develop a data collection model

This is a general objective operationally defined in terms of Objectives 2 through 12. Thus, its evaluation can be considered a sum of the evaluation of Objectives 2 through 12.

Objective 2 Establish a hierarchy of needs

The evaluators would first ask the question: How was such a hierarchy arrived at? An evaluative judgment on this method would follow. Possible weaknesses would be described and either improvements or eliminations suggested.

The evaluation team might also suggest additional methods for helping to establish a more valid hierarchy.

Objective 3 Geographical distribution relative to population needs

Evaluators will determine the extent to which the generalized assessed needs do in fact represent the needs of each geographical area.

Objective 4 Present status compared to assessed needs

Are provisions being developed to implement the model at all state and local educational agencies? To the extent that the evaluation team determines that such provisions are not being made, appropriate recommendations would be offered by the evaluators.

Objective 5 From assessed needs, state measurable, meaningful goals and objectives that can be interpreted into short and long range plans

Evaluation team will pass judgment on the measurability of each objective and the appropriateness of any instrumentation and/or statistical methodologies in analyzing such measures. Improvements will be suggested.

Objective 6 & 7 Cost-effective analysis

Will the model allow for the consideration and the analysis of alternate methods of priority needs and alternative cost determinations?

Objective 8 Evaluate effectiveness through follow-up analysis

Although results of implemented solution cannot be predetermined before the development of the model, data analysis techniques can be devised on the basis of the consideration of typical types of data that might very well result from such a model. This would insure a more rapid implementation of such a model. To this end, the evaluation team will recommend appropriate types of statistical models for such projected data types.

Objective 9 Direction for "new money" beyond budget constraints

Are the consumer agencies, concurrent with the developing of the model, developing the capabilities of utilizing this and other models on a "pay as you go" and/or self-supporting basis when this becomes necessary? Immediate feedback to the Project Director as to the degree of commitment of each agency will be the charge of the evaluation team.

Objective 10 & 11 Greater understanding and involvement between community and educational system

Here, the evaluation team will be charged with determining the existing relationship between the community and all phases of the educational system. The evaluators will implement appropriate information collecting methods and inform the Project Director of the results.

Objective 12 Improve administrative environment and management process

Are the consumer agencies developing vehicles to meet the communities' educational needs as will be assessed by the model? Again, feedback by the evaluation team to the Project Director reporting their assessment of such developing will enable the Director to make the final decision as to those agencies whose management processes are in most need of positive change.

VII

CONCLUSION

The major intent of the Needs Assessment Project is to develop a valid, realistic model by which the education system can research the educational needs of the community in a continuous basis and have quantified data on which to base its decisions. In doing this the project will develop procedures for ranking educational needs, for determing budget allocation guidelines according to need priorities, and ultimately develop a full cost-benefit approach to needs fulfillment. This will allow administration to change activities as they are needed, have justification when funds are requested, and provide accountability to the public for tax monies spent for the education of society.

It is further intended to computerize the model providing the capability for large data bases, fast and accurate analysis and also allowing administrations to ask "what if" questions. It is a major goal of the project that this model be fully exportable to any education system in the nation for effective educational planning.

VIII

APPENDIX

SUPPORTING LETTERS AND MATERIALS

NATIONAL SCIENCE FOUNDATION

WASHINGTON, D.C. 20550

October 6, 1971

Mr. Stephen R. Wise, Director
Special and Federal Grants
Florida Junior College at Jacksonville
Jacksonville, Florida 32205

Dear Mr. Wise:

We have completed our review of the indirect cost proposal and supporting financial data submitted to the Foundation for the fiscal year ended June 30, 1971.

We have determined that the proposed rate of 44.7 percent is acceptable for use on a predetermined (fixed) basis for application to new grant awards made by the Foundation, and will be used until a new rate is established which in turn will be applied to new grant awards. The rate will not be subject to adjustment during the period of a grant award.

The rate is applicable to direct salaries and wages including vacation, holiday, and sick leave pay. All other fringe benefits are included in the indirect cost rate.

It is further noted that under OMB Circular A-88, cognizance for negotiating indirect cost rates for your institution was assigned to the Department of Health, Education, and Welfare. Accordingly, in the future, your indirect cost rate proposals should be sent to:

Mr. Henry G. Kirschenmann, Director
Cost Policy and Rate Negotiation Division
Office of Grants Administration Policy
Department of Health, Education, and Welfare
Washington, D. C. 20201

Thank you for your cooperation.

Sincerely yours,

for Louis Leiget
Robert B. Boyden
Audit Officer

cc: Mr. Henry G. Kirschenmann, DHEW

FLORIDA JUNIOR COLLEGE AT JACKSONVILLE
CUMBERLAND CAMPUS
JACKSONVILLE, FLORIDA 32205

OFFICE OF THE PRESIDENT

February 19, 1973

Dr. Katie D. Tucker, Director
Needs Assessment Project
Florida Junior College at Jacksonville
Jacksonville, Florida 32205

Dear Dr. Tucker:

Florida Junior College is dedicated to its involvement in the Needs Assessment Project. We are indeed honored and privileged to be the selected educational system for the prototype development.

The Needs Assessment Model will provide to education that element that has for too long been ignored; that is, the determination of what the community needs are, in a priority ranking, such that administration can plan for effective educational programs. Your efforts in developing this computerized simulation model will be substantiated by Florida Junior College by providing information as needed, housing facilities, and supportive fiscal management.

We are hopeful that the Needs Assessment Project can receive sufficient funds to insure the optimum development of an exportable model that will be useful to all education systems of the nation.

We are indeed fortunate to have such a model developed at our institution, and we wish you every success in this endeavor.

Sincerely,

Benjamin R. Wygal
President

BRW/ao

THE FLORIDA STATE UNIVERSITY TALLAHASSEE 32306

Computing Center

October 17, 1972

Dr. Katie Tucker
Director of Needs Assessment
Program
Florida Junior College
Cumberland Campus
Building 45
Jacksonville, Florida 32205

Dear Dr. Tucker:

The Computing Center will be happy to provide computer support on a cost basis for your Needs Assessment Project. The Computing Center appreciates the opportunity to support this type of research which we feel will be beneficial to the community colleges of the Central Florida Consortium and the State as a whole. If I can be of any assistance to you, please let me know.

Sincerely,

Howard C. Huff

Howard C. Huff
Acting Assistant Director

HCH:dp

FLOYD T CHRISTIAN
COMMISSIONER

STATE OF FLORIDA
DEPARTMENT OF EDUCATION
TALLAHASSEE 32304

LEE G HENDERSON
DIRECTOR
DIVISION OF COMMUNITY COLLEGES

October 9, 1972

Dr. Katie D. Tucker, Director
NEEDS Assessment Project
Central Florida Consortium
Cumberland Campus
Florida Junior College at Jacksonville
Jacksonville, Florida 32205

Dear Dr. Tucker:

This letter is to express my enthusiastic endorsement for the NEEDS Assessment Project which you direct. As I have explained to you, the Division of Community Colleges is committed to the concept of planning based on needs assessment for the entire community college system, and the Department of Education is similarly committed for the entire educational system of Florida. This Division is embarked on a long-range project of developing a plan based on statewide needs assessment and on annual evaluations and revision of the plan based on the evaluations. We hope to move as rapidly as possible toward output measures for evaluation, but as you recognize this is a long-range project. We think it will be a minimum of five years before we have a reasonably precise plan and evaluation measures.

I am most encouraged to know of the progress being made by the NEEDS Assessment Project. We recognize that we cannot provide all of the answers at the state level and are relying very heavily on work done at individual colleges as a basis for our statewide planning. We trust that you will be able to find funding to continue this project for a minimum of three years and will look forward to working with you and to incorporating the knowledge you gain in our statewide plan.

Sincerely yours,

Lee G. Henderson

LGH:kjc

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