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ABSTRACT

The GENESYS (GENeric Evaluation SYStem) evaluation system of the Austin, Texas school system is described, and its second year of operation--1989-90--is reviewed. GENESYS is a method of streamlining data collection and evaluation through the use of computer technology. It gathers and reports the following standard information on specified groups of students: (1) student characteristics; (2) achievement; (3) attendance; (4) discipline; (5) grades and credits; (6) dropouts; and (7) retainees. GENESYS can be run using data for any group of students identifiable through a computer file. As of June 1990, 56 groups of students had been run through the GENESYS system that spring. A number of enhancements were made in 1989-90 to make the process more "user friendly," but access to the system remains limited because of its complexity. Additional refinements should improve access to GENESYS as well as recognition of its utility. GENESYS can deliver a large number of evaluations for much less than a traditional evaluation would cost. While it is not a replacement for first-hand process evaluation, it can provide information on a large number of programs at low cost. Two figures and seven attachments provide details about the GENESYS process. (SLD)

LOWER COSTS, FEWER STAFF, MORE INFORMATION:

CRITIQUE OF A GENERIC, DATA-BASE EVALUATION SYSTEM

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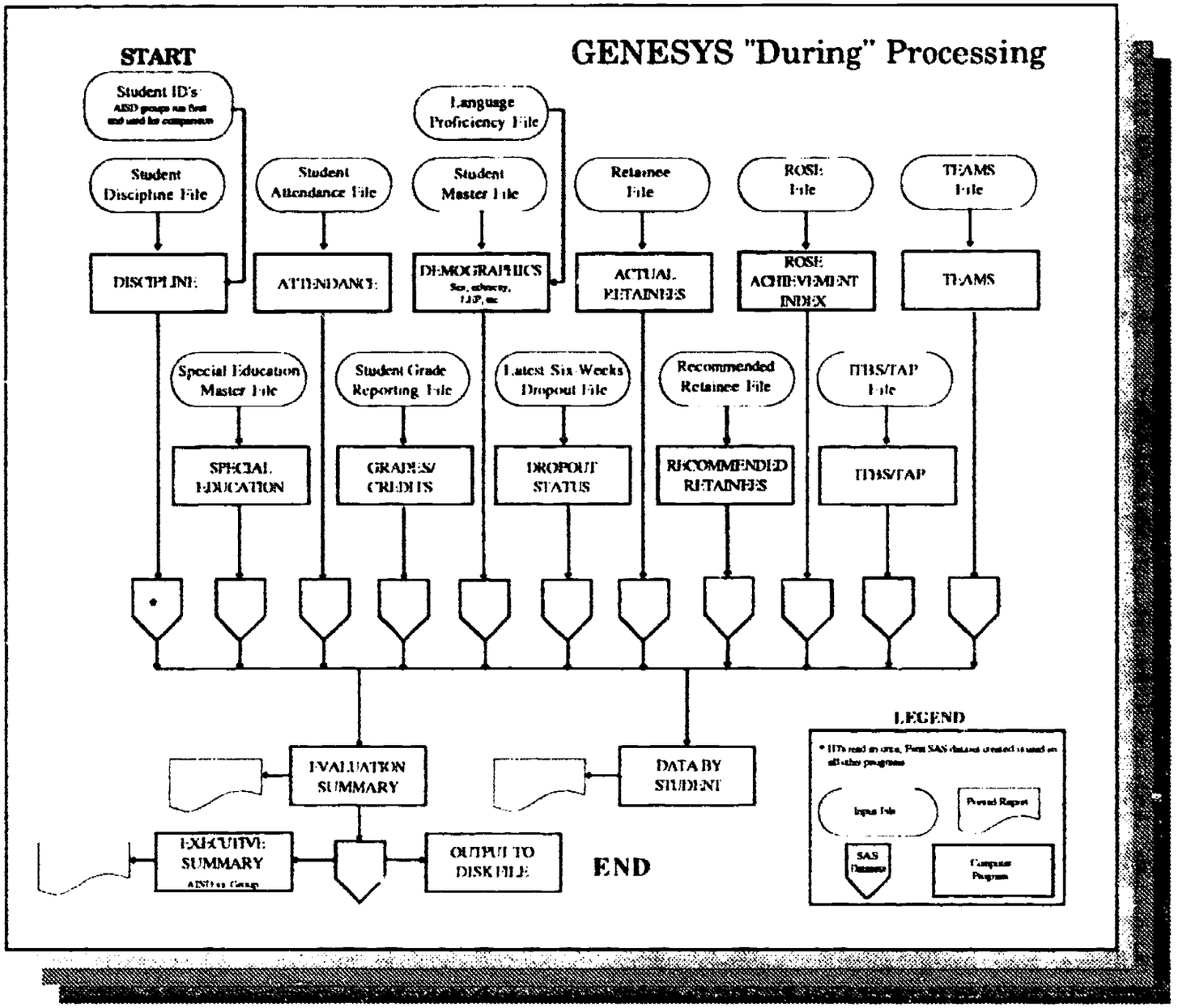
Austin Public Schools
Austin, Texas

A paper presented at the Annual Meeting of the American Educational Research Association in Chicago, Illinois, April, 1991

Lower Costs, Fewer Staff, More Information:

Critique of a Generic, Data-Base Evaluation System



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GENESYS DESCRIPTION

GENESYS is a **GEN**eric **E**valuation **SYS**tem.

GENESYS is a method of streamlining data collection and evaluation through use of computer technology. From year one in 1973, the Office of Research and Evaluation (ORE) has been challenged to evaluate a multitude of contrasting programs with limited resources. By standardizing methods and information provided, GENESYS makes it possible to evaluate a much larger number and variety of programs than would ordinarily be possible. GENESYS gathers and reports the following standard information on specified groups of students:

- Student characteristics
- Achievement
- Attendance
- Discipline
- Grades/credits
- Dropouts
- Retainees

GENESYS can be run for any group of students identifiable through a computer file. Most of the groups included this second year were for students served in 1989-90; some were followups of groups served in 1987-88. A complete listing is shown in the right-hand column of this page. References to other publications and reports which incorporate GENESYS data are provided in this paper.

GENESYS GROUPS

GENESYS included a wide variety of elementary, secondary, and K-12 programs in its second year. Students were served in 1989-90 unless otherwise noted.

K-12

Bilingual/ESL
PAL
CIS
Project Mentor

Elementary

Teach and Reach
AIM High
DARE, 1987-88

Secondary

Liberal Arts Academy
Kealing Magnet
Secondary Honors Program
Science Academy—NSF Grant
Sixth Graders—1989-90, 1988-89, 1987-88
TAP
AIP
Title VII
Project GRAD
CVAE
PEAK
Alternative Learning Center
Zenith
Johnston Computer Lab
Dropouts
Evening School
Teenage Parent Program
Johnston Dropout Recovery
Crockett Project Touch
Martin Initiative
Academic Decathlon
Johnston Renaissance
Robbins Secondary School

Note to Readers: The authors realize these program names and acronyms are too cryptic for most readers. The list is included to illustrate the number and range of programs evaluated.

Lower Costs, Fewer Staff, More Information: Critique of a Generic, Data-Base Evaluation System

The idea of a generic evaluation system has been conceptualized and reconceptualized for years. In 1989, the shrinkage of staff resources, the growth in information needs, and improvements in technical capabilities combined to permit the creation of GENESYS in concrete form. The 1989-90 school year is the second year of GENESYS implementation. Readers interested in more information about the development and implementation of GENESYS in its first year, 1988-89, are urged to consult the reports listed in the reference section.

WHAT IS GENESYS? WHY IS IT NEEDED?

GENESYS is ORE's GENeric Evaluation SYStem. Broadly speaking, GENESYS is:

- A method of streamlining data collection and evaluation for a wide variety of projects,
- A means to gather and report a great deal of information on the characteristics and outcomes for particular groups of students,
- A mechanism to evaluate a multitude of contrasting programs with limited resources—especially limited time,
- A way to provide valuable outcome information on more programs than would ordinarily be possible given limited evaluation resources,
- A method for responding to the challenge of requests for last-minute, instant program evaluation information,
- A way that program staff, administrators, and members of the Board of Trustees can obtain information on the progress of students involved in particular programs or innovations which would otherwise be unavailable because of scant evaluation resources,
- A way that evaluation staff for various projects can obtain standard information for various programs, thus allowing comparisons across projects as well as freeing up staff time to do more sophisticated analyses for areas not covered sufficiently by GENESYS, and
- A means to uncover trends or interesting findings on projects that bear delving into more thoroughly.

Specifically, GENESYS is:

- A data-base methodology accessing the school system's available longitudinal data bases, and
- A set of computer programs utilizing the Statistical Analysis System (SAS) which have been written and linked to generate standard output on a number of variables for designated programs.

One limitation of GENESYS is that it may not provide everything a user wants in the exact form desired. It also reports the same information for each program. Users must exercise their own judgment about which variables are the best measures of success for their program. On the other hand, the standard format and definitions of GENESYS have facilitated comparisons across programs. Other limitations of using GENESYS are elaborated in full in two ORE publications, 88.40 and 88.36 (see reference list).

HOW DOES GENESYS WORK? WHAT DOES GENESYS PROVIDE?

Given a file of the student identification numbers of those students involved in a program, group, or innovation, GENESYS will provide outcome information for the following variables:

GROUP CHARACTERISTICS: Number served by grade, ethnicity, sex, low income, LEP, overage for grade, special education, gifted and talented;

1989-90 ACHIEVEMENT RESULTS BY GRADE: ITBS, TAP, TEAMS and 1988-89 to 1989-90 ITBS/TAP regression trend information;

ATTENDANCE, DISCIPLINE, GRADES/CREDITS: 1988-89 and 1989-90 (four semesters); and

DROPOUTS AND RETAINEES: Dropouts as of the end of the fifth six weeks and

potential retainees as of the end of May, 1990 (actual retainees and dropouts as of the end of the 1989-90 school year, updated in fall, 1990).

Specific definitions for each of these variables are included in Attachment 1. The user is advised to read and refer to the definitions provided to assure correct interpretation of the data.

For each group, three types of sheets are produced.

THE GENESYS EVALUATION SUMMARY summarizes information on the group's overall performance on all variables.

THE EXECUTIVE SUMMARY summarizes findings in more narrative form and compares the program's data to relevant comparison groups. On most variables, comparison is to the AISD average for the appropriate grade span—AISD elementary, middle/junior high, or senior high students. Attachment 1 provides additional information about GENESYS comparisons.

GENESYS DATA BY STUDENT provides a listing of this information by student (as applicable) to allow a specific review of student attainment and characteristics (Attachment 2).

A brief program description is also supplied by program or evaluation staff. The sections which follow show sample program descriptions, and evaluation and executive summaries.

Two optional printouts were added to GENESYS in 1989-90.

CROSS-PROGRAM COMPARISON CHARTS provide a summary of statistics across multiple programs designated by the user.

TWO-WAY CROSSTABULATION TABLES provide a greater level of detail about selected variables than that provided in the evaluation summary.

Attachment 3 is a sample GENESYS report for Austin's Liberal Arts Academy.

WHAT IS NEEDED TO RUN GENESYS?

GENESYS needs a file of student identification numbers for the program or group which is to be studied before it can be run. Gathering this information is the responsibility of the program or evaluation staff requesting the information. Student names and identification numbers can be provided as a list, on a computer disk, or as a description of critical location information on AISD computer files (such as a school and grade list or a course number). Staff must decide whether they want to include all students served for any length of time by a program, those in as of a particular date, or those served a certain length of time (e.g., over three months). This choice should be communicated to ORE with the list. In addition, staff are asked to provide a brief program description.

Generally, GENESYS can be run at any time after first semester records are in for the current year. Of course, information is available for more variables and is more complete at year's end. GENESYS can also be run based on the previous year's data. Attachment 4 provides flow charts for GENESYS.

WHAT PROGRAMS ARE INCLUDED IN GENESYS?

A list of programs and groups included in GENESYS in 1989-90 is shown in Figure 1. As of June, 1990, 56 groups have been run through GENESYS this spring. The first groups listed are included in this report because they are not discussed in other ORE reports. They should provide a good sampler of what GENESYS is all about to the reader. Results for the rest are included in the other ORE reports referenced. A complete set of results for other groups of interest is available upon request from ORE.

FIGURE 1: GENESYS GROUPS—1989-90

PROGRAM/GROUP	REPORT TITLE	PUBLICATION #
Kealing Magnet	GENESYS 1989-90: Selected Program Evaluations	89.30
Johnston Liberal Arts Academy	GENESYS 1989-90: Selected Program Evaluations	89.30
Teach and Reach, 1989-90	GENESYS 1989-90: Selected Program Evaluations	89.30
AIM High (Gifted/Talented Program	GENESYS 1989-90: Selected Program Evaluations	89.30
Secondary Honors Program	GENESYS 1989-90: Selected Program Evaluations	89.30
Bilingual/ESL Programs	GENESYS 1989-90: Selected Program Evaluations	89.30
LBJ Science Academy	Double TNT: Targeting New Teachers and Teaching by Novel Techniques	89.27
Sixth Graders, 89-90, 88-89, 87-88	Sixth Graders in Elementary and Middle Schools: A Longitudinal Comparison	89.31
Academic Decathlon	Chapter 2 Formula, 1989-90: Major Points	89.32
Drug Abuse Resistance Education (DARE), 1987-88	Continued Steps Toward Drug-Free Schools in AISD, 1989-90	89.38
Title VII	Title VII in AISD, 1989-90	89.39
Project GRAD	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Academic Incentive Program (AIP), 1989-90	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Alternative Learning Center (ALC)	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Communities In Schools (CIS)	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Coordinated Vocational Academic Education (CVAE)	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Crockett Project Touch	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Evening School	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Johnston Computer Lab	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90, and Chapter 2 Formula, 1989-90: Major Points	89.35 89.32
Johnston Renaissance	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Johnston Dropout Recovery	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Martin Hispanic Student Scholarship Initiative	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Peer Assistance and Leadership (PAL)	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90, and Continued Steps Toward Drug-Free Schools in AISD, 1989-90	89.35 89.38
Practical, Effective, Appropriate Knowledge (PEAK)	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Project Mentor	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Robbins Secondary School	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Teenage Parent Program	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Transitional Academic Program (TAP), 1989-90	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35
Zenith Program	Continuing Initiatives in Dropout Prevention: Project GRAD Final Report, 89-90	89.35

WHAT ENHANCEMENTS HAVE BEEN MADE TO GENESYS IN 1989-90?

Some of the enhancements the evaluation staff who developed GENESYS hoped to make in 1989-90 have been realized, while other ideas are still on the drawing board. Some promising new ideas have emerged for future development. The following is a list of the improvements and enhancements made to GENESYS this year.

- The Evaluation Summary, formerly the Program Summary, was redesigned to be easier to understand and use as well as be more attractive.

- An additional retainee variable was added to the evaluation summary, and the previous variable was renamed. The variable "retained," defined as the percentage of students recommended for retention as of May, now refers to "end-of-year" retainees. A "beginning-of-year" variable, defined as the percentage of students actually retained as of the beginning of the next school year, was added.

- The Executive Summary was rewritten to make it less narrative and more a graphical display of data.

- Results from the evaluation summary were saved on a disk file for the first time. The evaluation summary for a group can now be recreated, even modified (e.g., if the title needed to be changed), without running the group through all of the GENESYS programs again, thus saving considerable computer time.

- The percentage of students who are gifted/talented was added to the evaluation summary.

- The heading for the Data by Student listing was redesigned to be printed in reverse-font by the laser printer.

Some additional standardization efforts were made.

- A file/run sheet was devised for the benefit of users. This sheet provides users with a kind of checklist to help them work through some of the issues involved in file building. It also assists the programmer in running the group. Finally, it serves as valuable documentation of how the file was assembled, especially as regards what students were included in a group.

- Users were given more precise instructions on how to prepare the input files for their groups. They were directed to eliminate bad and duplicate student ID numbers from their data files and were provided with a SAS program for the purpose.

- "Spanned" groups, i.e., groups in which there were students in different grade spans such as middle/junior high school and high school, were not permitted. Groups had to be defined as either elementary, middle/junior high school, or high school.

- Group size was limited to a minimum of 25 students both in the interest of meaningful analysis and to save computer run time.

Two user-designated options, to be run apart from the main GENESYS processing, were made available.

- Cross-program comparison charts compare statistics across programs selected by the user. A minimum of two programs can be designated, up to the maximum of all the programs run. If cross-program comparisons are specified, the user receives all of the charts; i.e., it is not an option to choose only certain comparisons. Programs are compared on all GENESYS demographic, progress, and achievement indicators. A complete set of comparison charts for fall, 1989, programs is contained in ORE publication 89.30 (see reference list).

- Two-way crosstabulation tables (e.g., sex by ethnicity) permit the user to examine program data at a greater level of detail than that presented in the GENESYS evaluation summary. The user is able to select certain "blocks" of categorical variables for which all possible two-way tables will be printed. For example, a user may be interested in a crosstabulation of sex by grade for a particular group of students. In addition to this table, the user would receive crosstabulations of grade by all other categorical variables. Crosstabulations by continuous variables, e.g., of percent attendance, are not presently included. A list of the tables included in each block is also included in ORE publication 89.30.

WHAT CHALLENGES REMAIN, AND WHAT IS PLANNED FOR THE FUTURE?

Although a number of enhancements were made to GENESYS in 1989-90, there is still room for improvement. GENESYS remains a complicated development and production process which requires considerable time and attention from evaluation staff to do the programming, coordination, and set-up work.

Developing Program Files and Descriptions

One facet of the process which took longer than expected in the first year of GENESYS, 1988-89, was the development of program files and descriptions. Slowdowns were attributed generally to the following factors:

- Deciding which students should be included in data files,
- Deciding what sources should be used for files,
- Difficulty in collecting basic program information, and
- Difficulty in collecting students' names and ID numbers when they are not already computerized.

These difficulties remained in 1989-90, although some attempts have been made to delineate the issues—starting with the 1988-89 GENESYS final report—and to arrive at a common frame of reference. Attachment 5, "Requirements for GENESYS Data Files," which was distributed to GENESYS users in spring, 1990, was one attempt. Another was the development of the file/run sheet which was described in the previous section. Some discussion with the evaluation staff responsible for GENESYS helped to clarify questions about who should be included in data files.

A second year's experience with the programs on the part of evaluation staff helped them in making decisions about programs with which they were not as familiar last year. Where program staff had concerns last year about the criteria used for inclusion in a group, evaluation staff were able to address them more readily because of their greater familiarity with the programs and with the GENESYS structure.

Some of the demands on staff resources will lessen as staff acquire additional experience and the process becomes more routine. However, some of these demands may be irreducible parts of the "business" of evaluation. Just as it is an ongoing part of Data Services to work with users to determine how best to meet their needs, so too may evaluation staff have to continue to work with GENESYS users to educate them and to ensure that the information they are seeking can be provided most efficiently via GENESYS.

Additional Challenges for the Future

Even at the end of the second year of implementation, the system is still less "user friendly" than desired. Nonprogrammer users still cannot submit their own runs. Other computer programmers could run GENESYS, but because the system has kept changing and evolving, it seemed risky to the evaluation staff responsible for GENESYS to let anyone besides the main GENESYS programmer handle GENESYS runs. As the system becomes more stable and better understood both in ORE and outside of it, it will be possible to permit users greater, less encumbered access to GENESYS.

A related use issue is that few people outside of ORE are directly involved in using GENESYS. There are many recipients of GENESYS information, but few people have requested that GENESYS be run on groups of interest to them.

This lack of direct involvement is probably attributable to the relative newness of GENESYS. District staff have indicated a general awareness of GENESYS but not a thorough understanding of what information it can provide. Another plausible explanation is that ORE's current broad inclusion of programs has left few others of interest.

Creating program descriptions is still not as "push button" as desirable for a generic evaluation system. Program descriptions are supplied by program or evaluation staff, but evaluation staff ensure that the descriptions are accurate and are typed on the standard form. This process is still a paper-and-pencil affair. One possibility for improving this process next year is to set up a central computer file on the mainframe into which program descriptions would be typed. The file could be accessed through any terminal in ORE. Program descriptions would be saved and could be altered at any time. When GENESYS output is created for a group, program descriptions could be laser printed at the same time as the summaries and individual student listings.

Running GENESYS in both fall and spring has added to the time invested in the system and led to questions about what groups should be run when. In its first year, 1988-89, a limited number of fall runs were made to test computer programs. In 1989-90, however, 38 programs were run in the fall and 56 in the spring (through June). This represents a substantial commitment in computer time, as well as in staff time. After only two years, it is evident that GENESYS has become a major evaluation tool, so much so that a more judicious selection of groups to be run may be necessary, at least given the present capabilities of the system.

In light of the potential and growing demand for GENESYS information, GENESYS run time needs to be reduced. Even with a faster IBM mainframe than ever before, it takes 20-30 minutes to process the GENESYS computations for one program group. What this means, with upwards of 100 groups (many after June) processed in spring, 1990, is that a substantial amount of computer time is being devoted to GENESYS. At the rate of about five groups a night, the large number of groups and the long run time mean that the programmer is running GENESYS every weekday night for a month and longer. One possibility which has been discussed is to rewrite parts of the GENESYS computer programs in COBOL rather than SAS. COBOL is better suited for extracting information from large files, while SAS is superior for manipulating the data and producing statistical output.

Some additional enhancements to GENESYS are being considered. Attachment 6 lists some ideas for enhancements broached in spring, 1990, some of which have already been implemented. Two of these ideas in particular merit some discussion here:

1. Comparison of predicted and obtained dropout rates, and
2. Significance tests.

The comparison of predicted and obtained dropout rates is an outgrowth of some work done in 1988-89 as part of the evaluation of the District's dropout prevention programs. The 1988-89 Project GRAD final report (Publication No. 88.36) includes a discussion of how the rates are obtained and compared (see pages IV-32 - IV-35). This methodology has been incorporated into GENESYS to provide another outcome indicator which is more than descriptive. A more complete discussion of this methodology is contained in ORE publication 90.19.

Significance tests for GENESYS are an exciting concept because they would provide an additional evaluative dimension not now furnished by GENESYS, namely, a means for determining if the differences between groups (either between program students and students districtwide or program students at two points in time) are meaningful. Several avenues for introducing significance tests are being investigated.

WHAT MAKES A PROGRAM EVALUABLE BY GENESYS?

After two years of interpreting the output from GENESYS, we have determined that indeed there are certain characteristics that make a program a poor candidate for GENESYS—or at least parts of it. The major characteristic appears to be the nature of the enrollment of the students.

Some programs, such as our alternative campus for discipline problems, can enroll students at any time during a semester. This make it impossible to attribute the influence of the time in the

program and the time in regular education to the outcomes. For example, how much of a student's GPA would be attributable to each program if time were split during a semester? The same difficulty arises with programs that are less than a calendar year when interpreting annual outcome measures such as achievement test scores, dropout rates, or promotion/retention rates. Therefore, one of the most critical characteristics of an ideal program for a GENESYS evaluation is that the students begin the program and continue in the program for the full duration of the interval between the measurement of outcome variables.

An option is to specify for inclusion in GENESYS only those students who are enrolled for the full duration. However, this could reduce the number of students contributing to the evaluation to an unacceptable level.

A second key characteristic is that the program have as its targeted outcomes those that are reported by GENESYS. For instance, a program that targets student self-concept, parental involvement, or physical development would not be assessed directly by any of the measures currently included in GENESYS. A third key characteristic is that the program not enroll students who are exempt from the outcome measures. For example, a program that enrolls certain limited-English-proficient or special education students might have too few of those students appearing in the GENESYS statistics by virtue of their exemption from many tests and other assessments.

Two other characteristics are less important. The program should have sufficient enrollment to make the GENESYS averages meaningful, and the program should be able to provide a roster of those students efficiently. A major hassle with the inclusion of programs in GENESYS is the difficulty of obtaining a roster of the program participants. Many programs can identify their students by course numbers or a combination of school/class/period codes. Those programs and those that serve all students with certain demographic characteristics are usually easy to define.

To summarize, the ideal GENESYS evaluation is one for a program that:

- Enrolls students for an entire school year and has a small attrition rate.
- Targets outcomes that are among those included in GENESYS.
- Serves students that are not exempt for those outcome measures.
- Enrolls enough students to make averages meaningful.
- Serves students who can easily be identified through already existing computer records or characteristics.

WHAT DOES GENESYS COST COMPARED TO TRADITIONAL EVALUATIONS?

The best example of a use for GENESYS is the actual case study that finally motivated us to develop the system. That episode began when one of the District's high schools implemented a computer lab for potential dropouts. The lab was pieced together the way many are around the country with a donation/loan from a major computer manufacturer, curriculum from a prominent educational computer software company, and prompting from a community entity with enough political clout to ensure that the District would try out the idea. Everything went along relatively unnoticed during the first year until the principal of the school was invited to speak at a national meeting sponsored by the computer corporation, which had made an excellent videotaped documentary on some of the students in the program.

As happens, the national attention brought out some of the local ill feelings about the program and how it had been approved. Local secondary administrators challenged not only the claims of success made in the videotape, but also the overall success of the community entity, a GED preparation agency, which had been quite frankly giving the District fits about the number of dropouts leaving our high schools as a way of drumming up support for its alternative training for a GED.

Our Office of Research and Evaluation was admittedly skeptical about the claims, which included the statistic that only 3 of the 40 students enrolled had dropped out. That would have been a better rate than the 5 out of 40 dropout rate for all students in the District during a single school year.

After a soul-searching meeting with the Superintendent and all staff involved, the Office of Research and Evaluation was asked to investigate two issues.

1. *What was the dropout rate of the 40 students who participated in the program, and what do other measures of success indicate?*

2. *What documented success have the computer curriculum and the community entity had with the persons they have served?*

In the next three days, about 12 staff in the Office of Research and Evaluation contributed nearly full time and in some cases more than full time to compiling and analyzing available data. A spreadsheet format was designed to display the records of individual students, because it was clear there would be no single measure of success that would be acceptable to everyone as the bottom line for determination of success. Attachment 7 is a copy of one page of the final spreadsheet that was produced. Because of the quick turnaround demanded, the final copy was hand written.

Evaluation staff used available printed reports; individual student records kept by project staff; computerized files for grades, discipline, attendance, demographics, and test scores; and SAS for analyses.

The outcome was a report in memorandum form that concluded that 12, not 3 students met the definition of a dropout; participating students had a lower rate of attendance during the program than before; participating students raised their grade point averages from just below failing to just above failing during the fall, but earned failing grade point averages below those they had earned before the program in the spring; credits earned changed little; discipline incidents changed little.

As for the outside entities' program, they were unable to provide any published report or other documentation of their students' success. Less formal data they provided showed that they had served many students, of whom most had not received a GED.

Possibly the most important outcome of this enormous human effort to assemble an evaluation report over the span of only three days was the motivation for our office to pull off the shelf all of our previous thoughts and plans for a generic evaluation system and actually commit ourselves to making it work before this situation that we had lived through with the computer lab was repeated with another program.

The cost? This computer lab effort probably cost about $4500 in staff time over the three days. Never before and never since have we pulled so much in human resources off regular activities for such a quick, ad hoc project.

HOW MUCH DOES GENESYS SAVE US IN A YEAR?

This is difficult to conceptualize, partly because the District would not evaluate all these programs without GENESYS. Also, a traditional evaluation would deliver some personal insights, some process information, and come customizing that GENESYS cannot—is not designed to--provide. On the other hand, GENESYS provides for every program a wide array of statistics, some of which were not included in past customized evaluations. In general, though, we can estimate the cost of the type of traditional evaluation a program would have received by calculating the cost of the evaluation component we would have included in a proposal. The cost of GENESYS can be more precisely estimated based upon the actual resources that were committed to it during the start-up year and in its second year of implementation.

For GENESYS, in the start-up year, the cost was:

$ 17,000	Programmer
40,000	Professional Staff Time
5,000	Other Direct Costs
$ 62,000	TOTAL

Year two costs were:

$ 8,500	Programmer
25,000	Professional Staff Time
5,000	Other Direct Costs
$ 38,500	TOTAL

The reader must know that in our school system, the data processing costs for evaluation are usually not carried in, nor charged directly to, evaluations, because ORE is a part of the same department as data processing. Therefore, in these cost comparisons, the costs for data processing are not compared; however, our best guess is that GENESYS computer demands are less than those of a traditional evaluation that would require many more individual program runs to produce the same output.

In case the reader wishes to skip the details of how we compared costs for traditional evaluations and GENESYS, the bottom line numbers will be presented first, then the details will follow. Figure 2 summarizes the comparisons made.

Figure 2: Cost Comparisons

	Theoretical Traditional Evaluation	Actual GENESYS Evaluation	Computer Lab Evaluation
Programs with a GENESYS component		10	
Programs evaluated completely with GENESYS		23	1
Total number of evaluations	33	33	1
Average cost per evaluation	**$17,500**	**$1,167**	**$4,500**
Total cost for 33 evaluations	$577,500	$38,500	$4,500

The cost for a traditional evaluation was derived by examining currently funded programs that have an evaluation component and relating them to the size and type of program that GENESYS has been used to evaluate. By this method, we estimated that GENESYS actually replaces evaluation resources that cost between $10,000 and $25,000 in separate budgets. Therefore, we used $17,500 as the cost of an average evaluation of the type for which GENESYS is appropriate. This would also apply to the 10 programs for which GENESYS contributes only a portion of the overall evaluation—for example, the Chapter 2 evaluation that includes much data collection and analysis beyond what is provided by GENESYS.

Not included in these cost estimates is the savings/contribution GENESYS makes to metacomparisons such as our dropout program comparison charts that use GENESYS and other data to summarize dropout programs.

The bottom line becomes that a traditional evaluation would cost about $17,500 to produce the GENESYS data, the computer lab evaluation that sparked the eventual development of GENESYS cost about $4,500, and a current GENESYS evaluation costs about $1,167.

If the District were to fund traditional evaluation activities for the 33 programs included in the 1989-90 GENESYS runs, the cost could have been $577,500 instead of the $38,500 actually spent on GENESYS.

In today's real world, the cost of doing a traditional evaluation is coming down in the areas of data analysis, but still remains high in the labor-intensive area of process evaluation. GENESYS is not a replacement for first-hand process evaluation.

Clearly, a working GENESYS can deliver a large number of evaluations for much less than traditional evaluations would cost. We can, and will, debate forever the relative merit of a generic evaluation and a customized one. What we cannot debate is the fact that GENESYS allows us to get a certain level of evaluative information on a large number of programs at a very low cost.

ATTACHMENT 1 (Page 1 of 3)

GENESYS DEFINITIONS—EVALUATION SUMMARY

PROGRAM MEMBERSHIP—DESCRIPTIVE INFORMATION

For each program included in GENESYS, ORE or program staff define those to be included (see program descriptions). Most programs or groups are for students involved in 1988-89. Some (e.g., sixth graders, DARE, and TAP/AIP) are for groups served in 1987-88. Descriptive information provided for each program includes:

NUMBER SERVED: Total served (may be cumulative, semester, or one point in time count).

ETHNICITY: Percentage Black, Hispanic, and Other (includes White, Asian, and American Indian).

SEX: Percentage male and female.

LOW INCOME: Percentage eligible for free or reduced-price meals.

LEP: Percentage identified as limited in English proficiency (regular or special education) and served in bilingual, English-as-a-Second Language (ESL), or alternative programs as of the end of the year (or whenever GENESYS was run). Note: Some students "exit" or leave LEP status each May once English proficiency is attained.

OVERAGE FOR GRADE: Percentage older than expected for the grade by one or more years (as of September 1). Example: 1st graders 7 or more on September 1.

SPECIAL EDUCATION: Percentage of students in special education of any type.

GIFTED/TALENTED: Percentage of students in gifted/talented programs. At the elementary level, this means participation in the AIM High Program. Secondary students are counted as gifted if they take one or more honors courses.

OUTCOME INFORMATION

Outcome information, unless noted, accesses the most current data available through VSAM files on the computer. Variables include:

ATTENDANCE: Mean percentage attendance (days attended divided by days enrolled) for fall and spring of 1989-90 and 1988-89. Data for 1988-89 are for those enrolled in the 1989-90 program who were active in AISD in 1988-89

DISCIPLINE: Percentage of students involved in serious discipline incidents (corporal punishment, suspension, expulsion) in fall and spring of 1989-90 and 1988-89.

GRADES: Indicates mean credits earned (CREDITS EARNED), number of F's (#F), number of courses with no grade (NO GRADE), and grade point average (GPA) for high school; indicates grade point averages and F's for junior high/middle school. Information is shown for fall and spring of 1989-90 and 1988-89. A normal course load is five or six classes (2.5 to 3.0 credits) per semester. The grade point average (GPA) is calculated without courses in which no grade has yet been assigned; it includes F's and passing grades based on a point system of 1-100 points with 70 as passing. The grade point scale for converting numerical scores to regular course grade points is included below:

Numerical Scores	Regular Course Grade Point	Honors Course Grade Point
97-100	4.5	5.0
93-96	4.0	4.5
90-92	3.5	4.0
87-89	3.0	3.5
83-86	2.5	3.0
80-82	2.0	2.5
77-79	1.5	2.0
73-76	1.0	1.5
70-72	0.5	1.0

ATTACHMENT 1 (Page 2 of 3)

(Source for grades and credits: SGR History File—SGRH)
(Source for conversion table: Board Policy Manual, Austin ISD, Volume 1)

DROPOUTS: Percentage of students who dropped out of school by the end of the fifth six weeks of the 1989-90 school year. The percentage who dropped out over the entire 1989-90 school year, including the summer of 1990, were available in fall, 1990.

RETAINED: End of Year: Percentage of students recommended for retention as of May, 1990. NOTE: Some students may not eventually be retained, especially at the secondary level. Successful completion of summer school courses or correction of grades can result in promotion. Also, at the high school level, students report only courses failed. A "retained" label simply means students have not earned 5, 10, or 15 credits to be promoted to grades 10, 11, and 12, respectively. Also, some special education categories are listed as retained until schools provide promotion data. Beginning of Year: Percentage of students actually retained as of the beginning of the 1990-91 school year. This figure was available in fall, 1990.

ITBS/TAP: Median percentiles (%iles) of group along with number of students tested in Reading Comprehension, Mathematics Total, and Composite. Composite scores include:

Grades 1-2: ITBS Vocabulary, Reading Comprehension, Mathematics Total, Spelling, and Word Analysis

Grades 3-8: ITBS Vocabulary, Reading Comprehension, Mathematics Total, Language Total, and Work Study Total

Grades 9-12: TAP Reading Comprehension, Mathematics Total, Written Expression, Using Information, Social Studies, and Science

TEAMS: Percentage and number of students tested who mastered each test—Reading, (Language Arts for Exit Level TEAMS, Mathematics, and Writing. Mastery levels are set yearly by TEA based on a scale score of 700 on each test.

ROSE: The Report on School Effectiveness (ROSE) compares Reading Comprehension and Mathematics Total grade equivalent (GE) scores for spring, 1989, and spring, 1990, to determine if gains achieved are above (+), below (-), or at (=) predicted levels based on regression analyses. All students in a grade in a program are treated as a group. ROSE predictions for groups with less than 20 students (*) are not reliable (and are therefore not shown). The gain, predicted score, and amount over or under the actual score compared to the predicted score for the group are shown for reference. See ORE Publication Letter 89.J for more information about the ROSE procedure.

All AISD comparison statistics were defined as shown above. Students were included if:

- In grades pre-K through 12.
- Actively attending a regular campus as of February 5, 1990. (The Alternative Learning Center and Robbins were included for both high school and middle school/junior high.)

ATTACHMENT 1 (Page 3 of 3)

GENESYS STATISTICS AND "OFFICIAL" AISD COUNTS

These definitions and inclusion rules vary slightly from those used for "official" AISD counts. For example, students were included in GENESYS if they were active as of midyear (February 5, 1990). Published districtwide ITBS/TAP median percentiles will therefore differ from those presented here because all test takers were included, whether or not they were active in February.

GENESYS COMPARISONS—EXECUTIVE SUMMARY

Outcome data for each group included in GENESYS are compared to national and District averages to provide a meaningful context for judgments about program effectiveness. The following comparisons are made.

Variable	Comparison
ITBS/TAP Achievement	1988 national norms; Predicted achievement with actual achievement
TEAMS Achievement	AISD averages in mathematics, reading (language arts at Exit Level), and writing
Attendance	AISD attendance rates
Discipline	AISD discipline rates
Grades	Grade point averages (GPA's) (secondary only) for all AISD students
Retainees	AISD retention rates
Dropouts	AISD dropout rates; (grades 7-12 only) Predicted rate with obtained dropout rate*

* Implemented in summer, 1990

On all variables, comparisons are made to the appropriate grade or grade span—elementary (grades pre-K-6), middle/junior high (grades 6-8), and high school (grades 9-12). For example, performance on the ITBS by students in grade 3 in the GENESYS group is compared with the national norm for grade 3. The retention rate for high school students in a GENESYS group is compared with the retention rate for all AISD high school students.

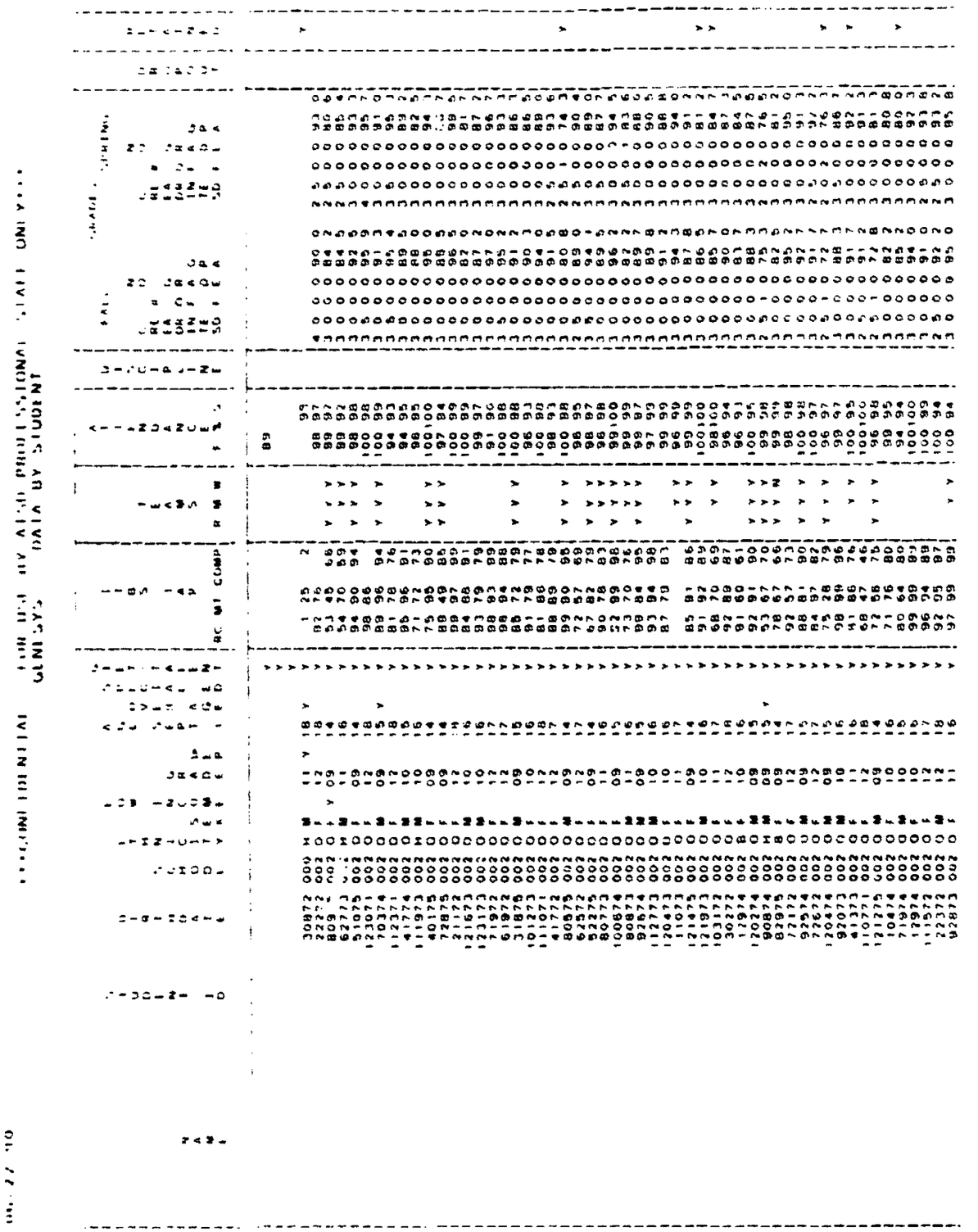
On most of the above variables, the comparison made is to the AISD average or rate, in other words, to the general student population (at the appropriate grade span). There are two exceptions in which the comparison is not to the general population:

1. By means of ROSE (see Pub. Letter 89.J), ITBS/TAP achievement levels for program students are compared with predicted achievement levels for students with similar characteristics.
2. Beginning in summer, 1990, the dropout rate predicted for program students was compared with their actual dropout rate.

Many comparisons to the outcome data for program students could be made. Comparison to the general population contrasts the performance of the program group with that of students overall. This comparison has the advantage of pointing up clear differences in performance where the program group is highly select, e.g., honors students. On the other hand, comparisons like ROSE, which take into account the program students' characteristics, will continue to be sought so that GENESYS can become even more useful in the future. In the meantime, users desiring other comparison groups than the general population have the option to identify the students and have GENESYS run on the groups they define.

ATTACHMENT 2

Sample GENESYS Printout for Data by Student



ATTACHMENT 3 (Page 1 of 4)

GENESYS PROGRAM DESCRIPTION

PROGRAM NAME: Liberal Arts Academy (Johnston)

EVALUATION CONTACT: Vince Paredes

PROGRAM CONTACT: Clark Lyman

- Funding (Local, State, or Federal): Local
- Budget Allocation: $449,693
- Number of campuses with program: 1 - Johnston High School. Representatives from all public middle/junior highs, all attendance areas.
- Eligibility/students served:
  1. ITBS Language and Reading total
  2. GPA - (middle/junior high)
  3. Most recent grades
  4. Application essay
  5. Interview
  6. Two or more teacher recommendations

  Staff takes into account all of the above to best place the student whether in LAA, Science Academy, or Honors courses.
- Grades served: 9, 10 (2nd year of program). Eventually 9-12 (one grade per year will be added).
- Source of file: Roster with all in program as of January 1990.
- Subject areas taught: 7-period academic day
  Foreign language
  LAA English
  LAA Social Studies
  Science
  Mathematics
  Health/PE
  Selected electives (must be approved) - Band, Drama, Journalism, Dance, Debate
- Program focus/goals/methods: The Liberal Arts Academy at Johnston High School provides gifted, creative, and talented students an accelerated academic program leading to an exceptionally strong preparation for college. It is expected that students will graduate at the end of four years with one year's college credit. Capable students and their LAA families are interested in general preparation in all liberal arts areas and special enrichment in the areas of foreign languages and the humanities. Additionally, the Liberal Arts Academy provides study trips, resource speakers, and numerous cultural opportunities to its student scholars on an ongoing basis.

ATTACHMENT 3 (Page 2 of 4)

EXECUTIVE SUMMARY

SENIOR HIGH
GRADES 9-12

LIBERAL ARTS ACADEMY AT JOHNSTON, 1989-90

GROUP CHARACTERISTICS:	
Number of students in this group:	145
Percent low income:	19
Percent minority:	37
Percent female:	68
Percent limited English proficient(LEP):	1
Percent overage for their grade:	8
Percent special education students:	1
Percent gifted/talented students:	97

Major Findings

TAP ACHIEVEMENT: The spring, 1990, Tests of Achievement and Proficiency (TAP) median percentile scores of program students were compared to the 1988 national norms.

Out of 4 comparisons, program students' scores were...	Reading	Mathematics
Above the national norm in	2	2
At the national norm in	0	0
Below the national norm in	0	0

TAP scores from spring, 1990, were compared to predicted levels of achievement by means of the Report on School Effectiveness (ROSE) procedure.

Out of 4 comparisons, program students' scores...	Reading	Mathematics
Exceeded predicted levels in	1	0
Achieved predicted levels in	1	2
Were below predicted levels in	0	0
Were too few for analysis in	0	0

TEAMS ACHIEVEMENT: Compared to the AISD averages in mathematics, reading, and writing, the percentages of program students mastering the TEAMS at grades 9 and 11 (first-time test takers) were:

	Reading/ Language Arts	Mathematics	Writing
Higher in	1	1	1
The same in	0	0	0
Lower in	0	0	0

ATTENDANCE: Compared with the attendance rates for senior high districtwide:

	The program rate was...	AISD	Program
Fall, 1989	Higher	92.6%	97.3%
Spring, 1990	Higher	90.8%	95.6%

Compared to...	1989-90 program attendance was...
Program students in 1988-89	Fall: Higher Spring: Higher

ATTACHMENT 3 (Page 3 of 4)

DISCIPLINE: Compared with the percentages of students involved in discipline incidents at the senior high level districtwide:

	The program rate was...	AISD	Program
Fall, 1989	Lower	4.2%	0.0%
Spring, 1990	Lower	4.4%	0.7%

Compared to...	1989-90 program discipline was...
Program students in 1988-89	Fall: Lower Spring: Higher

GRADES: Compared with the GPA's for all AISD senior high students:

	The program rate was...	AISD	Program
Fall, 1989	Higher	79.5%	85.7%
Spring, 1990	Higher	79.3%	85.6%

Compared to...	1989-90 program GPA was...
Program students in 1988-89	Fall: Lower Spring: Lower

RETAINEES/DROPOUTS: Comparing the percentage of program students recommended in spring, 1990, for retention the following year with all AISD senior high students:

The program rate was...	AISD	Program
Lower	16.4%	4.8%

Compared to the fifth six weeks dropout rate for senior high students for 1989-90:

The program rate was...	AISD	Program
Lower	9.4%	0.0%

ATTACHMENT 3 (Page 4 of 4)

89.30

GENESYS

GENeric Evaluation SYStem

AUSTIN INDEPENDENT SCHOOL DISTRICT
DEPARTMENT OF MANAGEMENT INFORMATION
OFFICE OF RESEARCH AND EVALUATION

EVALUATION SUMMARY

PROGRAM/GROUP: LIBERAL ARTS ACADEMY AT JOHNSTON, 1989-90 PRINT DATE: 07/10/90

DEMOGRAPHIC INDICATORS

Grade	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
# Students											79	66			145

	Sex		Ethnicity			Low		Overage	Special	Gifted/
	Male	Female	Black	Hispanic	Other	Income	LEP	For Grade	Education	Talented
#	47	98	20	34	91	28	1	12	1	141
%	32	68	14	23	63	19	1	8	1	97

PROGRESS INDICATORS

Dropouts: 0 0% END OF THE 5TH 6 WEEKS Retainees: End of Year: 4 8% Beginning of Year:

		Attendance		Disciplined			Credits		#F's		#No Grades		GPA	
		Fall	Spring	Fall	Spring		Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
89-90	#	145	142	0	1	#	144	140	144	140	144	140	144	140
	%	97 3	95 6	0 0	0 7	AVG	3 3	3 2	0 26	0 31	0 08	0 16	85 7	85 7
88-89	#	132	134	2	0	#	63	63	63	63	63	63	63	63
	%	95 7	95 2	1 4	0 0	AVG	3 2	3 3	0 30	0 22	0 00	0 06	85 1	86 4

ACHIEVEMENT INDICATORS

ITBS/TAP MEDIAN PERCENTILES, 1989-90

Grade	1	2	3	4	5	6	7	8	9	10	11	12
Reading Comprehension									84	86		
Number of Students									77	62		
Mathematics Total									73	78		
Number of Students									77	62		
Composite									81	83		
Number of Students									73	61		

ROSE, SPRING 1989 TO SPRING 1990 MEAN GRADE EQUIVALENT

Grade	2	3	4	5	6	7	8	9	10	11	12
READING COMPREHENSION											
Number of Students								63	54		
1989 Grade Equivalent								10 6	14 0		
1990 Grade Equivalent								14 4	15 7		
Gain								3 8	1 6		
Predicted Score								13 4	15 1		
Over/Under Actual								1 0	0.5		
Significance								*	*		
MATHEMATICS TOTAL											
Number of Students								63	55		
1989 Grade Equivalent								9.5	13 5		
1990 Grade Equivalent								12 6	14 3		
Gain								3 0	0 9		
Predicted Score								12 2	14 5		
Over/Under Actual								0 4	- 1		
Significance								*	*		

TEAMS PERCENT MASTERING

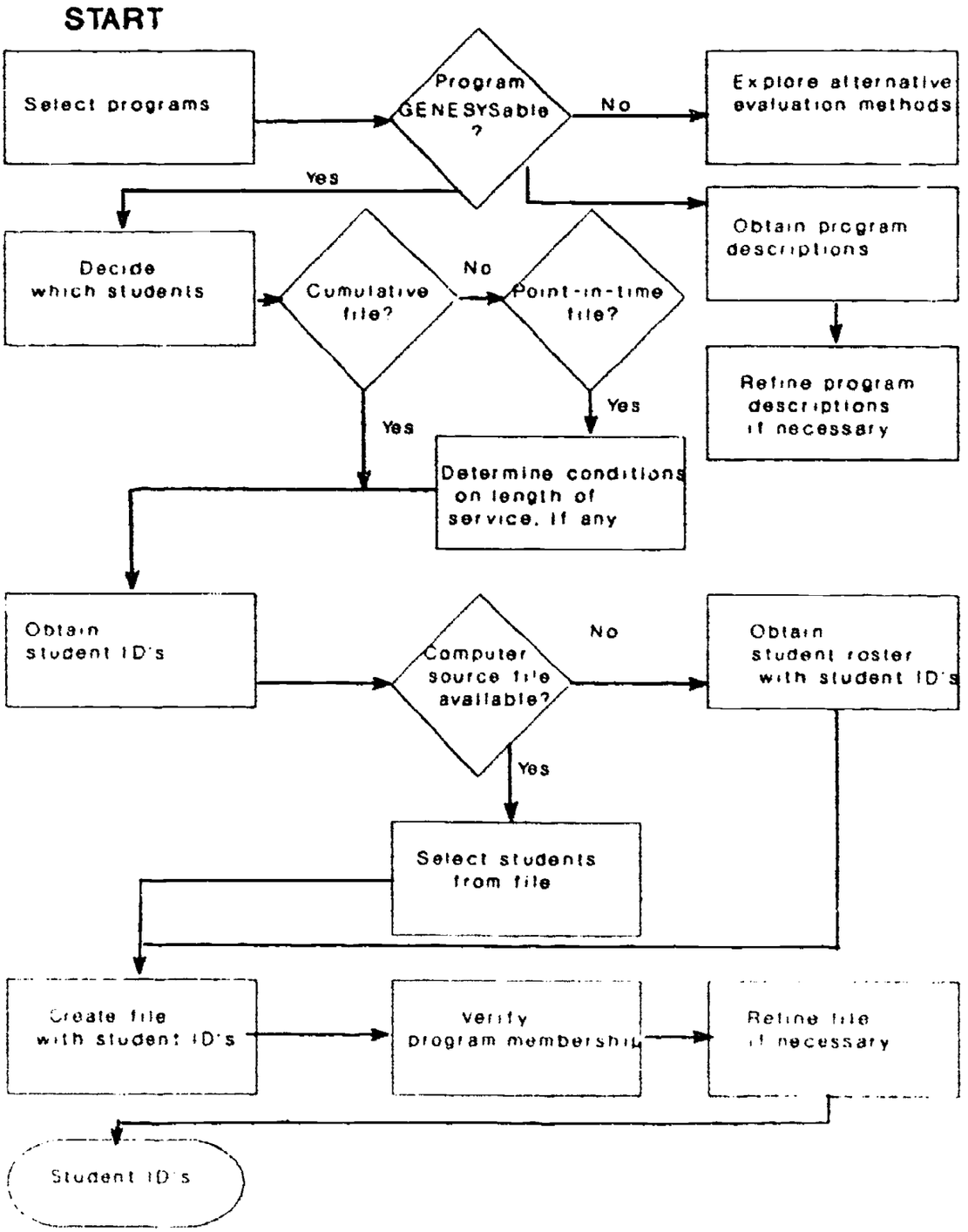
Grade	3	5	7	9	11
Mathematics				97	
Number of Students				78	
Reading/Language Arts				100	
Number of Students				78	
Writing				97	
Number of Students				75	

KEY

* = Number of Students is Too Small for Analysis
+ = Exceeded Predicted Score
= = Achieved Predicted Score
- = Below Predicted Score
AVG= Average

ATTACHMENT 4 (Page 1 of 3)

GENESYS "BEFORE" PROCESSING



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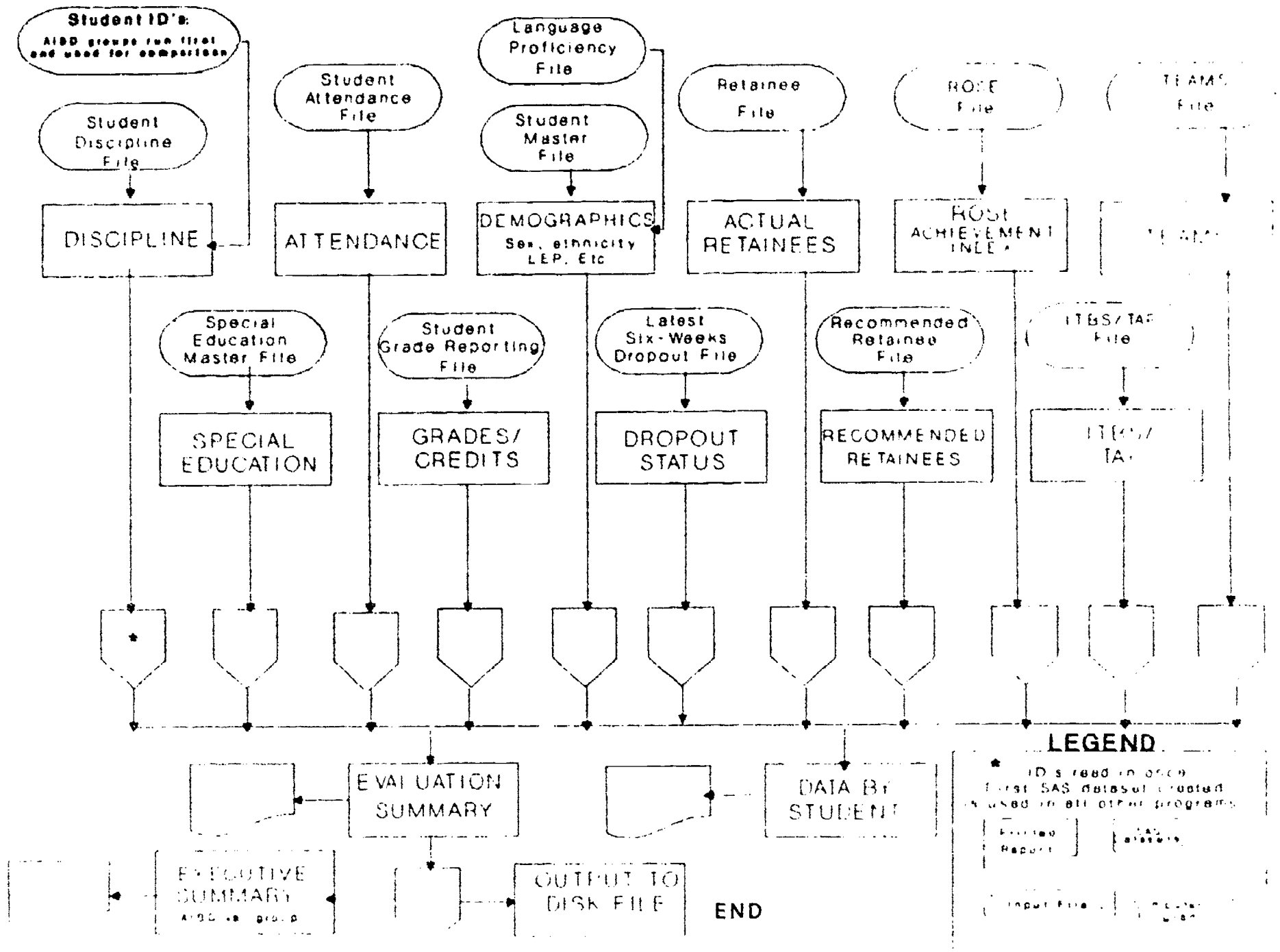
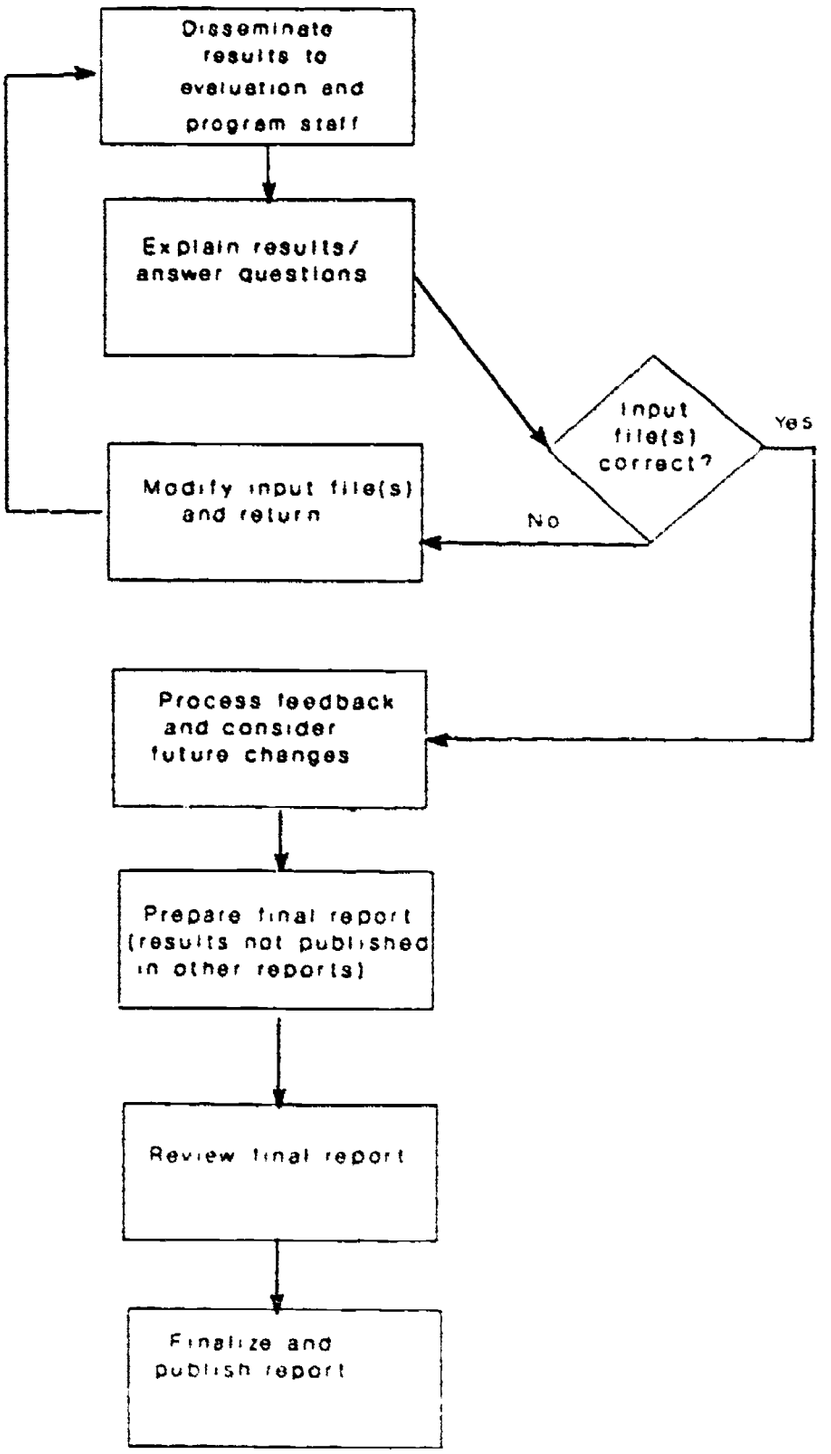


ATTACHMENT 4 (Page 3 of 3)

GENESYS
"AFTER" PROCESSING



ATTACHMENT 5

Requirements for GENESYS Data Files

- Data files should contain the student ID numbers of the students in the group.

- There should be one ID per line beginning in column 1. There is no limit on the number of students who may be in a group, but because of the computer running time that GENESYS requires, groups must contain a minimum of 25 students.

- Groups must be defined as either elementary, middle/junior high school, or high school, and each file must contain the ID numbers only for students within one of these divisions. If you have a group whose grade levels span these divisions, you will need to separate the group into the appropriate grade spans; i.e., you will need separate files. For example, if you have a group with students in grades 7-12, you will need to create two files, one with the ID's for students in grades 7-8, and a second with the ID's for students in grades 9-12.

- The ID's on data files should be checked to eliminate bad ID's and duplicate ID's. Veda has written a program to use for this purpose: DW$CMPAR (ORWSAS).

- Data files should be given eight-character names beginning with GE@, e.g., GE@GRADH for high school students served by Project GRAD. Data files should be placed in ORSSAS.

- Give your group/program a name not to exceed 52 characters. This name will appear as a title on the Executive Summary and on the Evaluation Summary. Try to include the full name of the program rather than an abbreviation, and include the year, e.g., TEACH AND REACH, 1989-90. If you are following a group that was constituted prior to this year, use a title which makes clear which year refers to the group and which is the year the analysis was done, e.g., SPR '89 TRANSITIONAL ACADEMIC PROGRAM, IN 1980-90.

- Specify which grade levels the students in your group/program are in. The grade levels you indicate will appear as a second title under the name of the program on the Executive Summary. For the sake of clarity, do not indicate a whole grade span if students are only in one grade. For example, only students in grade 9 are served in the Transitional Academic Program. The title should read GRADE 9, rather than GRADES 9-12.

Types of Data Files

The GENESYS file sheet lists three different types of data files:

- Cumulative,
- Point in time, and
- Point in time with service conditions.

On a cumulative file, every student served by the program at any time during the year, whether the student is currently served, is currently inactive, or even has left the program or the District, is entered.

The point-in-time file includes all the students being served at a particular point in time, without regard for students who were formerly served or for the length of service to students at the time the file is built or in the future.

The point-in-time with service conditions file contains students served at a particular point in time but places conditions on which students are included based, for example, on the students' length of service. It may be desirable, under this condition, to "capture" on the file only those students who have received services for at least some minimum length of time—arguably the most "stable" students or the students on whom the program's intervention has had a chance to take effect. Besides length of service, another condition which might be imposed is that students be active on the Student Master File.

It does not matter to GENESYS what sort of file you have, in terms of its processing, but the distinction needs to be taken into account in interpreting the information GENESYS produces.

ATTACHMENT 6

Ideas for GENESYS Enhancements

- Program summary charts similar to the data-by-student report. These charts would compare statistics across multiple programs selected by the user. Districtwide summaries, by grade span, would be included among the programs.

- Numbers and percentages of students for all variables. Only percentages of retainees and dropouts are presently reported.

- More "user-friendly" programming, and brief training for other programmers, so that other programmers and noncomputer programmers can submit their own runs.

- Methods for overcoming slowdowns caused by:
  Deciding who should be included in data files,
  Deciding what sources should be used for files, and
  Difficulty in collecting basic program information.

- A comparison of expected and obtained dropout rates for junior high school and high school programs.

- Additional cross-tabulations of variables (e.g., grade by ethnicity, etc.) available on request.

- For programs where students may earn eighth- and ninth-grade credits, an evaluation summary showing middle/junior high school and high school credits on the same sheet or on separate sheets with appropriate labels.

- A staff summary sheet (similar to that in the Annual Performance Report).

- A budget summary based on budget codes (similar to the District's budget book).

- Significance tests with probability levels between groups and between pre- and posttest measures printed.

- Executive summaries with comparisons made between groups in addition to the present comparisons between a single group and District totals.

ATTACHMENT 7

Johnston Learning Lab -- Spring, 1987

Name	Enrollment F	Enrollment S	Enrollment F	Enrollment S	Dropout Status	Absences F	Absences S	Absences F	GPA F	GPA S	GPA F	Courses Taken F	Courses Taken S	Courses Taken F	Courses Failed/ Absences F	Courses Failed/ Absences S	Courses Failed/ Absences F	Credits Earned F	Credits Earned S	Credits Earned F	Discipline Incidents F	Discipline Incidents S	Discipline Incidents F	TAP Site's R	TAP Site's N	TEAMS Mastery M	TEAMS Mastery R	TEAMS Mastery N	LEP	Age 9/1/86	Low Income	Ethnicity	Comments
	Y	Y	Y	Y		8	13	14	59.0	66.0	76.3	7	7	7	4	0	2	0.0	1.0	0.5				-	-	-	-	-	N	16	N	4	9/9
																								-	-	N	N	N					
	P	Y	N	N	D	17 W	61	-	50.0	59.0	-	5	5	-	5	5	-	0.0	0.0	-				6	10	N	N	N	D	15	N	4	9/-
																								-	-	A	A	A					
	P	P	N	N	D	23	27 W	-	-	50.0	-	-	6	-	-	4	-	-	0.0	-				-	-	-	-	-	N	15	N	4	9/-
																								-	-	A	A	A					
	Y	P	N	N	D	4	11 W	-	56.0	50.0	-	6	6	-	0	6	-	0.5	0.0	-				4	3	N	N	N	N	16	N	5	9/-
																								14	3	N	N	N					
	Y	Y	Y	Y		4	12	21	62.2	66.2	59.2	6	6	6	0	6	6	1.5	0.0	0.0				10	3	N	N	N	N	18	N	3	9/9
																								-	-	N	N	N					
	Y	Y	Y	Y		10	18	14	56.8	58.0	69.2	6	6	6	6	6	6	0.0	0.0	0.0			1	-	18	N	Y	N	N	15	N	4	9/9
																								21	3	N	N	N					
	Y	Y	Y	Y		4	5	3	59.8	78.3	76.3	6	6	7	0	0	0	1.0	2.5	2.5				9	3	N	N	N	N	15	Y	5	9/10
																								6	12	I	I	I					
	Y	Y	Y	Y		6	7	2	63.0	65.8	84.0	6	6	6	1	5	0	1.0	0.5	1.5	1			36	26	Y	N	Y	N	15	Y	3	9/10
																								48	41	-	-	-					
	Y	Y	P	N		3	4	5 W	73.3	75.3	-	6	6	-	0	2	-	2.0	1.5	-			1	-	-	-	-	-	N	17	N	3	9/-
																								48	15	-	-	-					
	Y	Y	Y	Y		6	10	7	74.3	74.8	86.0	6	6	7	0	1	0	2.5	2.0	3.0				21	10	N	N	Y	N	15	N	4	9/10
																								59	26	Y	Y	Y					
	P	P	N	N	D	2	6 W	--	74.0	-	-	5	-	-	0	-	-	1.0	-	-				2	18	-	-	-	Y	16	N	4	9/-
																								8	12	E	E	E					
	Y	Y	Y	Y		16	4 W	6	76.7	84.2	86.8	6	6	7	0	0	0	2.5	3.0	2.5			1	31	12	Y	Y	N	N	16	Y	4	9/10
																								41	18	A	A	A					
	Y	P	N	N	T	0	1 W	-	80.5	-	-	6	-	-	0	-	-	3.0	-	-				28	21	Y	Y	N	N	15	N	3	9/-
																								-	-	-	-	-					

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