Using Multiple Sources of Student Achievement Data

For nearly a century, the closer an educator is to students, the further s/he is from the processes of designing, collecting, and analyzing data. Schools are "put under registration," "reconstituted," "ranked." We talk about them as "receiving" their data—never as generating it. We are quickly finding out that the advent of standards-based education is not changing this pattern. It may even be accelerating it, as accountability plans grow increasingly explicit.

A major challenge facing schools and districts is to break out of this pattern so that:

- anyone involved in instruction or its supports becomes an informed data analyst
- school communities actively use their data to inform instruction
- the data management and analysis systems become supports for improved instruction

A second major challenge is to learn to use *multiple sources* of data to inform continued work on teaching and learning. This protocol is designed to initiate this kind of inquiry.

Preparation

The participants should include the widest possible range of individuals whose work affects instruction. Together they:

- Select an area of student performance that is especially pressing, e.g. middle school mathematics, elementary school reading, for the site.
- Formulate questions to investigate, e.g. "How literate are our English Language Learners by eighth grade?" "Why do our students do so poorly on reading for information?" "Where are we losing our students in high school math?"
- Gather the range of data available, e.g. grades, test scores, samples of scored portfolios, video tape of student presentations, etc.
- Share the data with participants.

Reading the data

(If group members are not familiar with interpreting and questioning this kind of information, it is important to provide them with the data ahead of time. Members may want to pair with other members who have more experience and go over the data.)

Different members of the group may want to:

- review the performance of different groups of students, e.g. low-income students, English language learners who have been redesignated
- pursue specific issues that are part of building an answer to a larger question

It is critical that everyone use more than one source of data. The questions informing their reading include:

1. What do the data say?
2. What questions does this raise?
3. What further data are needed?
4. What seem to be the implications for teaching and learning?

Discussing the data

Participants bring their findings and questions back to the larger working group. Each individual or pair shares their insights and questions about the issue on the table.

Securing additional data

The group may not be satisfied with the data made available to them. If so, they may want to secure additional information before continuing the discussion. For instance, looking at samples of classroom work, portfolios, interviewing ESL teachers, looking at similar data from other schools, etc.

Drawing the implications for teaching and learning

Personal reflection. Based on the discussion, individual participants, or people who work closely together, take a short period to think through the implications for their practice. The point here is for everyone, not only classroom teachers, to reappraise their work in light of what the data has taught them.

Group discussion. The working group discusses how they want to address the following:

- classroom instruction
- additional support systems
- professional development targeted specifically to issues and areas for growth
- work with families
- work with community groups

It is critical in this discussion to focus on feasible steps that can be implemented soon.

Using Data To Improve Student Achievement

Taken from the book, "Getting Excited About Data—How to Combine People, Passion, and Proof" by Edie L. Holcomb, 1999.

The chart on the following page shows the relationship of key components that must be in alignment to achieve the goal of improving student achievement. A fully aligned system is much more likely to make a difference in student achievement.

Key Components

Mission. Your school or district core values and the purposes that guide you.

School portfolio. Your school's collection of data; the evidence that demonstrates you are fulfilling the commitments embedded in the mission statement.

Concerns. Concerns that arise because of some discrepancy between rhetoric and reality. The length of the vertical arrow between the mission and the portfolio indicates the perceived degree of discrepancy.

Priority goals. The selected few areas that warrant top priority in order to improve student achievement.

Study. Careful review of the research related to the priority goals so that sufficient learning about the problem occurs before a decision is made about what to do. The first bullet represents the need to analyze and understand the problem, the second bullet represents the need to investigate strategies and identify proven practices, and the third bullet represents the need to learn how to document progress toward achieving the goal.

Strategies. Practices selected to achieve the priority goals. Goals can rarely be met by one strategy.

Assessments. Selected measures to document results achieved for students in relationship to the priority goals. Attainment of a goal can rarely be documented by only one measure.

Action plans. This includes the detailed steps that will guide implementation of the strategies and the assessments.

The relationship of the components is cyclical. For example, the assessments chosen and the strategies selected influence each other.

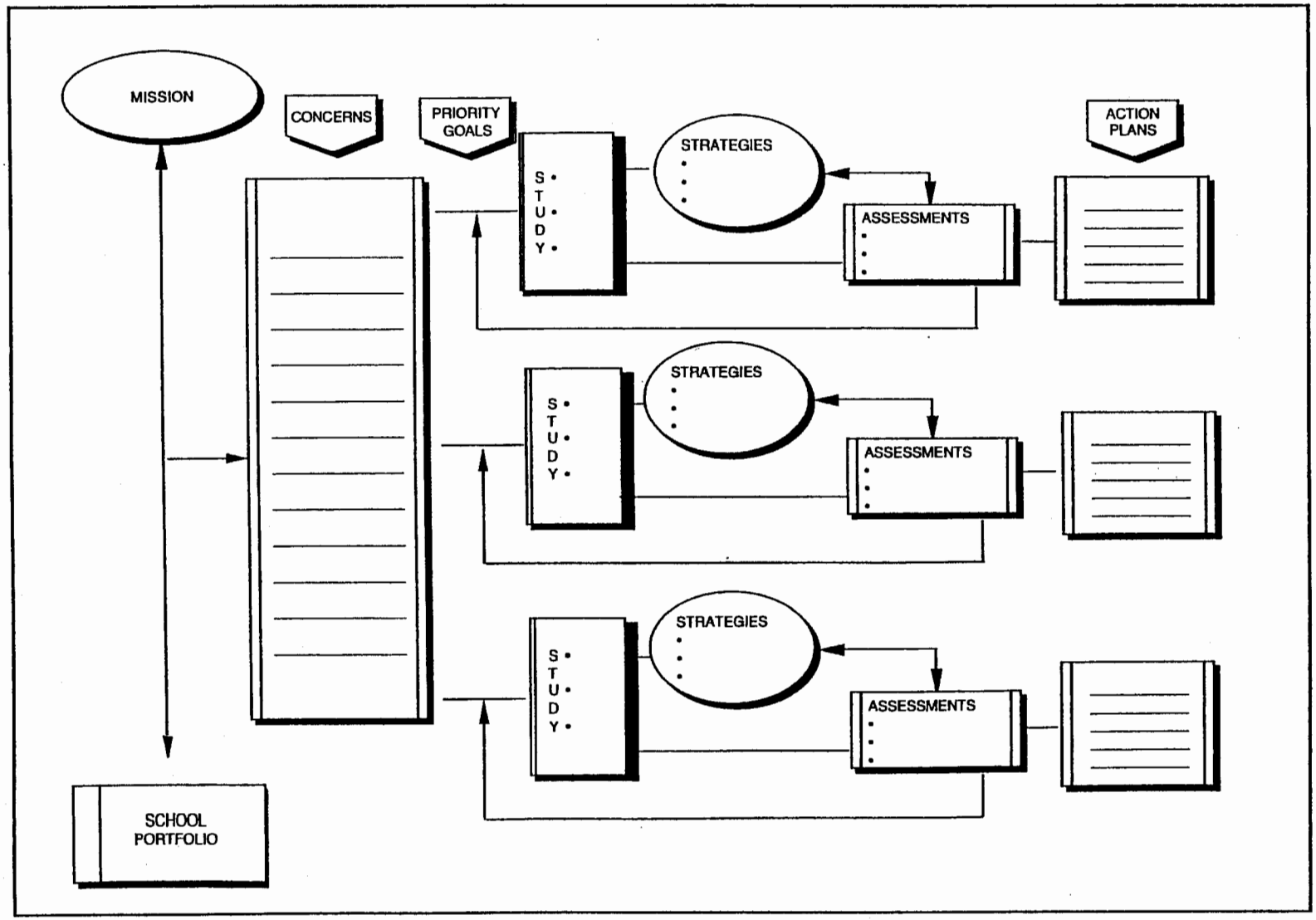

Figure 1.1. Aligning School Improvement

STUDENT LEARNING SYSTEM
A Process for Accountability

Every organization must be able to demonstrate the quality of its products or services to its customers and assure that the focus of the organization is on the continuous improvement of the process that produce them.

The student learning system has been developed to enable the Littleton Public Schools to measure the quality of its "product," which is student learning, against established standards, and to make changes in the instructional process to continually improve student achievement. The accountability system consists of three essential elements: the written curriculum, classroom instruction, and assessments. Data will be collected based on the model and used to continuously refine the instructional process.

Instructional Process
for
Improving Student Achievement

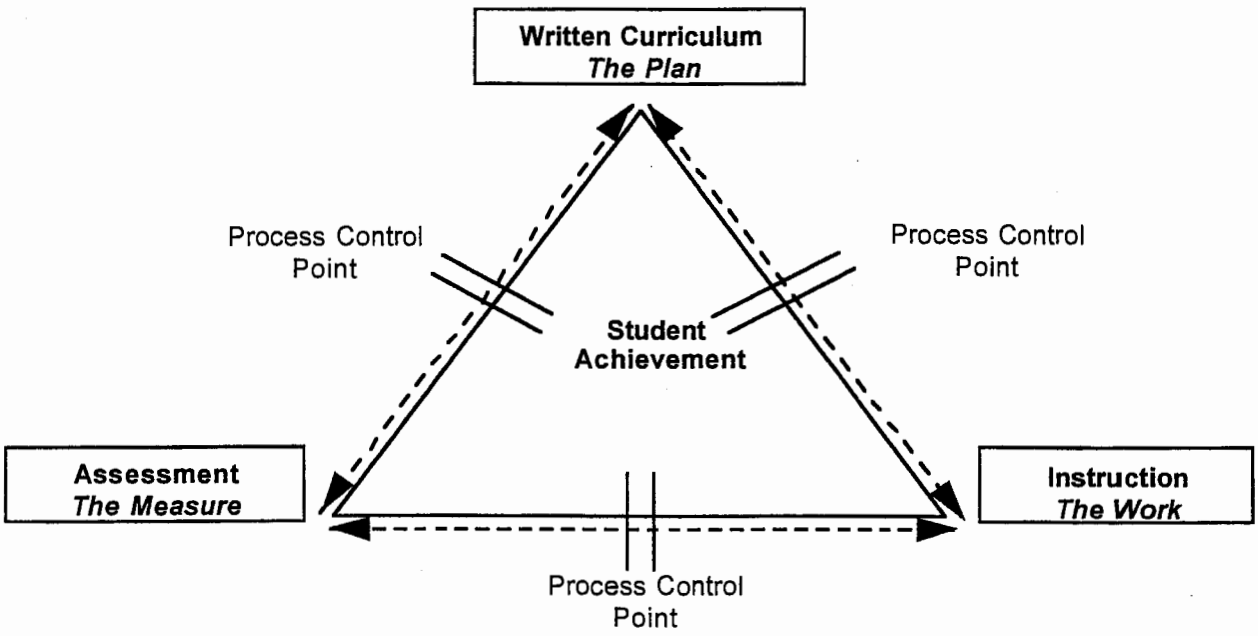

Figure 1

The ongoing process of aligning the curriculum and tightening the connection between curriculum, instruction, and assessment is the primary accountability/school improvement mechanism for enhancing student achievement. The most effective system, resulting in the highest student

DATA USE AND INTERPRETATION FLOW CHART

IN SUPPORT OF THE

STUDENT LEARNING SYSTEM

A PROCESS FOR ACCOUNTABILITY

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1997-98

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DATA USE AND INTERPRETATION FLOW CHART
IN SUPPORT OF THE
STUDENT LEARNING SYSTEM
BUILDING PROCEDURES

Step 1: Data Collection/Organize District Assessments

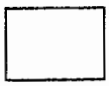
Data used at the building level can be obtained from many sources. The value of the data can only be determined through analysis.

- One source of data comes from district assessments. Many times these data will have already gone through the initial phases of analysis and have been sent to the building because it is the most appropriate place to undergo further analysis, problem definition, and solution. District assessment practices have been categorized into three areas:
  - **External:** Includes the norm-referenced tests (ITBS) given at grades 3, 5, and 7; ACT and SAT; Colorado Student Assessment Program (CSAP); and other assessments such as PLAN or NAEP
  - **Learning System Assessments:** Includes second grade writing assessment
  - **Special Programs:** Includes assessments for programs such as Title I, literacy, ESL, special education, gifted education, etc.
- Another area of data collection comes from assessments unique to the building. This would include tests such as the BRI and QRI, or other classroom or total building assessments that could be used to help in the decision-making process.
- In addition to those listed, there is a broad category of district data that do not fit within the ongoing district assessment practices. These could be referred to as environmental data. Examples of these are student attendance data, student transfer data, number of students in special programs, and many more.

Step 2: Data Analysis

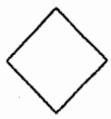
- The purpose of this section is for administration, individual teachers, or building level teams to analyze the collected data and to identify issues (flags) that may appear from the data. An example of this might be that a building-level team is assigned the task of analyzing the current ITBS data. From the analysis the team might find many issues (flags). For example, the math computation scores seem to be lower than expected.
- There is a large amount of data available to administrators and teachers. Data are varied and come from many sources, not just formal district assessments. Any member of the building staff can analyze data and determine flags.
- Although it is necessary to react and prescribe in an expedient manner, analyses must be of sufficient depth and accuracy to be assured of the stability of conclusions prior to action/reaction.

- The accumulation and analysis of data must: (1) commence as soon as feasible once each set of data becomes available; (2) serve as a quick, first-look summary; and (3) provide for subsequent stages of more long-range, in-depth analyses as needed.



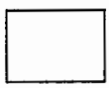
Step 3: Results/Sort and Select

- If issues (flags) are identified during Step 2, the data are brought to the building administration, or a team assigned this task, for review. The purpose of this review is for confirmation and to determine next steps.
- During the results/sort and select process, the administration or team will sort and prioritize possible flags. In determining the most important issues (flags) there is a need to consider politics, strategic plan, work plan, mission statement, accreditation expectations, current hot topics, and probability of success.



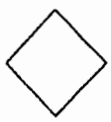
Step 4: Decision Point No. 1

- After the sort and select process, the administration or team makes one of three decisions:
  - Choose to stop the process and make no further use of the data from the analysis. Examples of reasons for ending the process might be: not politically feasible, not enough impact, or a low priority item.
  - Choose to send the issue to someone else for further analysis, problem definition, and solution. This decision may be made when an issue has impact at only one building or is exclusively within pone program, such as special education.
  - Choose to continue to work on the issues by continuing with the process.



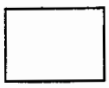
Step 5: Peel the Onion

If the administration or team continues the process, they will begin to break down the issue (flag) into smaller subgroups. In some cases data may need to be analyzed by experts to get to a place where problem statements and strategies for solutions may be formed. Also, additional data may need to be collected. This is a process of pulling the data apart with a focus on the Student Learning System. For example: If math computation is the flag, then peeling the onion may reveal that the addition and subtraction of fractions is the main reason math computation is low.



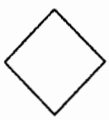
Step 6: Decision Point No. 2

- The same three decisions can be made by administration or the team at this point: stop the process, send it on to someone else, or continue with the process.



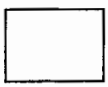
Step 7: Problem Definition

- A body of evidence on student performance has now been accumulated and it is time to develop and agree upon a specific problem statement. Precisely defining the problem is the most critical step in the entire decision-making process. Agreement may require the involvement of many other people in the organization. The problem statement must be proved by the available data and must be specific enough to lead to solutions.
- To say that 41 percent of eighth grade students performed poorly on math computation is not a good problem statement. It is not definitive enough to develop the best possible solution. To say that 58 percent of all eighth grade males scored poorly on the addition and subtraction of fractions and that eighth grade math curriculum does not focus on addition and subtraction of fractions is a much better statement and provides a basis for a solution. The key to a good problem statement is to define it to the level that indicates a strategy can be developed that will result in achievement of the expected results.



Step 8: Decision Point No. 3

- The same three decisions can be made by the administration or the team at this point: terminate the process, send it on to someone else, or continue with the process.



Step 9: Planning Model

- Some key questions to ask before beginning the planning process include:
  - ✓ Who is responsible for the next steps?
  - ✓ Who needs to be involved in determining the trigger points?
  - ✓ Who needs to be involved in developing solutions?
- A variety of factors may impact student performance. The following questions can assist staff in discussing potential "triggers" for the performance results and identify areas where improvement efforts can be focused.
  1. Do we teach it? Is the area assessed one that has been a focus in the school?
  2. Do we understand and agree upon what proficient student performance in this area looks like? Do we teach with that end in mind?
  3. Do we provide sufficient time for this area? Do teachers have adequate time for instruction and do students have adequate time for learning and practice?
  4. Do we have the professional knowledge and skills needed to provide effective instruction in this area? Do we know it and can we do it?
  5. Are the instructional materials adequate for the need?
  6. Are we giving students opportunities in the classroom to demonstrate their proficiency in a format that is similar to what the assessment calls for?

7. Are the environmental conditions conducive to learning? For example, is the temperature in the classroom comfortable; are there frequent disturbances or distractions?
8. Do we have the partnerships and connections needed to help students improve their performance? Do parents understand what is expected of students, support the learning goals, and provide appropriate help at home?
9. Is the quality of work given to students sufficiently engaging that they are motivated to do their best?
10. Is this performance area linked with other curricular areas? Is proficiency in this area dependent upon proficiency in another curricular area?
11. How does homework relate to this performance area? Do we give it? Do we need it? Is the homework we give clearly related to expected performance?
12. Is our approach to this area systematic? Is what we do in classrooms connected so that student knowledge and skills are building year to year?

- Once the problem has been defined, the following steps can be followed to arrive at an action plan:
  - Develop and evaluate potential solutions to the problem. When developing possible solutions, all twelve instructional factors outlined in the Student Learning System should be considered. The following are areas to consider that relate to student performance results.

inservice	school improvement plans
coaching	research-based pedagogy
teacher craft knowledge	evaluation of assessments
advanced training	time
staff evaluation process	materials
classroom data	environmental issues

  - Develop an action plan. What solutions will be followed and how will it be done?
  - Apply the **APPLE** rule:
    - **A** Is it **A**dministratively feasible? Time, people, structure, etc.
    - **P** Is it **P**rofessionally credible, research based, valid, reliable, and generalizable?
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  - Obtain cooperation and approval.
  - Determine how to communicate and involve those interested.

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Step 10: Do

- The plan for solving the identified problem will be carried out.

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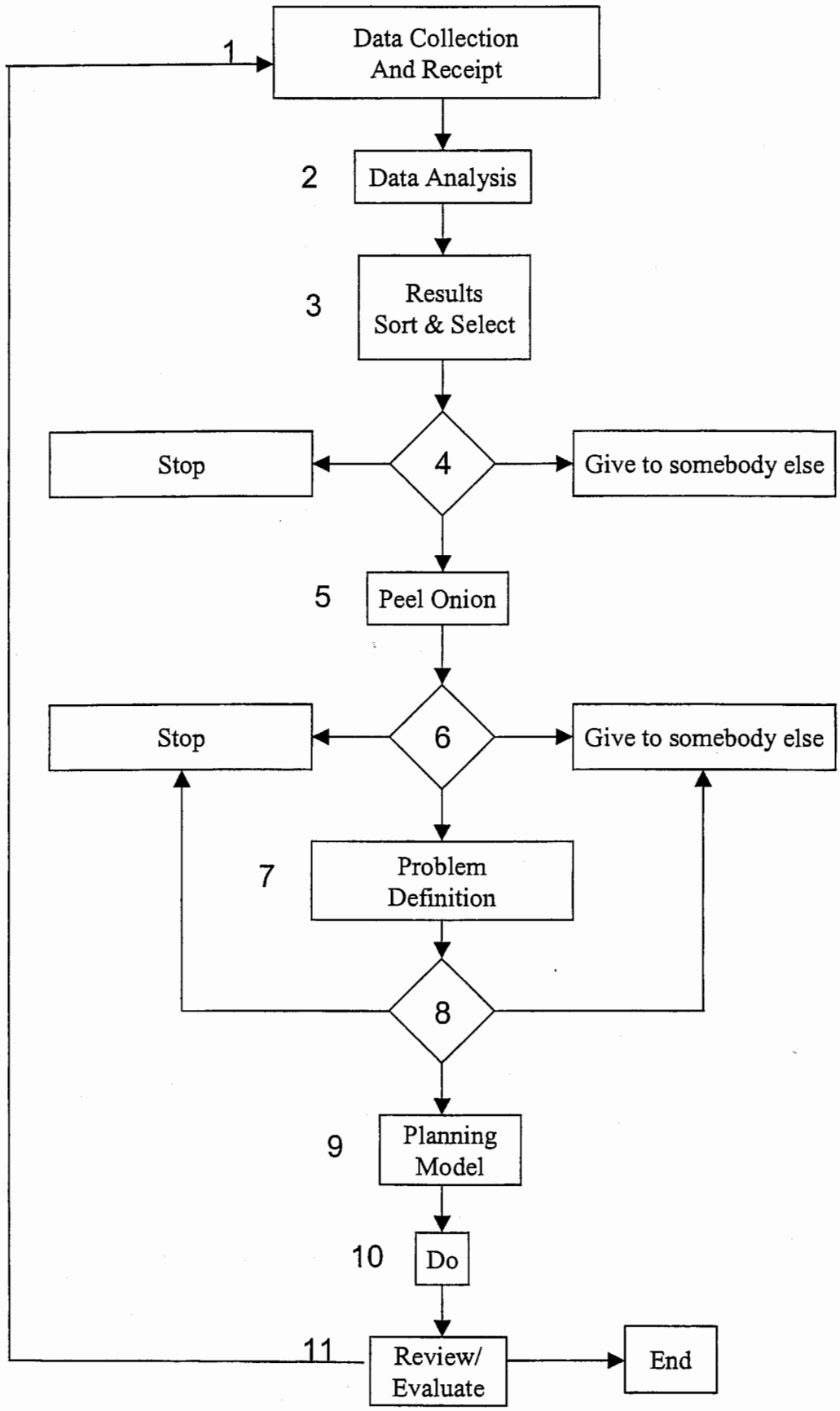
Step 11: Review and Evaluate

- After an appropriate amount of time, check and make adjustments in the developed plan. This will require collection of new data to make sure the adjustments made in the system have done what was expected. If the expected results are not achieved, further consideration will be in order.

SLS Design
Building Level Flowchart



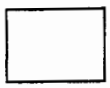
DATA USE AND INTERPRETATION FLOW CHART
IN SUPPORT OF THE
STUDENT LEARNING SYSTEM
DISTRICT PROCEDURES

Step 1: Data Collection/Organize District Assessments

- The use of ongoing district assessment practices makes up the first part of the student learning system. These assessment practices have been categorized into three areas:
  - **External:** Includes the norm-referenced tests (ITBS) given at grades 3, 5, and 7; ACT and SAT; Colorado Student Assessment Program (CSAP); and other assessments such as PLAN or NAEP
  - **Learning System Assessments:** Includes second grade writing assessment
  - **Special Programs:** Includes assessments for programs such as Title I, literacy, ESL, special education, gifted education, etc.
- In addition to those listed, there is a broad category of district data that do not fit within the ongoing district assessment practices. These could be referred to as environmental data. Examples of these are student attendance data, student transfer data, number of students in special programs, and many more.

Step 2: Data Analysis

- The purpose of this section is for individual members of the Learning Support Team (LST) to analyze data and to identify issues (flags) that may appear from the data.
- There is a large amount of data available to members of the Learning Support Team on a regular basis. Data are varied and come from many sources, not just formal district assessments. While the overall responsibility for analysis of district assessment data belongs to the director of assessment and evaluation, any member of the LST can analyze data and determine flags.
- Although it is necessary to react and prescribe in an expedient manner, analyses must be of sufficient depth and accuracy to be assured of the stability of conclusions prior to action/reaction.
- The accumulation and analysis of data must: (1) commence as soon as feasible once each set of data becomes available; (2) serve as a quick, first-look summary; and (3) provide for subsequent stages of more long-range, in-depth analyses as needed.



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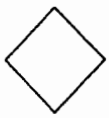

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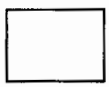

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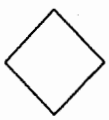

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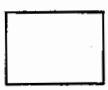

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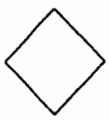

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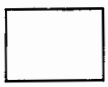

Step 9: Planning Model

- The concept of the Student Learning System in action is not a top down model. It is not a case of the LST determining the problem, developing solutions, and then telling schools what is to be done to solve the problem. It is a partnership between the organization (as a resource) and its schools to help solve identified problems. Although directed action could be necessary in the worst possible circumstances, it should not and will not be the first or preferred course of action.
  - Some key questions to ask before beginning the planning process include:
    - ✓ Who is responsible for the next steps?
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- A variety of factors may impact student performance. The following questions can assist staff in discussing potential "triggers" for the performance results and identify areas where improvement efforts can be focused.
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teacher craft knowledge	evaluation of assessments
advanced training	time
staff evaluation process	materials
classroom data	environmental issues

  - Develop an action plan. What solutions will be followed and how will it be done?
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Step 10: Do

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Step 11: Review and Evaluate

- After an appropriate amount of time, check and make adjustments in the developed plan. This will require collection of new data to make sure the adjustments made in the system have done what was expected. If the expected results are not achieved, further consideration will be in order.

SLS Design
District Flowchart