

# USING DATA TO HELP STUDENTS ACHIEVE

A data management model used in the Philadelphia Public Schools integrates technology with education to assess the many factors that affect student progress and provide evidence of success.

**A** number of factors affect the learning process—factors that cannot all be measured by a standardized test. Therefore, we must assess all the variables that affect students' learning experiences and focus on alleviating the detrimental factors, which may or may not be readily evident. Some of the most exciting uses of technology come when it is merged with education. In the Philadelphia Public Schools, a computer system called Data to Success has been created to assess student progress prior to end-of-year testing. Using this technology, it is possible for dedicated educators to monitor and affect the education process to the point where the results are not only successful but also predictable.

How is this done? By integrating technology with education and giving educators online tools that enable them to track students' progress, analyze information, and measure the outcome of existing educational practices. Once implemented, this system allows an educational institution to influence teacher decisions, identify student warning signs, and monitor important trend and analysis information throughout the entire school year. In addition, this tool can be used by new teachers to look at historical information on their students and gives them the ability to provide "customized" lesson plans based upon student needs.

## The Data to Success Model

The Data to Success Model (Figure 1) consists of five stages. Each stage is an integral component of the process and must be in place in order for the process to operate effectively. The data to success model can apply to any industry or any data set.

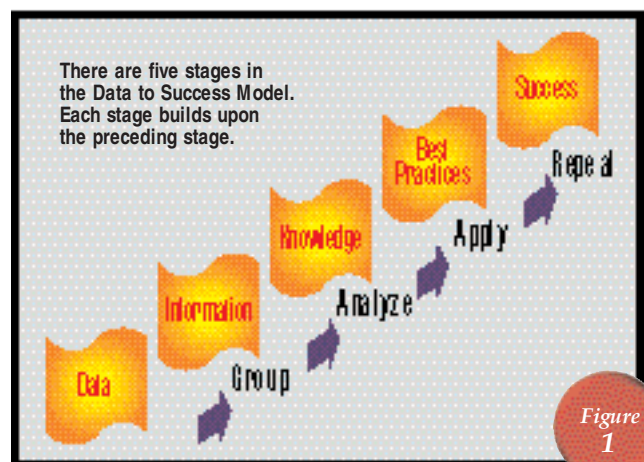


Figure 1

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### Stage 1: Data

Student data exists in various forms and can be found on numerous systems throughout the school district. Regardless of how big or how small your district is, it collects data on students such as name, date of birth, sex, race, social security number, and the like. This is the most elemental form of the process and is the basis for this model. The more data included at this stage, the richer the system will be when you move into the next stage.

### Stage 2: Information

Once all the data has been identified for your system, the next step is to organize this data into logical groups. This process transforms the data into information. We now have street, city, state and zip code grouped as Address. We have race, gender, date of birth grouped as demographics. We have days present, absent, lateness grouped as attendance. Data can also be grouped from the source it was collected, such as library, facilities, and food services.

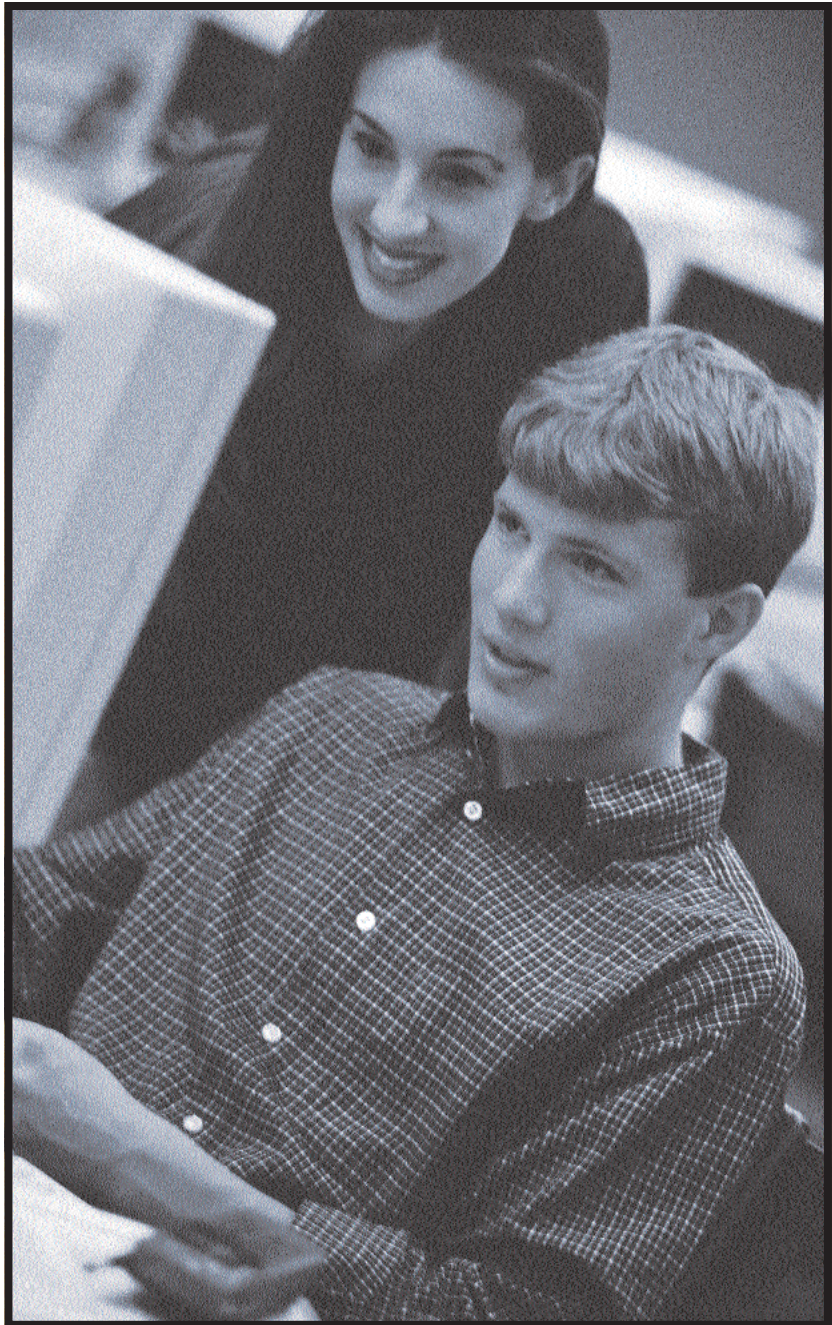
### Stage 3: Knowledge

Analyzing information is the genesis of knowledge—the transition stage where technology ends and human intervention begins. This stage is controlled by the person doing the analysis and begins to explore the questions Why, When, and How? Why do we have such an alarming drop out rate? When do we lose the majority of these students? How can we identify the signals that lead to dropouts? The more data is available, the more useful the reports that can be run to look for correlations between factors.

Figure 2 depicts the database system available to the School District of Philadelphia. This Web-based system is a tool that educators can use to analyze information and answer the pertinent questions affecting the student learning process.

### Stage 4: Best Practices

Once these questions are answered, the educator then must answer the question “What can be done?” This is the begin-



ning of the Best Practices stage.

Applied knowledge becomes best practice once measurable results are achieved. The analysis tool in Figure 2 can also be used in the measurement of best practice when you consider the questions: How does reduced class size affect student performance? What is the optimal class size for varied grade levels? What professional development techniques have had the greatest affect on student achievement?

#### *Web-based Analysis Tool*

Another tool to consider is the individual student record. ►

Figure 3 is an example of the profile screen that teachers in Philadelphia can use to find information about their students. This screen has demographic data, attendance, grades, rosters, projects, health, disciplinary actions, and library information on each student. This screen has a number of uses, including helping high school principals select middle level students in the student placement process.

### Stage 5: Success

The definition of success in this process is when you are able to apply and repeat your best practices. This is achieved by implementing the best practices at your schools then measuring results using the tool.

#### Implementation Strategy

An implementation strategy first must address the psychological issues that plague a typical technical implementation, and then slowly introduce the technology in a manner that provides the greatest support to the school.

To implement this model, administrators must be “on board.” They may need to be coddled and coached because of their lack of technology skills, fears, and resistance. As with any measuring device, this tool will uncover poor practices as well as best practices, which could be threatening. When explaining this to your administrators, accentuate the positive results of using this tool by demonstrating the correlation between a student’s up-to-date immunization records or annual physical examinations and his or her number of days absence for illnesses. Because state funding is often based on student attendance, this information reinforces the tool’s value. Demonstrate what minimal training is needed for the user and how accurate report results are obtained in a matter of seconds compared to taking days or weeks to assemble in the past.

Although not everyone will welcome such a tool initially, when the data proves that students have reached their best potential, educators see the success of their students, and parents rejoice over the entire process, such models will be

welcomed and implemented throughout the nation’s schools.

Ronald Daniels ([ci hotline@phila.k12.pa.us](mailto:ci hotline@phila.k12.pa.us)), Chief Information Officer for the School District of Philadelphia, developed the Data to Success model in 1998. It is not endorsed or fully adopted by the School District of Philadelphia Administration.

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Figure 2

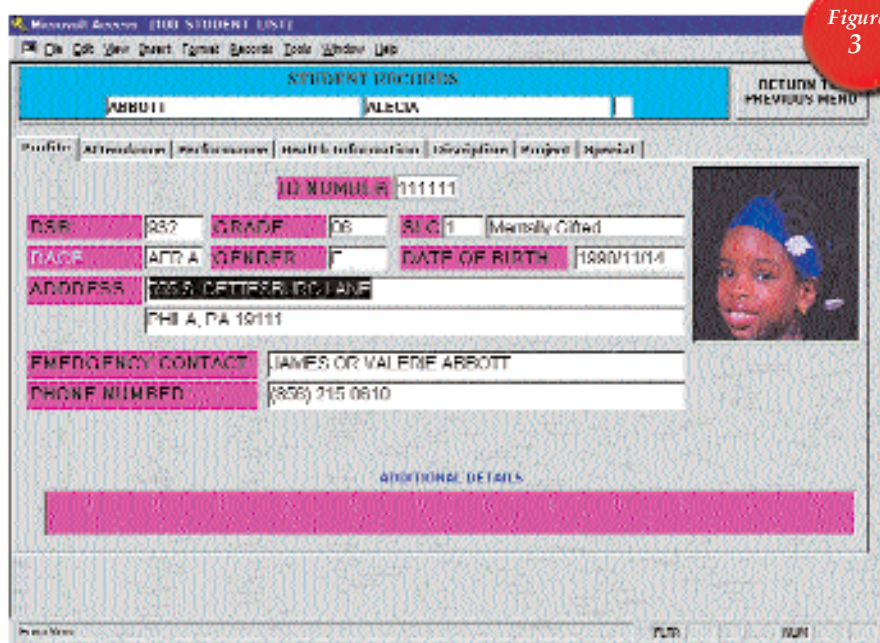


Figure 3