



MBA Consulting Engagement

Final Report

Spring 2008

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Client Partners: Mike Edwards, Jennifer Evans, Gary Spencer, Jack Mills, Glenn Swift

I. Introduction and Overview

II. Current Situation

- **Goals**
- **Tests**
- **Information Systems**
- **Limitations of Information Systems**

III. Current Issues

IV. Benchmarking

- **Scorecard**

V. Recommendations

VI. Summary and Learning



Statement of Work

Project Dates: February 11 – March 28, 2008

Client-Partner Meetings: every Thursday, 2:30pm – 3:30pm

Scope of Project:

1. Engage and baseline current situation
2. Research and benchmark
3. Provide recommendations

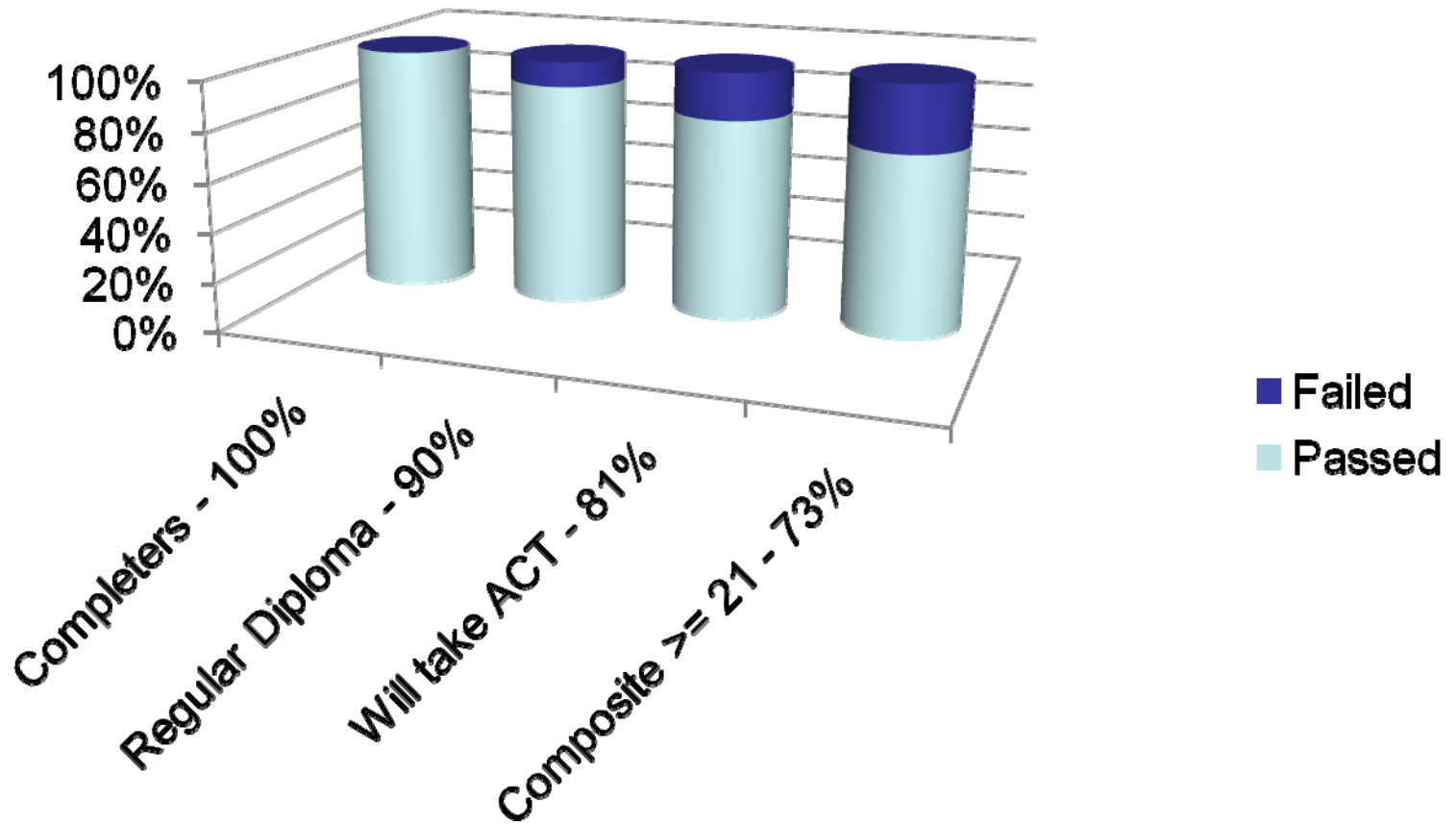
Total Consulting Time: 300 student hours, 51 faculty hours

Deliverables:

- Research three Knox County high schools to baseline the current situation, including policies, procedures, organization, data structure and data source relating to the achievement of a composite score of 21 or better by students taking the ACT.
- Define metrics to include in a scorecard.
- Benchmark best practices from 3 other school districts.
- Recommend a roadmap to proceed, with pilot programs.
- A draft Case Study of the project will be prepared for the Knoxville News Sentinel Business Journal.

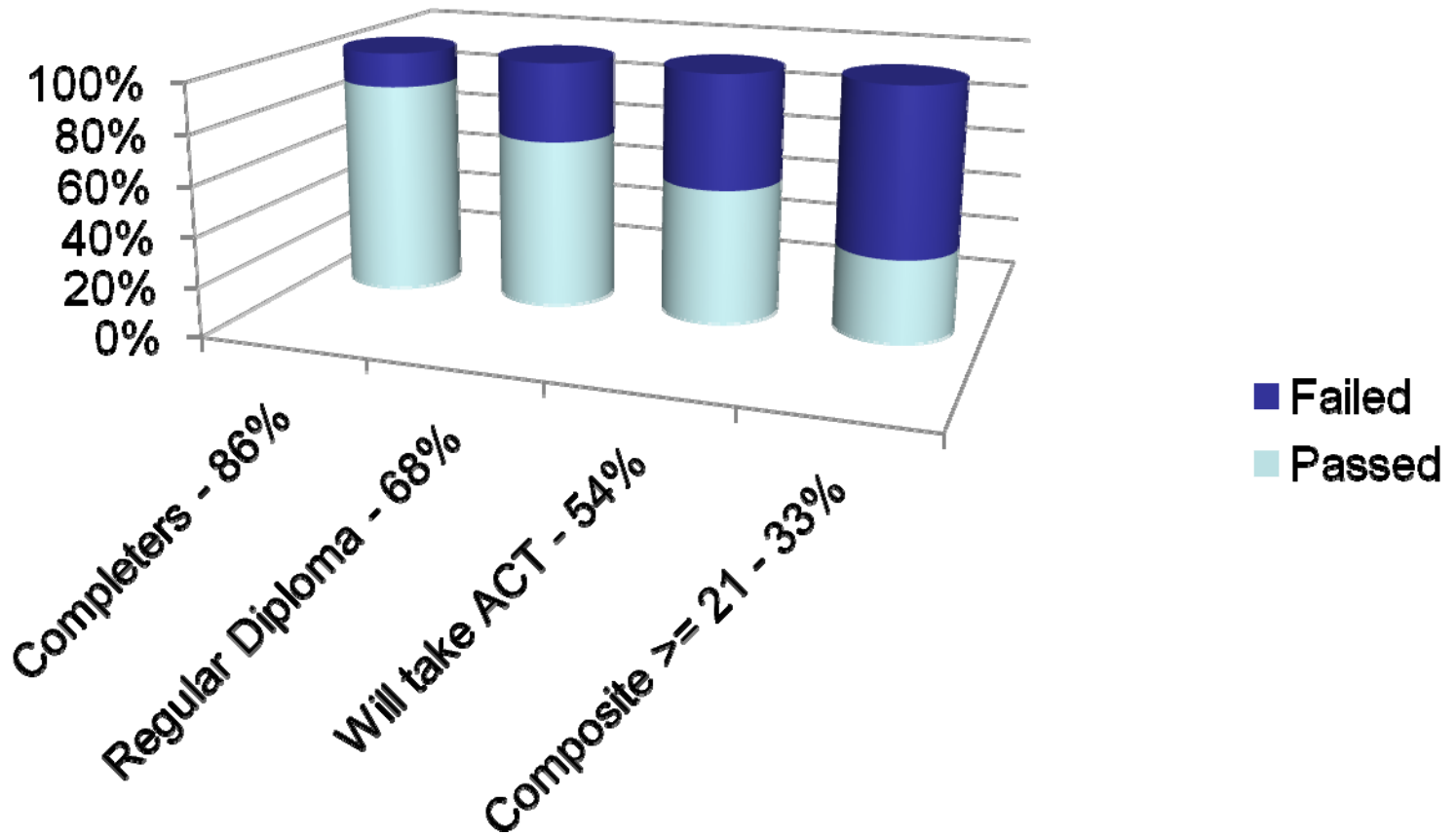


100/90/90/90 Goal





Current Numbers





Tests

- TCAP (elementary)
- EXPLORE (8th grade)
 - Used for high school class placement
- PLAN (10th grade)
 - Established as ACT predictor
- ACT (optional in HS)
 - College entrance exam
 - Composite included in TVAAS
- End of Course exams (EOC)
 - State or county test for almost every core high school course
 - Teacher value added data included in TVAAS
- Gateway
 - Current proficiency exam for No Child Left Behind (NCLB)
 - Included in TVAAS
- Writing Assessment
 - County assessment of writing proficiency



Schools' priorities and changes

- Varying priorities
 - A school's focal point, in terms of testing and curriculum, varies according to the level of proficiency as defined by NCLB
- Convergence of priorities
 - With NCLB proficiency standards changing to ACT branded exams, we predict a convergence of priorities for high schools
- Consolidated priorities make it easier for IT systems to identify and produce relevant data for the curricula of all high schools



Goal: Research KCS' information systems and recommend a way to merge them.

Current Systems in use:

- SIS (Student Information System or Star_Student)
 - School users enter data
 - Contains a wealth of information
 - New features are being added upon request
 - Grade Book capability is useful for tracking performance
- TVAAS (Tennessee Value-Added Assessment System)
 - Value-added: gains each student makes from year to year are compared to the gains made by a normative sample for that same subject between those same grades
 - Measures the teacher's performance
- Pearson Educational Measurement Software
 - TN Department of Education sends a printout of performance summary to schools
 - Summary is very detailed and contains a lot of useful and relevant information



This report is not intended to criticize staff or their management skills in any way but instead to look at the systems they are operating under and the tools they currently have to use.

There is a lot of useful data stored in several information systems and printouts. The capability to manipulate data is limited and time series analysis is not always possible.

Linkage

- Information is separated into silos
- Systems work separately while containing similar information
- Overlapped information is used in different ways in different systems
- Systems do not use all information



Current Issues (cont.)

Accessibility

- Information is not accessible to all that need it
- Lack of accessibility gives users the feeling that the systems are not useful
- Information is difficult to sift through
- User friendly systems are not as sophisticated and useful as the more difficult systems
- TVAAS provides useful and relevant data but it comes with delay
- Summary reports from the TN Department of Education are significantly delayed



Current Issues (cont.)

Differences in opinion

- Principals each feel a different system/metric is most important
 - Some feel that teacher performance measured in comparison to other teachers is the most important metric
 - Others feel the number of ACT test takers is important
 - Some even feel performance in college is important to measure
- Teachers feel past student performance can help shape the curriculum and personal interaction with students can shed more light than test scores
- Counselors want test scores and all data from previously attended schools in order to place students in the correct classes



Benchmark School Districts

- Broward County Public Schools (Florida)
- Hamilton County Schools District (Tennessee)
- Boston Public Schools (Massachusetts)

Comparison School District

- Elk Grove County Schools District (California)

Data Collection Methods

- 2007 Annenberg Institute for School Reform Study
- Telephone Interviews
- Secondary Research (Websites, Newspaper Articles, etc.)

Key Differences Compared to Knox County Schools District

- Culture of Data Use and Accessibility
- Student Performance not tied to a composite score on ACT
- Data warehousing and mining software utilized
- Frequent and structured communication with systems' end-users



- **Broward County Public Schools**
 - First school system to develop data warehousing
 - Over 10 years of experience
 - Tracks data on 1 million students
 - Demographics, Enrollment, Attendance, Special Programs, Test Scores, Course Transcripts, Transportation
 - Designed for users with different technical skills
 - At least one person in every school is trained in advanced use of system
 - Widely accessible

- **Hamilton County Schools**
 - Uses a data mining system to merge data from different places
 - Avoids paper form as much as possible
 - Conducted data meetings for the last 4 or 5 years
 - Views teachers as end-users and make use of data friendly and relevant for them
 - Enters Plan and Explore into data systems

- **Boston Public Schools**
 - Uses a Web-based system
 - Goal of system to use data to drive instruction and professional development
 - System is updated daily
 - Developed in-house
 - Data easily manipulated by a particular group of students



Benchmarking: Comparison District

- **Elk Grove School District**

- Current Situation

- Developing its own data warehouse

- Did not buy off-the-shelf system

- Includes various data

- Standardized test scores, demographics, special education information, attendance, student grades, and scheduling information

- Key Difference

- Intentionally aligned student system with district's goals and standards

- Key Challenge

- Establishing real-time capabilities in the system



Benchmarking: Scorecard

Metric	Benchmark	Knox County Score	Explanation
Data Collection and Input	Manual input at school level of student data and electronic entry of tests scores for manipulability	Average	Schools manually input student data, but also manually input thousands of test scores
Accessibility to Data	Culture of accessibility for schools, teachers, and parents; ease of data emphasized	Below Average	Principals have to grant access to teachers for certain systems
Relevancy of Data to Goals	Enter Explore and Plan scores into systems	Failing	Students are required to take Plan and Explore, but scores are not entered into any system
Frequency of Data Updates	Real time processes to make student data available, but some delays due to state test reporting	Average	School received state's reporting data 4-6 months after testing, but other data is not real time data
Connectivity between Databases	Data software used to merge different types of information for analysis	Failing	Over 17 silos of databases from different departments not "talking" to one another
Information systems culture and communications	View teachers as the end-users of data and frequently meet with end-users to determine needs	Below Average	Optional training is conducted during in-service at beginning of school year, but not systematic and continuous meetings



Benchmarking: Best Practices

1. Design for users with different technical skills
2. Place at least one person in every school with advanced training
3. Avoid all paper forms
4. View teachers as end-users
5. Conduct data meetings with intended end-users
6. Update data frequently
7. Ensure system-wide accessibility irrespective of position
8. Create connectivity with other relevant data
9. Align goal of system to use data to drive instruction and professional development
- 10. PROMOTE A CULTURE OF DATA USAGE, ACCESSIBILITY, AND RELEVANCE**



Benchmarking: Worst Practices

1. Scattered and Antiquated Technology Infrastructure
2. Data Accessible Only Through “Gatekeepers”
3. Inaccurate, Late, or Cumbersome Data



Recommendations

We recommend either finding a new data system or shaping the ones currently being used. We also recommend using the following topics as must meet needs for the new system.

Data Collection and Input

- Electronic input of data helps to stop human error
- Collection of data directly from testing sites will also stop error
- Manual input by teachers is unavoidable but must be done in a reliable manner

Accessibility to Data

- All parties that need access should have access
- Teachers should not need principals permission to view systems
- Accessibility also means user friendly systems



Recommendations (cont.)

Relevance of Data to Goal

- The goal is better ACT scores so data should reflect that
- Using data from tests that are associated with the ACT is a must
- Other important data should be kept but metrics should follow ACT associated data first

Frequency of Data Updates

- Real time data input into systems is necessary
- Test scores should be input immediately and electronically

Timeliness of Data

- The goal is to have data available in real time
- This is a key issue especially for teachers



Recommendations (cont.)

Connectivity between Databases

- The silos of data must be connected through data mining or warehousing
- A single system would contain all needed data in an accessible format but is not necessary

Information Systems Culture and Communication

- Constant communication between data officials and the end users of the data, teachers
- Availability of evolution of the system in response to suggestions is necessary

Additional investment in data analysis

- This investment might include more analysts to work with principals, teachers, etc.
- It might involve continual, mandatory training
- The intent is to drive a culture change



Recommendations (cont.)

In order to have an effective data system, Knox County must meet and exceed the metrics outlined here. Understanding the need for each of these portions is integral to finding a system or molding the current system into what will be the best practice.

Summary

- Current information systems do not meet best practice standards
- Data system champion needed to lead change
- Champion should instill a culture which understands and values data
- For KCS, business management principles should drive the decision making process
- Align the system to the goal

Learning

- Data must be relevant – aligned to the goal
- Benchmarking against best practices is effective
- Data saturation is not always the answer
- Metrics drive performance
- Teamwork and clear communication is important