

USING DATA TO AFFECT SCHOOL CHANGE: A CRITICAL LEADERSHIP SKILL SERVING AS THE KEYSTONE OF THE SCHOOL IMPROVEMENT PROCESS*

Frank Del Favero

This work is produced by The Connexions Project and licensed under the Creative Commons Attribution License [†]

Abstract

This article is a synopsis of three performance tasks designed for students enrolled in an educational leadership graduate level course Using Data to Affect Change. These performance tasks address the requisite knowledge and skills that an effective school leader should possess in order to improve the quality of instruction and at the same time increase student academic performance. The three performance tasks involve an analysis of a school's data resources, a performance gap analysis, and the creation of survey instruments in order to gather perception data from students, parents, teachers, and any other relevant stakeholders. Each of the performance tasks addresses the Educational Leadership Constituent Council (ELCC) standards for Advanced Programs in Educational Leadership (1.2.b, 1.3.b, 1.4.b, 2.2.a, 2.2.c, 2.3.a, 2.3.c, and 2.4.b).



NOTE: This Instructional Module has been reviewed and accepted as a significant contribution to the scholarship and practice of education administration. In addition to publication in the Connexions Content Commons, this module is published in the International Journal of Educational Leadership Preparation, ¹ and catalogued under Instructional Modules. The module is also submitted to the Educational Resource Information Center (ERIC). Formatted and edited in Connexions by Theodore Creighton, Virginia Tech.

*Version 1.1: Sep 18, 2009 7:59 am GMT-5

[†]<http://creativecommons.org/licenses/by/3.0/>

¹<http://ijelp.expressacademic.org>

1 Introduction

Bernhardt (2004) states “Analyses of demographics, perceptions, student learning, and school processes provide a powerful picture that will help us understand the school’s impact on student achievement”(page 20). In this writer’s opinion, the most important skill that aspiring as well as current school leaders need to develop, refine, and apply is the school improvement process. A key component of this process involves using data to affect change. The intent of this article is to present, share, and discuss some of the concepts and instructional content that an instructor in the field of educational leadership might use in a graduate-level educational leadership course involving data analysis and the school improvement process. Topics addressed in this article include the following:

- Examining and analyzing school data resources with a focus on improving the school’s and/or district’s data collection and analysis processes
- Identifying the various types of data (demographic, academic performance, school process, and perception)
- Disaggregating data
- Using data to identify trends
- Developing a hypothesis or hypotheses based on the findings of data analysis
- Creating and using focus groups, interviews, and surveys to gather additional perception data from community members, parents, non-instructional staff, teachers, and students
- Analyzing and interpreting data, more specifically, root cause analysis
- Finding effective research-based strategies that appropriately address the concerns/problem areas that were uncovered during the root cause analysis
- Developing a dynamic school improvement plan that includes well defined and measurable goals, a realistic timeline, a description of the tasks that need to be accomplished, and references to the individual(s) responsible for oversight and implementation of interventions and strategies
- Real-time monitoring and adjusting of the school improvement plan.

The reader should note that these skills address the performance standards and indicators for education leaders established by the Educational Leadership Constituent Council (ELCC) standards 1.2.b, 1.3.b, 1.4.b, 2.2.a, 2.2.c, 2.3.a, 2.3.c, and 2.4.b which read as follows:

1.2 Articulate a vision

1.1

b. Candidates demonstrate the ability to use databased research strategies and strategic planning processes that focus on student learning to inform the development of a vision, drawing on relevant information sources such as student assessment results, student and family demographic data, and an analysis of community needs.

1.3 Implement a vision

1.2

b. Candidates develop plans and processes for implementing the vision (e.g., articulating the vision and related goals, encouraging challenging standards, facilitating collegiality and teamwork, structuring significant work, ensuring appropriate use of student assessments, providing autonomy, supporting innovation, delegating responsibility, developing leadership in others, and securing needed resources.

1.4 Steward a Vision

1.3

b. Candidates design or adopt a system for using databased research strategies to regularly monitor, evaluate, and revise the vision.

2.2 Provide Effective Instructional Program

1.4

a. Candidates demonstrate the ability to facilitate activities that apply principles of effective instruction to improve instructional practices and curricular materials.

c. Candidates demonstrate the ability to use and promote technology and information systems to enrich curriculum and instruction, to monitor instructional practices and provide staff the assistance needed for improvement.

2.3 Apply Best Practice to Student Learning

1.5

a. Candidates demonstrate the ability to assist school personnel in understanding and applying best practices for student learning.

c. Candidates demonstrate an understanding of how to use appropriate research strategies to promote an environment for improved student achievement.

2.4 Design Comprehensive Professional Growth Plans

1.6

b. Candidates demonstrate the ability to use strategies such as observations, collaborative reflection, and adult learning strategies to form comprehensive professional growth plans with teachers and other school personnel. (pages 2, 3, 5,6, and 7)

NOTE: Standards for Advanced Programs in Educational Leadership for Principals, Superintendents, Curriculum Directors, and Supervisors <http://www.npbea.org/ncate.php>², 2002)

The topics/course elements listed above are organized and presented by the instructor in a logical sequential order that helps the student to develop and refine critical leadership skills in the area of school improvement. During the presentation process, the students are provided with opportunities to apply their developing skills by completing authentic performance based tasks. These tasks also serve as assessments whose data provide both the student and the instructor with information regarding the extent of student skill development and instructional effectiveness.

2 Performance Task I—Data Resource Analysis

The goal of this performance task is to have students acquire a fundamental understanding of the concept of data analysis and begin to realize the importance of gathering sufficient quantities of various types of data, the analysis of which will help to identify areas of concern, identify and implement intervention strategies, and measure their effectiveness in addressing the areas of concern. To achieve the goal of Performance Task I *Data Resource Analysis*, students will:

- Read *Data Analysis for Comprehensive Schoolwide Improvement* (2004)
- Participate in approximately three 3-hour class meetings reviewing and discussing the Bernhardt (2004) book (lectures and discussions include practice naming and identifying data types, and examining data type intersections and intersections over time)
- Participate in 6 to 9 hours of *field work* in each student's respective school and district (the field work involves a careful examination of the school's and district's data resource management plans, interviews with building principals, assessment coordinators, counselors)

The first performance task helps the students to learn how to analyze and familiarize themselves with their respective school and district data resources. The analysis requires the students to speak to the individual(s) who are responsible for school data collection and analysis in order to determine:

²<http://www.npbea.org/ncate.php>

- the variety of data sources
- the types of data that are collected
- where the data are located and the person or persons who have access to the data
- the extent data are collected and analyzed
- whether data and data analyses are shared among school stakeholders
- the role, if any, data analysis plays in the school improvement process

In order to determine the variety of data sources, the students are expected to discover and list the origins of the district and school level data. Through this examination and discovery process, students begin to understand scope and breadth of district and school level data sources that are available for use. Examples of data sources include but are not limited to standardized test scores, student registration information, staff personnel records, graduation rates, retention rates, student discipline and attendance rates, dropout rates, educational classifications, class schedules, teacher assignment schedules, classroom performance data (teacher observations, quiz, and test scores, etc.), poverty rates, parental education level, and other available data sources.

Once the students have gathered information regarding the data sources, the students' next step is to classify the various data types. The instructional content that deals with data types is based upon a text *Data Analysis for Comprehensive Schoolwide Improvement* (Bernhardt, 2004). Bernhardt, (2004) states that there are four data types: school performance data, demographic data, school process data, and perception data. School performance data provide information regarding academic performance such as standardized test scores, as well as teacher-generated measures of student performance. Examples of school demographic data include information on students, community, and staff. The data may include information regarding gender, ethnicity, educational classification, socio-economic status, educational background, etc. School process data may include attendance rates, student discipline information, class and teacher assignment schedules, graduation and retention rates, and other data reflecting school processes. The fourth and final data type focuses on perception data. Perception data contain information dealing with perceptions held by students, non- and instructional staffs, community members, and parents. Perception data are generally gathered through surveys, focus groups, and/or interviews.

Using the list of data sources created during the first step (see above), the students classify each data source as performance, demographic, process, or perception data. For example, standardized test scores and student report cards would be classified as student performance data. Information that deals with student ethnicity and gender would be classified as demographic data. Attendance and discipline data would fall under the classification of school process. Lastly, perception data would consist of information gathered from surveys, focus groups, and/or interviews dealing with beliefs held by the various school stakeholders.

To assist the students develop the concept of the four data types as they address this first performance task, the instructor provides her students with the following information in Table1 containing examples and descriptions of data types and sources that are commonly found at the district and building levels:

Data Sources for Schools Grouped by Data Type/Category

PERFORMANCE	DEMOGRAPHIC	PERCEPTION	PROCESS
Standardized test scores (Leap, iLeap, GEEs, etc.)	School registration or enrollment data (usually collected as students register/enter school)	Surveys of students regarding safety, school leadership, teacher attitudes, effectiveness of the school to prepare students for the “real world” or post-secondary education, discipline, etc.	School’s master schedule
Aptitude test scores (ACTs, SATs) as predictors of the school’s graduate performance at the post-secondary level	Free or reduced price lunch data	Surveys of parents regarding safety, school leadership, teacher attitudes, effectiveness of the school to prepare students for the “real world” or post-secondary education, discipline, etc	Discipline system
School Report Card (scores presented by class, teacher, school, district) also use school report card data for similar schools comparisons, etc.	School Report Card scores broken down by gender, poverty, race, disabilities, student-teacher ratios, quality of teachers, drop out, graduation rates, special education enrollment, school population etc.	Surveys of teachers regarding safety, school leadership, teacher attitudes, parental attitudes, effectiveness of the school to prepare students for the “real world” or post-secondary education, discipline, etc	School Report Card data regarding suspensions and expulsions from school
<i>continued on next page</i>			

Student Report Card Grades	Description of the school, the district, the community, regarding education levels of parents, wealth, scholastic programs offered by the school, etc.	Focus group data	Teacher induction process
Honor roll list by Grade Point average	Instructional support staff data	Interview data	Professional development process, content, and context
At-risk student list by Grade Point average or number of courses failing	Non-instructional support staff data		Supervisory duty assignments
Teacher generated tests and quizzes	Administrative staff data		Student Assistance Team process
Departmental generated tests (unit tests, midterm, and final examinations)	Student support staff data		School Attendance Policy and attendance data by day and/or period
Psychological/diagnostic tests			Budget Process
Diagnostic testing to determine specific areas of academic weakness			Transportation System

Table 1

Students use the chart above as they begin to prepare and organize their school data resource project. This chart is meant to serve as an example of the data that they might require if they were on a team to prepare a School Improvement Plan. Students should consider adding additional data resources in each of the 4 categories listed above.

The third step in the analysis of data resources performance task requires the students to:

- gather additional information that indicates the location/accessibility of the identified data sources and their respective data types,
- analyze information that the data source provides for use in the school improvement process,
- determine the frequency of data collection, and how the data are used.

The students next create a matrix containing all of the information gathered for the data resource analysis as discussed above. The sample matrix Table 2 appears below:

Using Data to Affect Change Data Resources Matrix

Data Source Description	Data Category (demographic, process, perception, performance)	What the Data Source Provides in the way of information for School Improvement	Location of Data Source	Person(s) responsible for the data source	How often are the data collected and revised	Who uses the data source	How are the data used

Table 2

The fourth and final step in Performance Task I requires students to carefully review and analyze all of the information gathered. Students then prepare a brief 2 – 3 page report identifying and describing strengths and areas of concern regarding their respective district and building level data resources and processes. The students are required to provide rationale as to certain aspects of data resources they deemed to be adequate. Additionally, areas of concern must be identified as well as suggestions for improvement.

3 Performance Task II—Gap Analysis

A thorough understanding of gap analysis is an important concept that school leaders and aspiring educational leaders must master. The Gap Analysis performance task consists of a longitudinal analysis of three to four years of standardized testing results. The task requires that students examine standardized testing data at the district and school building levels. The students are required to use tables, charts, and graphs to illustrate and report their findings. The content and format of the reports must be suitable for presentation to other educators, school board members, and the public. It is also important to note that these student-developed reports are based on the actual standardized testing performance of their respective schools and districts.

In order to complete the Gap Analysis performance task, the students perform several sequential steps. The first step is a gap and intersection analysis of the district level data at each grade level in English language arts, social studies, mathematics, and science. The data are sorted and filtered (disaggregated) by

gender, ethnicity, socioeconomic status, English language proficiency, and students with disabilities. Students analyze the data in order to determine if there are performance gaps between or among the subgroups mentioned above. An example of a performance gap could be identified as the percentage of white males at the proficient level or above is 86% on the 9th grade mathematics standardized test, while the percentage of African-American males at the proficient level or above is 46% on the same test. This example would suggest that at the district level, for the current year, there is a significant discrepancy in the performance scores of white males and African-American males of 40%. This discrepancy would cause the student to examine the previous two - three years of 9th grade mathematics test data in order to determine if this is a trend. If similar results are found, it could be stated that a performance gap exists between white males and African American males on the 9th grade mathematics exam. This finding could imply that the educational needs (whatever they may be) of African-American males are not being met.

The next step in the Gap Analysis performance task is an examination of the standardized test performance data at the school building level. All of the same procedures and analyses described above would then be performed on building level data in order to identify performance gaps between or among the various subgroups.

Whether gaps were found at the district and/or school building level(s), students are required to write a narrative illustrating why how performance gaps were discovered. Their narratives should explain their process for discovering the performance gap(s). The students should also formulate a hypothesis that explains and identifies which factor(s) helped to create the identified performance gap(s). Based on their hypothesis, students are also required to formulate intervention strategies that potentially would reduce and eventually eliminate the performance gap(s) that they discovered.

The final step of the Gap Analysis performance task requires students find research-based interventions and strategies to influence learning. This is accomplished by a student-developed literature search. This literature search is used to create a list of at least 10 articles relating to the students' hypotheses that address the identified achievement gap(s).

4 Performance Task III—Sample Perception Data Collection Instruments

The third and final performance task in the development of the necessary knowledge and skills for school improvement introduces the students to the processes involving the collection and analysis of perception data. After reviewing and discussing the concept of perception data and the methods typically used to gather perception data, students are required to create examples of various perception data collection instruments. Specifically, students create a survey/questionnaire, an interview protocol, and a focus group protocol. In addition to the actual instruments listed above, students are also required to:

- develop a rationale supporting the need for perception data as they relate to the identified hypotheses
- identify the target population(s) (teachers, students, parents, administrators, community members, etc.) in each of the data gathering methodologies
- describe the nature of the perception data they wish to obtain and how they would relate to their hypotheses
- describe how these perception data would be interpreted and used
- develop cover letters addressed to the participants for each of the methodologies (N.B. these cover letters would contain information on the purpose of the study, how the data would be used, assurances/guarantees of anonymity, and the amount of time the participants could expect to spend on the activity)
- describe method of delivery that would be followed for administering each of the data collection instruments

5 Summary

This writer believes that learning activities involving the production of artifacts based on actual demographic, performance, school process, and perception data collected from practicing and/or aspiring school administrator's respective schools are meaningful and effective. The most obvious benefit of "authentic" performance-based learning activities such as those described here is that students develop and refine knowledge and leadership skills in the area of school improvement. In addition, these activities enable them to easily comprehend the "connections" between the course content and its applications to meeting the challenges they will face in leadership roles.

It is interesting to note that most of my students become heavily involved in the school improvement process in their respective schools while enrolled in this course. In fact, many of the local principals strongly encourage their teachers to enroll in this course because they know their teachers will be able to immediately apply their newly acquired knowledge and skills to the school improvement process.

6 References

Bernhardt, V. (2004). *Data Analysis for Comprehensive Schoolwide Improvement. Second Edition*. Larchmont, NY: Eye on Education.

Standards for Advanced Programs in Educational Leadership for Principals, Superintendents, Curriculum Directors, and Supervisors. (<http://www.npbea.org/ncate.php>³)

³<http://www.npbea.org/ncate.php>