Does It Work?
Using Web-Based Data in Decision-Making

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In today's world, everyone – parents, teachers, administrators, policy makers and funders – wants to be sure that the educational programs and curriculum being used in schools are increasing student achievement. Learning what does and doesn't work to increase student performance isn't simple. It involves examining student achievement over time and comparing students participating in particular educational strategies to similar students who are not using the strategies. Unless there is something against which the gains can be compared, it is difficult to attribute gains to a specific intervention.

Few districts have the resources necessary to conduct comparative studies, especially over time. Fortunately there are now other, web-based options for obtaining longitudinal student achievement data. Since web-based data are available for all students in a specific grade of a specific school, rather than for individual students, this method is not as robust as other more experimental methods, but it is still useful. It is also much easier and cheaper to do and therefore, more likely to be done.

Types of Available Data

Currently, public schools in all 50 states have web-based school report cards. Designed by the individual state departments of education, the data in these report cards vary. Most, however, include student achievement test scores on standardized mathematics and language arts/reading tests, often disaggregated by race/ethnicity and by sex. Achievement data, for the grades and subject areas tested by a state, are provided by school not by individual student. The data are available at no cost and, in many states, can be downloaded as Excel files.

The U.S. Department of Education also reports web-based school-level data on all public schools, including school location, student enrollment by grade, student demographic characteristics, the number of classroom teachers, and the percent of students eligible for free or reduced-price lunches. These data can be downloaded from the National Center for Educational Statistics Common Core of Data (http://www.nces.ed.gov/ccd/CCD).

Does It Work? is one of a series of lessons drawn from the GE Foundation's Math Excellence Cross-Project Evaluation, a 5-year grant awarded in 2001 to the National Action Council for Minorities in Engineering, Inc. The principals in this effort are Daryl E. Chubin, now Director of the Center for Advancing Science & Engineering Capacity at the American Association for the Advancement of Science, and Patricia B. Campbell of Campbell-Kibler Associates. "Lessons from Math Excellence" can be downloaded from **www.campbell-kibler.com**, and **www.nacme.org/news/publications.html**. Math Excellence resources can be downloaded from **www.ge.com/foundation/resources.html**. Inquiries should be directed to **campbell@campbell-kibler.com**.

Using the Data

Data from these federal and state databases can be used to explore the impact of an educational strategy on student achievement, if the following criteria are met:

- The goal of the strategy is to increase student achievement in a subject area tested by the state.
- Participating students have not yet taken their final state-mandated test in that subject area.
- Most of those teaching that subject area are part of the strategy, and/or most of those studying the subject area are part of the strategy.

Since data are reported by grade, not by class or by individual student, this method can't be used with strategies targeting individual teachers or small groups of students. Neither can it be used when the targeted students are in grades higher than the last grade tested by the state nor when the strategy's goals do not reflect the goals or purposes of the state tests.

Sample State Student Achievement Data

Massachusetts

Reading *achievement scores for 3rd graders.*

English Language Arts *achievement scores for 4th, 7th & 10th graders.*

Mathematics *achievement scores for 4th, 6th, 8th & 10th graders.*

Science and Technology *achievement scores for 5th & 8th graders.*

Wisconsin

Reading *achievement scores for 4th, 8th & 10th graders.*

Language Arts *achievement scores for 4th, 8th & 10th graders.*

Mathematics *achievement scores for 4th, 8th & 10th graders.*

Science *achievement scores for 4th, 8th & 10th graders.*

Social Studies *achievement scores for 4th, 8th & 10th graders.*

For situations that meet these criteria, comparison schools can be selected using the Common Core of Data. Comparison schools must be from the same state as the participating school. States have different performance standards and assessments, which makes meaningful comparisons between schools in different states impossible.

Whenever possible, comparison schools should be within the same school district as well. Having schools within the same district means that both sets of schools are subject to similar policies, have the same district administration and operate under similar teacher and staff contracts. This increases the chances that any changes found in the participating schools, but not in the comparison schools, are due to the strategy under consideration, not to some other factor. Using district schools for comparison purposes may not be possible if a strategy is being implemented in a majority of a district's schools or if a district is very small. In these cases, comparison schools can be selected from districts that are comparable in terms of areas such as socio-economic status, size, location and overall achievement levels.

Comparison schools should be similar to participating schools in overall student socio-economic status,[1] student race/ethnicity and school size. Other variables can be used as well. The Common Core of Data can be used to find descriptive information on the schools implementing the strategy and to find other schools in the district that have similar characteristics. For each participating school, a comparison school should be randomly selected from schools with similar characteristics.

This process can be used to test an educational strategy used in only one school, but because there can be so many intervening factors unique to any individual school, including multiple schools in the participating and the comparison groups strengthens confidence in the results.

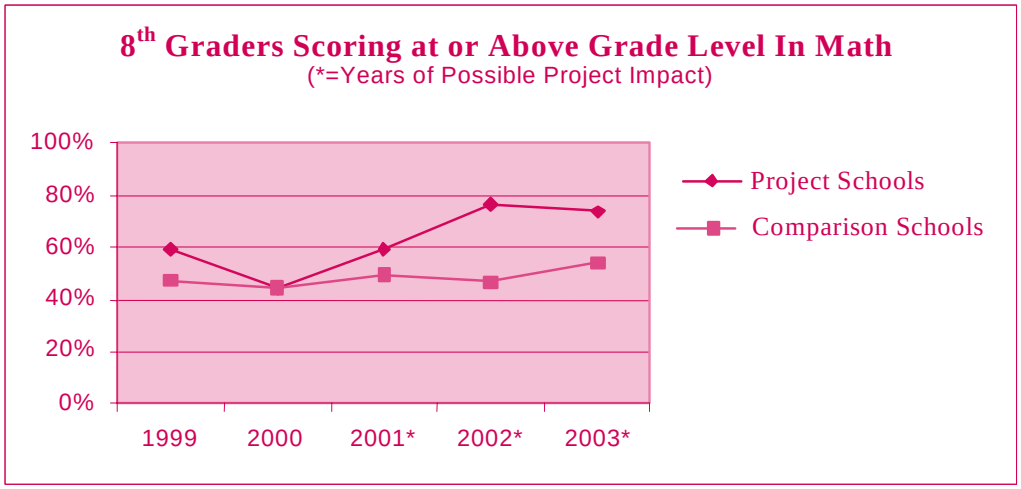
[1] Student socio-economic status is measured by percent of students on free or reduced-price lunch.

Analyzing the Data

Most states post on-line school-level data from the 2000-2001 school year or earlier and report the number and percentage of students achieving at different levels annually. Data from before a strategy is implemented can be used to check the initial similarity of participating and comparison schools. In addition, student achievement scores over time can be compared. Since yearly changes in school level data can be volatile, examining several years of data collected prior to the implementation of the strategy and several years after (follow-up data) increases the validity of the results.

Key to the analysis is determining the first year a strategy might be expected to have an impact on student achievement. If a program, designed to increase seventh grade mathematics achievement, is introduced in fall 2003 in schools in a state where eighth graders are tested in mathematics but not seventh graders, no program impact on test scores will be detectable until the spring 2005 administration of the mathematics test. That would be when the students who had been in seventh grade in the 2003-2004 school year will take the eighth grade mathematics achievement test.

The following graph provides an example of the use of this method. It shows the impact of introducing project-based learning modules in eighth grade mathematics classes in three New York State schools. As the graph shows, over time there has been an increase in the percentage of students scoring at or above grade level in schools using the modules as compared to other schools.



This method could be used because:

- The goal of the modules was to increase student mathematics achievement.
- New York students take an eighth-grade mathematics achievement test for which data were available from 1999.
- Almost all middle-school students in the three schools used at least some of the modules.

Finding the Data

Websites that report student achievement data from multiple states include:

- School Information Partnership (SIP): www.schoolresults.org/
- Just for the Kids (JFTK): www.just4kids.org/

State Websites

Alabama	http://www.alsde.edu/html/reports_menu.asp
Alaska	http://www.eed.state.ak.us/DOE_Rolodex/AYP/2004/search.cfm
Arizona	http://www.ade.az.gov/srcs/find_school.asp?rdoYear=2004
Arkansas	http://www.as-is.org/reportcard/
California	http://star.cde.ca.gov/
Colorado	http://reportcard.cde.state.co.us/reportcard/CommandHandler.jsp
Connecticut	http://www.csde.state.ct.us/public/cedar/districts/index.htm
Delaware	http://issm.doe.state.de.us/profiles/
Florida	http://www.fcatresults.com/demog/schoolXMLss/index.html
Georgia	http://reportcard.gaosa.org/yr2004/k12/
Hawaii	http://arch.k12.hi.us/school/ssir/default.html
Idaho	http://www.sde.state.id.us/admin/isat/
Illinois	http://206.230.157.60/publicsite/getSearchCriteria.aspx
Indiana	http://mustang.doe.state.in.us/SEARCH/search.cfm
Iowa	http://www.iowaschoolprofiles.com/
Kansas	http://online.ksde.org/rcard/
Kentucky	http://app1.kde.state.ky.us/secure_cats_reports_03/
Louisiana	http://www.doe.state.la.us/lde/pair/1639.html
Maine	http://thor.dafs.state.me.us/pls/doe/eddev.profiles.find_school
Maryland	http://www.mdreportcard.org/
Massachusetts	http://profiles.doe.mass.edu/home.asp?mode=o&view=&mcasyear=&ot=5&o=0
Michigan	http://ayp.mde.state.mi.us/ayp/
Minnesota	http://education.state.mn.us/ReportCard2004/
Mississippi	http://www.mde.k12.ms.us/acad/osa/testdata.html
Missouri	http://www.dese.mo.gov/schooldata/
Montana	http://data.opi.state.mt.us/IRISReports/
Nebraska	http://reportcard.nde.state.ne.us/
Nevada	http://www.nevadatestreports.com/
New Hampshire	http://www.measuredprogress.org/nhprofile/
New Jersey	http://education.state.nj.us/rc/
New Mexico	http://www.ped.state.nm.us/div/acc.assess/accountability/2004.school.desig.report.html
New York	http://www.emsc.nysed.gov/irts/reportcard/
North Carolina	http://www.ncreportcards.org/src/main.jsp?pYear=2001-2002
North Dakota	http://www.dpi.state.nd.us/dpi/reports/profile/index.shtm
Ohio	http://www.ode.state.oh.us/reportcard/archives/Default.asp
Oklahoma	http://www.schoolreportcards.org/reports.htm
Oregon	http://www.ode.state.or.us/search/results/?id=116
Pennsylvania	http://www.paprofiles.org/
Rhode Island	http://www.infoworks.ride.uri.edu/
South Carolina	http://www.myscschools.com/reports/
South Dakota	https://sis.ddncampus.net:8081/nclb/index.html
Tennessee	http://evaas.sasinschool.com/tn_reportcard/welcome.jsp
Texas	http://www.tea.state.tx.us/perfreport/aeis/index.html
Utah	http://www.usoe.k12.ut.us/eval/bsct/2004/default.htm
Vermont	http://crs.uvm.edu/schlrpt/
Virginia	http://www.pen.k12.va.us/VDOE/src/SOLassessments.shtml
Washington	http://reportcard.ospi.k12.wa.us/default.aspx
Washington, D.C.	http://www.k12.dc.us/dcps/data/dcdatahome.html
West Virginia	http://wvde.state.wv.us/data/report_cards/
Wisconsin	http://www.dpi.state.wi.us/sig/usetips_data.html
Wyoming	https://wdesecure.k12.wy.us/stats/wde.esc.show_menu?school_year=2002-03

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