POLICY BRIEF

Building an Information System to Support Continuous Improvement in California Public Schools

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Data-based decision-making has been a mantra of the school reform movement since the late 1980s. Superintendent Jack O'Connell announced in his 2006 State of Education remarks, "In this day and age of technology and innovation, we also have an obligation to better use data to not only drive our decision-making, but to more clearly and transparently articulate the successes and struggles of all our schools."Currently, however, California does not yet have in place an effective system for collecting and using school information. Such a system includes three essential elements: 1) systematically and consistently collecting data on students and their classrooms, schools, and districts; 2) synthesizing this data and distributing it so that it is useful to stakeholders and available for independent evaluations; and 3) implementing policies and programs that contain sound evaluation measures so that the data collected can be used to improve practices and develop more effective instructional approaches. This brief highlights elements of an effective information system, with particular emphasis on the data collection component.

Good data is the backbone of a useful information system. Without data the public, educators, and policymakers cannot find the answers to even the simplest questions about how students are doing and whether educational reforms are accomplishing their goals.[1] Today in California we cannot answer even basic educational questions because we lack this data. For example, how much are students learning each year?

Executive Summary

Data-based decision making has been the mantra of the school reform movement since the late 1980s, but California does not yet have an effective system for collecting and using vital school information. California has taken a number of steps to address this shortcoming. These include the Public School Accountability Act of 1999 and Senate bills 1453 and 1614, which improve California's education data system by establishing student and teacher tracking mechanisms. Despite these efforts, California continues to lag behind other states in data collection and management, in policy evaluation and data use, and in funding for local school districts to support the collection and maintenance of reliable education data. This brief highlights the elements of an effective data system, with a particular focus on issues related to data collection. The authors show that valuable lessons can be learned from the high quality data systems that have been created in other states, and in organizations in both the public and private sectors. They argue that data, if used wisely, can help to transform California's education system.

How many students are dropping out of school? How long does it take English learners to reach English proficiency? How many times has a given student been taught by an out-of-field teacher? We also

TABLE 1.

Currently Active Databases and Data Collection Efforts in California

California today has more than 100 databases and data collection efforts underway. Of those, the following 11 provide the core of the educational information in the state:

1. California Standards Tests (CSTs) Data Collection, a part of the Standardized Testing and Reporting (**STAR**) Program
2. Academic Performance Index (**API**) Base and Growth Database (ID #339)
3. Adequate Yearly Progress Database (**AYP**) (ID #341)
4. California High School Exit Exam (**CAHSEE**) Annual Apportionment Data Collection (ID #105)
5. California English Language Development Test (**CELDT**) Data Collection (ID #553)
6. California Basic Educational Data System (**CBEDS**) County/District Information Form (CDIF), Professional Assignment Information Form (PAIF), and and School Information Form (SIF)
7. Language Census Data Collection (**R-30**) - Education Data Office (ID #138)
8. Standardized Account Code Structure (**SACS**) Financial Reporting Software Data Collection (ID #141)
9. Free and Reduced-Price Meal Database (ID #297)
10. California Special Education Management Information System (**CASEMIS**) Database (ID #414)
11. Common Core of Data (**CCD**) Preparation File Database (ID #186)

cannot answer causal questions about the effects of programs, teachers, or schools on students. For instance, what are the most effective teacher professional development programs in the state? What kinds of instructional programs (e.g., bilingual versus immersion) are most effective in helping English learners reach English proficiency? If a program in one location is working well and improving educational outcomes, we need to know about it so that we can improve outcomes in other places. A good information system would help us evaluate different programs and instructional reforms throughout the state in a rigorous and timely manner.

> "California has 125 active data collections and databases statewide."

To be able to answer the questions identified above and many others, we need a data system that collects relevant information, makes it available for analysis, and most importantly, makes it accessible to key stakeholders in the education system in a manner they can understand and use. Much of this sounds commonsensical, and it is. But it is precisely these commonsense factors that separate effective systems from ineffective ones. Effective systems, whether in the private or public domain, manage data and use information in an organized, regular, and timely manner to continuously improve outcomes. Those who rely on these systems are able to overcome technical, financial, administrative, and political constraints because they believe in the worth of such systems, based on experience.

California's Data System: What exists today and what is needed

Following the implementation of the Public School Accountability Act of 1999, California initiated an array of data collection efforts. At present, California has 125 active data collections and databases statewide, and most of these data are publicly available.[2] The California Department of Education's (CDE) Data Resource Guide provides an online catalog of the department's data products, which describes the data collected, how they are managed and stored, where they can be located, and how they can be accessed and shared. The CDE also maintains an online system, Data-Quest, that provides information on state and federally-mandated accountability scores such as the Academic Performance Index and the Adequate Yearly Progress, test data, enrollment, graduates and drop-outs, course enrollments, staffing, and English Language Learners. Data are available at the state, county, and district level for several years.[3] Table 1 presents the main data collection efforts in place in California today.

Despite such extensive data collection activity, a report commissioned by the California Department of Finance (DoF) in 2002 found the current data management system wanting on several counts:[4]

- Data collection was highly decentralized and fragmented, with little coordination and large variations in quality within and between offices.
- There was no common system for naming and defining data in the department.
- There was limited and inconsistent data validation.

- Data collections involved inconsistent units of analysis or time periods.
- There was excessive reliance on paper submissions of data.
- Data were stored in several different ways and different locations.

CDE has taken a number of steps to remedy these shortcomings. It established a Data Management Division soon after the release of the DoF report to provide leadership and guidance on managing data. The Data Resource Guide and DataQuest, mentioned above, are part of the department's efforts to streamline its data systems and better manage the use of these systems.[5]

Even when all the above data systems are aligned and duplications corrected, an important shortcoming of California's data is that they are entirely cross-sectional in nature. In other words, they give us a snapshot of what is happening at different points in time, but fail to track cohorts of students and staff over a longer period of time. Despite the wealth of data California collects, we are still not able to:

- track students individually and over time, and link them to performance scores, program and course enrollment, graduation, or labor market outcomes.
- track teachers individually and link them to the students they have taught, to their preparation programs, to their professional development programs, to how long they have taught, and in what schools they have taught.
- provide teachers with student histories and performance indicators.

These shortcomings severely constrain our ability to understand what students are learning and what resources or experiences affect this learning.

Table 2 lists the ten most important elements identified by the Data Quality Campaign for building strong educational data systems. The very first factor—a unique statewide student identifier—has been missing from the California system, and its lack has stood in the way of any meaningful assessment of program or policy effects. Such a student identifier is now in place but it is not yet clear how it will be utilized. The fifth factor—a teacher identifier—is still missing in California. This makes it impossible for stakeholders or policymakers to obtain useful information on teacher labor markets in California. It also makes it difficult to evaluate the effects on students of teacher programs, such as preservice education or professional development.

Table 2 highlights key elements of any data system, but data needs can vary across states depending on both on state goals and on the current strengths and weaknesses of the system. Janet Hansen, a senior policy researcher at the RAND Corporation, has outlined five questions to keep in mind when designing a data system. These questions can serve as a standard for assessing whether the system California is developing is the system that we want to have:

- Is the education data system being developed with the needs of stakeholders in mind, or only to respond to federal requirements?
- Is enough money being provided to build a high-quality data system?
- Are all the important stakeholders being engaged in the development process?

TABLE 2.

The 10 Most Important Elements of a Longitudinal Data System[6]

1. A unique statewide student identifier.
2. Student-level enrollment, demographic, and program participation information.
3. The ability to match individual students' test records from year to year to measure academic growth.
4. Information on untested students.
5. A teacher identifier system with the ability to match teachers to students
6. Student-level transcript information, including information on courses completed and grades earned.
7. Student-level college readiness test scores.
8. Student-level graduation and dropout data.
9. The ability to match student records between the PreK-12 and higher education systems.
10. A state data audit system assessing data quality, validity, and reliability.

(e.g., higher education is a stakeholder even if the system is currently K-12)
- Is outside expertise being utilized? (e.g., other states and businesses have a lot of experience in building big data systems to inform decision-making)
- Are "quid pro quos" being planned? That is, do the people who collect or provide data get useful things back?

Steps Toward a Longitudinal Data System

California has taken important steps toward building a longitudinal data system in response to a nationwide increase in demand for school accountability. The No Child Left Behind Act of 2001 (NCLB) requires every state system of public education to implement a statewide accountability program that measures the progress of its students and schools over time. This requires the collection and analysis of student demographic and performance data. In response, California enacted Senate Bill 1453, which led to the creation of the California Longitudinal Pupil Achievement Data System (CALPADS). Table 3 provides a summary of the data requirements necessary to comply with SB 1453. In contrast to the current data system that only views students at a given point in time, CALPADS will provide student progress indicators tracked from year to year. Thus, CALPADS will provide teachers, schools, and Local Education Authorities (LEAs) with useful information that can be used to improve instructional practice and student achievement. They will be able to compare themselves to similar schools and districts that are getting better results, helping to promote a data-driven decision-making environment.

Although CALPADS is mainly a student information system, it is intended to include unique teacher identifiers.[8] This will allow students to be linked to teachers, since each student ID will be linked to a class and course, as will each teacher ID. If this link between students and their teachers and classrooms is implemented, the state data system will become far more useful than it is now. Similarly, as more information becomes available on the programs and services each student receives, it will be possible to learn more about their implementation and effects.

> "CALPADS will provide teachers, schools, and Local Education Authorities (LEAs) with useful information that can be used to improve instructional practice and student achievement."

At this time the state is still considering what information CALPADS will contain. The stated goal of CALPADS is "to provide a better means of evaluating educational progress and investments over time."

TABLE 3.

California Longitudinal Pupil Achievement Data System (CALPADS)[7]

To fully comply with federal accountability requirements, California must be able to track individual student achievement data and enrollment history over time. To meet this need, Senate Bill 1453 (SB 1453) was enacted. It requires:

1. all students to have an individual, non-personally identifiable student identification number.
2. the establishment of the California Longitudinal Pupil Achievement System (CALPADS), which includes statewide assessment data, enrollment data, and other required data to meet with NCLB reporting requirements.
3. retention and analysis of longitudinal pupil achievement data on the Standardized Testing and Reporting (STAR) program, the California High School Exit Examination (CAHSEE), and the California English Language Development Test (CELDT).

The establishment of the longitudinal data system is the responsibility of the California Department of Education. The assignment of student identifiers is the responsibility of the California School Information Services (CSIS) program. SB 1453 also specifies that CALPADS should be used to accomplish all of the following goals:

- To provide school districts and the State Department of Education the necessary data to comply with federal reporting requirements delineated in the No Child Left Behind Act of 2001.
- To provide a better means of evaluating educational progress and investments over time.
- To provide local education agencies information that can be used to improve pupil achievement.
- To provide an efficient, flexible, and secure means of maintaining longitudinal statewide pupil-level data.

To achieve this goal, CALPADS needs to include the following data elements (Table 4):

Senate Bill 1614 requires the creation of a comprehensive, longitudinally-linked teacher information system, in addition to CALPADS, to help improve the quality of program evaluations. This system, known as the California Longitudinal Teacher Integrated Data Education System (CALTIDES), will integrate data across existing data systems residing in the California Department of Education, the California Commission on Teacher Credentialing (CCTC), and ultimately, the Employment Development Department

(EDD). The existing systems collect information about teachers and other certified employees. The information provided by CALTIDES will allow policymakers, teachers, researchers, and the public in general to obtain more information about teacher employment patterns, teacher mobility between schools and districts, trends in different credentialing and preparation routes, and so forth. This information is crucial for developing effective policies to ensure that California's educational system is able to help students meet the high levels of academic achievement set by the state.

> "CALPADS and CALTIDES will not reach their full potential until comprehensive, comparative information is collected consistently over time, and until adequate funding is provided to support high-quality local implementation."

While Senate Bills 1453 and 1614 could, in theory, vastly improve California's data collection effort, there are clear obstacles to implementation. California has made a step in the right direction by authorizing CALPADS and CALTIDES. But their usefulness rests in the details of what information is sought and in the quality and timeliness of data collection. As an example, while by law CALPADS must include a student identifier and test score performance, the federal requirements for the other elements are sparse. In order to be useful, the system must include information on classes and programs that students participate in and resources available to them. In addition, these data collection efforts must be implemented in a timely manner. They will be most useful

TABLE 4.

Data Elements Needed in CALPADS

CALPADS should include, but not be limited to, the following characteristics and data elements:

- STAR test results. This includes, when applicable, the California Standard Test (CST) results in all subjects, CAT/6, and CAPA
- California High School Exit Exam (CAHSEE)
- California Language Development Test (CELDT)
- Student demographic elements. For example:

  1. information on parental education
  2. birth date
  3. English proficiency level
  4. family income
  5. student place of birth
  6. time the student has been in the United States
  7. primary language spoken at home

- Student program and service participation
  1. participation in National School Lunch Program
  2. date of graduation
  3. type of A-G requirements completed at time of graduation
  4. participation in Gifted and Talented Program
  5. type of services provided to English learners
  6. expulsion/suspensions
  7. participation in specialized programs (e.g., AVID, dropout prevention programs, summer school)

CALPADS ought to contain information on every teacher and professional that provides services to students. For example, teachers' ID should be available and linked to every student in the state. With CALPADS, the academic achievement across all test results (e.g., CST and CELDT) could be monitored from year to year and school to school, for every student in the state.

once they include information for multiple years on each student and teacher.

Understandably it will take time to gather this information. However, the start date for data collection continues to be pushed back, so it could be years before these systems can provide the information that California needs. Money is also needed to implement these data systems effectively. California has again and again failed to

fund its data initiatives. The state budget for fiscal year 2007-2008 is just the latest example; funding for local data collection and maintenance was removed at the last minute. CALPADS and CALTIDES will not reach their full potential until comprehensive, comparative information is collected consistently over time, and until adequate funding is provided to support high-quality local implementation.

Using Information: From data to continuous improvement

Having good data systems is one thing, but being able to use them effectively to address the concerns of different stakeholders is another. It is important to build a culture where people share data and feel that it is useful in educational decision-making, whether they are teachers, administrators or parents. In Florida, for instance, educational data systems provide students with an online counseling tool that helps them monitor their progress towards educational goals. Students can evaluate high school progress, determine career objectives, get help choosing the right major, track progress towards college graduation, and learn about the latest research on factors important in completing a bachelor's degree. Florida high schools and community colleges receive feedback reports with data on a variety of pre- and post-graduation indicators. The reports help these institutions learn about the progress of their students as they move on to the next educational level. In addition, legislators are provided with customized performance profiles on students and schools in their districts. As a result, stakeholders in Florida are able to see the purpose behind collecting so much data. They are also more likely to support the development and maintenance of a high-quality data system.

> "It is important to build a culture where people share data and feel that it is useful in educational decision-making."

Lessons from the Private Sector

Data management and information use in the private sector have led to large gains in the efficiency of operations. For this reason, such practices serve as models for California's own educational information system. General Electric (GE), for instance, has developed its SupportCentral information facility, with the slogan "Innovation Starts Here" to help workers with their problem-solving needs.[9] Easy access to the most current data and information helps keep workers up-to-date on rapidly changing information, such as frequent tax code changes. Additionally, workers can search the company database for best practices before attempting a problem someone else in the company has already successfully resolved. Furthermore, new workers who might be reluctant to ask their coworkers for help can now check on-line for solutions.

SupportCentral is built around themes that are of relevance to any complex system that depends on creative human resources for outcomes. It offers a way to brings together knowledge on organizational processes and routines that would otherwise be known only to individual workers, making it available to groups of people who share a concern, problem or passion about a topic. The effect has been extensive within and between community information and knowledge-sharing, electronically-assisted processes, and deep-rooted organizational change.

Toyota's lean-production model provides another example of the importance of information, knowledge sharing, and stakeholder involvement in effecting system-wide productivity gains. In 1984, General Motors entered into a strategic partnership with Toyota at NUMMI to understand how Toyota had built a system that minimized waste and maximized efficiency. Central to that success was Toyota's suggestion system.[10] While many U.S. companies also have suggestion systems, in most cases employees know that they have little voice in changing company practices. Typically there is a form on which to describe each suggestion and a box in which to put it. If they are lucky, employees might hear months later that their suggestion has been accepted, and they might even receive a reward of some sort.

In contrast, the suggestion form at NUMMI lists the criteria by which the suggestion will be evaluated, and even encourages workers to evaluate their own suggestions prior to submission using these criteria. Engineering assistance is available to workers as they seek to assess the value of their proposals. The review process for employee suggestions is also clearly explained on the form. So, for example, if the review feedback is overdue, the worker knows how to determine where in the system it may have been held up. In most cases, however, the review is quick, and turnaround times are tracked and posted. As one former GM worker explained: "In the old system if you tried to make a suggestion, it was just a brick wall. Now the system is really a support system, instead of an authority system. You make a suggestion and the next day the engineer is down there working with you on how to implement it."

Lessons from the Public Sector

There are, of course, important differences between private sector and public organizations that limit the ability of the latter to adopt the ways of the former, even if those ways are appropriate and useful. Public organizations typically have more constraints on their

ability to act, and to support organizational learning and continuous improvement in system performance. An important reason for this is that political constraints on public organizations frequently trump managerial considerations.[11] Even so, there are examples from the public sector of how data, if used wisely, can transform a system.

For instance, local public mental health systems in the United States have long been criticized on several counts. They have been accused of neglecting care for individuals with the most severe mental disorders, fragmenting services, and being reluctant to adopt innovative treatment technologies. Among the changes made in states such as Arkansas have been the development and implementation of management systems designed to measure outcomes longitudinally, and evaluate processes of care for public mental health consumers.[12] In South Carolina, researchers found that even if individual multi-facility state systems had adequate quality-assurance programs, many opportunities for improvement were missed. This was attributed to the absence of a unified statewide quality system that brought together these individual efforts. Such a system was put into place in South Carolina. The coordination of data collection across the system allowed the identification of trends and revealed opportunities for change. To successfully bring about improvements, researchers emphasized that the notion of quality improvement should permeate every level of management, from the state commissioner to the frontline caregiver. They also found that the cost of improving the quality of care was small when compared with the cost of neglecting the process.[13]

The instances cited above highlight certain important features of effective information systems:

- Stakeholders are united, support the organization's goals, and feel they have a voice.
- Definitions of organizational performance and success are clear and uncontested.
- Tasks are clearly assigned and goals defined as outcomes rather than processes.
- Technology is widely used to collect and analyze data.

"An education system that shares information, learns from experience, and fosters innovation would be very different from the system that we have today."

These are not easy features for schools to embrace. Stakeholders have multiple and complex goals. Many goals—such as student learning in mathematics, and reading and high school completion—are shared. But stakeholders vary dramatically in the importance they place on each of these goals. Often they also disagree regarding the proportion of resources they wish allocated to various groups of learners. Yet most organizations, including those that have benefited from developing information systems aimed at continuous improvement, are similarly complex. An education system that shares information, learns from experience, and fosters innovation would be very different from the system that we have today. Recognizing that reform will be difficult does not mean that it should not be attempted. The private and public organizations described above changed dramatically as a result of their reforms; California's education system can as well.

Going Forward: Building a Strong Learning System

The Importance of Data

The foundation of a strong learning system is detailed and accurate information. As CALPADS and CALTIDES are developed and implemented, California should ensure that these systems include as much useful data as possible. The marginal cost of adding variables while the system is under development is low; changing them later could prove costly. For instance, NCLB requires that only student-level information be made available for school accountability scores. Nevertheless, to evaluate educational progress and understand the worth of education investments over time, we need to ensure that data on student family background variables is also available. This would include information such as parental demographics, educational background, and occupations. Student learning is affected by a multitude of factors inside and outside the school, which is why it is important to be able to account for as many of these as possible. "

Data on students' personal, school, and family characteristics are certainly important. But ultimately we are interested in knowing how well a student's schooling prepares her/ him for the outside world— for participation in the world of work and in society. In order to collect data that can help answer these questions, it will be necessary to link student and teacher IDs to their social security numbers. This will make it possible to follow students into their careers and gather more information. Researchers could then follow up on a number of key issues. For example, how well had the education system prepared students for future success? What policies encouraged students to go into fields

in high demand? How had education policies interacted with services available from other agencies, including health care providers and community-based social welfare organizations? Privacy laws such as the Family Educational Rights and Privacy Act (FERPA) place some limitations on the possibility of linking data across systems, but—as demonstrated by the data system in Florida and described in Table 5—they do not prohibit such a system.

Expanding the variables in CALPADS and CALTIDES beyond those required by NCLB is important, but it is also important to remember that data collection requires time and effort on the part of local authorities. In order for the information to be reliable, local educators must collect the data consistently and ensure it is of high quality. High quality data collection requires sufficient funding. Having adequate funding, however, may not in itself guarantee the support of local school and district personnel that is needed to ensure quality. They must also see the benefits that such a system offers. It must be

TABLE 5.

What is FERPA?

The Family Educational Rights and Privacy Act (FERPA) is a Federal law that protects the privacy of student education records, and hence the identification of individual students. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. *The main implication of FERPA for the purpose of data collection and research is that schools and local education authorities must have written permission from the parent or eligible student in order to release any information from a student's educational record, even for the purpose of entering it in state longitudinal data systems.*

Two types of educational records are covered: directory information and non-directory information. The former includes student name, address, phone number, and email id, dates of school attendance, degree(s) awarded, enrolment status, and major field of study. Although a strict reading of FERPA suggests that student permission is not needed to release these records, it is nevertheless advisable to obtain such permission. Students can also request that access to these records be restricted. Non-directory information includes a student's social security number, student identification number, race/ethnicity/nationality, gender, and transcript. Such information can be released only with the written consent of the student.

Does FERPA Apply to Everyone?

FERPA allows schools to disclose the above records, without consent, to specified categories of individuals. These include school officials with legitimate educational interest; other schools to which a student is transferring; specified officials for audit or evaluation purposes; appropriate officials in cases of health and safety emergencies; and organizations conducting certain studies for or on behalf of the school.

Issues and Proposed Approaches for Consideration by States[14]

- "As stated above, schools and districts may share even identifiable student data with state longitudinal data systems within several FERPA provisions, including the evaluation and study provisions related to allowable disclosures. The issue here is how broadly states can use those data and under what circumstances states can further disclose it.
  - Under one line of reasoning, the state longitudinal data system generally could be understood to be acting for elementary and secondary schools and LEAs in maintaining and analyzing their student education records.
  - Alternatively, while redisclosures of data generally are understood as not being permitted under FERPA, there is a legal argument that the longitudinal data system may redisclose as long as that disclosure comes within any disclosure authorized by FERPA.[15]
- The authorized disclosure for studies could encompass studies initiated by third-party organizations if the state issues laws, regulations, and/or guidance defining the scope and process for FERPA-authorized disclosures for research studies as permitting such third-party studies under state-established conditions.
- A state may issue regulations that define date and place of birth, name of parent, and current and former addresses of students as "directory information" for the limited purpose of permitting schools registering a new student to check that information for all students with the same name to ensure they are obtaining education records for the right student."

clear that by collecting higher quality data they will end up with a better picture of their schools, and of the effects of current programs and programs they are considering. They must also be convinced that they will have access to the data in forms that are useful for their decision-making. Ultimately they must understand how the improved information system will result in a better functioning school system and increased educational quality.

The Importance of Data Accessibility

As discussed previously, California has been collecting an impressive amount of educational data since 1999. While we can answer certain kinds of questions, we still cannot answer questions related to student learning and resource allocation with any degree of confidence. CALPADS and CALTIDES have the potential to provide the data needed to answer these questions and help educators make important changes in the ways schools function. These data will only be useful, however, if they are used and used well.

> "Data should be available to policymakers at all levels of the educational system in formats that can help to inform their decisions.

Data should be available to policymakers at all levels of the educational system in formats that can help to inform their decisions. Schools and school districts need data that permit them to evaluate the impacts of new programs and practices on student achievement. Teachers need data on the performance of the students in their classes early in the school year so they can better adapt their instruction to

students' needs. Parents need information on the schools available to their before the school year begins when they are still in a position to make decisions about which schools they would like their children to attend Taxpayers, voters, and the public need better information on funding levels of schools and districts, on the allocation of resources within these organizations, and on the effects of those resources. This information will enable them to make informed decisions about how best to support California's students and the future of education in the state.

California also will need to encourage independent third-party research to provide an unbiased account of students' academic progress and the impact of different programs. FERPA imposes limits on the disclosure of student records by schools and educational agencies that receive federal education funding, but states such as North Carolina have found innovative ways of meeting FERPA guidelines and FERPA-related concerns. For example, researchers at Duke University and in the University of North Carolina system, working under an agreement with the North Carolina education department, can obtain scrubbed student data from a third-party group, the North Carolina Education Research Data Center (NCERDC). (See Table 6 for a description of the Memorandum of Understanding between the State of North Carolina Department of Public Instruction (NCDPI) and NCERDC.)

Even with good data, high-quality evaluation is a complex task that requires skill and thoughtfulness. It will be essential to establish guidelines for deciding who can access the necessary data to ensure confidentiality as well as accurate assessments. All proposals should be subject to rigorous review.

The Importance of Deliberate Policy Implementation

Even with high quality data and increased access, it will be difficult for Californians to learn which policies and programs are working unless they are implemented in a way that facilitates evaluation. If policy innovations are implemented in all classrooms and in all schools at once, it is impossible to compare outcomes between those who benefited from the new program and those who did not. This will make it impossible to assess whether they are better or worse off than they would have been without the treatment. Similarly, if classrooms and schools are free to make their own choices about which programs to adopt, it will be difficult to separate the effects of the programs that they choose from the factors that led teachers or administrators to choose them in the first place. Instead, it is important that programs be designed with a carefully thought out evaluation component so that when they are implemented it will be possible to determine what works and what does not. Under many circumstances this will require the random assignment of schools and students to different programs, in order to support the comparison of outcomes between those who participated in the new program and those who did not.

> "It is important that programs be designed with a carefully thought out evaluation component so that when they are implemented it will be possible to determine what works and what does not."

Policy implementation concerns are integrally linked to those of the data system. A carefully designed data system provides the

TABLE 6:

Excerpt from Memorandum of Agreement Between NCDPI and NCERCD

A consortium of scholars called the North Carolina Consortium for Education Research representing Duke University, The University of North Carolina, and the North Carolina Department of Public Instruction was organized in 2001 to study children's education with the goal of improving education in the State of North Carolina. The consortium received initial funding from the Spencer Foundation. In order to complete these studies, the consortium required the use of confidential data from the Department of Public Instruction.

The Family Educational Rights and Privacy Acts Statute (FERPA) describes circumstances under which Local Educational Agencies (LEAs) and the North Carolina Department of Public Instruction are authorized to release confidential data regarding individual students, teachers, and schools without prior parental consent. Confidential information can be disclosed "to organizations conducting studies to develop, validate, or administer predictive tests, to administer student aid programs, or to improve instruction, and the information is released to no one other than the organization and is destroyed when no longer needed" (p. 2 of document titled Legal Provisions Concerning Access to Information). Furthermore, the North Carolina State Board of Education Policy Manual (Number EEO-C-017) lists "Educational research sponsored and/or sanctioned by NCDPI" as a reason for NCDPI to collect and use education data from LEAs. A data warehouse was set up for the purpose of housing NCDPI data used in educational research, stripping confidential information from student and teacher files and replacing it with encrypted identifiers, matching files based on encrypted identifiers to increase the informational content (e.g., matching student data with information on their teachers), and responding to requests for data from researchers and other interested parties.

information needed to evaluate programs' effectiveness, but well-designed policy implementation is needed in order to make the best use of the data.

The Bottom Line

California has set challenging goals for its students; goals that, if achieved, will provide greater economic opportunities for our state's citizens and bolster the health of California's economy. Yet we are far from meeting these goals, especially for students growing up in poverty. Moreover, success is unlikely unless we are able to learn more about what works for students and build on these successes so that all schools provide the needed opportunities for students."

Currently, California lacks the infrastructure and culture of information that it needs to learn from experience so as to improve its policies and practices. It lacks this at the classroom level, at the school level, at the district level, and at the state level. We know very little about what is happening in California's schools and classrooms, nor about what works or does not work. We do not have accurate information on student achievement, course-taking behavior, or drop-out rates. We also do not have accurate data on the resources available to students, on the programs they participate in, nor on the workings of these programs. Without this information it is impossible to evaluate what is going on in schools and it is very difficult for parents, teachers, administrators, or policymakers to make sound decisions.

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An information system that supports continuous improvement in educational performance relies on many elements. It begins with the purposeful design and implementation of policies and programs to allow for useful evaluation. It includes rigorous and independent analysis and synthesis of information on program participation and student performance. It includes the dissemination of reliable information in forms that are accessible to diverse constituencies, and it requires time for teachers and administrators to access and process information—both formal analyses and informal discussions. But underlying all the elements of an effective information system is accurate and comprehensive data collection.

California lags behind most other states in its data collection efforts. We cannot follow

students' progress over time nor link data about them to data on the teachers in their classrooms. We do not know what classes they take nor what other programs (e.g., tutors, after school activities, gifted and talented programs) they have access to. There are some signs that Californians are moving to develop a system that addresses these concerns. However, prior experiences in California suggest that the process may be slow, underfunded, and focused too much on complying with federal regulations rather than on addressing the needs of students. We must change this if California is to learn from its experiences and improve the educational outcomes for schools and students.

> **"There are good things happening in classrooms, schools and districts across the state. But, we are not learning what we can from these successes so that we can make all schools better."**

There are good things happening in classrooms, schools and districts across the state. But, we are not learning what we can from these successes so that we can make all schools better. A comprehensive data system alone will never be a solution to California's educational needs. Without it, however, we are unlikely to achieve our challenging goals and provide the opportunities we have promised to our students.

Endnotes

[1] Countries such as Canada and Sweden have created comprehensive, longitudinal student-level data systems, as have states within the United States such as Florida and North Carolina.

[2] Hansen (2006). Education Data in California: Availability and Transparency. Prepared for the California Getting Down to

Facts Project. CDE's website provides a full listing of the databases: www.cde.ca.gov.

[3] Other key websites include Ed-Data and SchoolMatters.

[4] Hansen (2006). Education Data in California: Availability and Transparency. Prepared for the California Getting Down to Facts Project.

[5] Ibid

[6] Data Quality Campaign (2007). Linking Teacher and Student Data To Improve Teacher and Teaching Quality.

[7] California Department of Education website. Retrieved on May 14, 2007 from: http://www.cde.ca.gov/ds/sp/cl/.

[8] Meeting with Dr. Macke Raymond and internal documents from LAO.

[9] Joan Allata (2007). The Strategic Value of Communities of Practice. Draft.

[10] Paul S. Adler (1999). Building Better Bureaucracies. Academy of Management Executive. Vol. 13, No. 4

[11] Linda Kaboolian (2000). Quality Comes to the Public Sector in Cole and Scott (eds.) The Quality Movement and Organization Theory.

[12] James Clardy et al (1998). Implementing a State-wide Outcome Management System for Consumption of Mental Health Services. Psychiatry Services 49: 191-195

[13] Norman Evans et al (1992). A Quality Improvement Process for State Mental Health Systems. Hospital and Community Psychiatry.

[14] Source: Data Quality Campaign (2007). Maximizing the Power of Education Data While Ensuring Compliance With Federal Student Privacy Laws: A Guide for State Policymakers. These recommendations are based on consultations by Data Quality Campaign with their legal experts.

[15] The argument here is that FERPA was not intended to restrict redisclosures that fully meet the requirements applicable to initial disclosure. However, this approach would require changes to USED regulations, which currently authorize redisclosures only if approved and recorded as part of the initial disclosure by the school or LEA.

POLICY BRIEF

Recent PACE Publications

- Jennifer Imazeki. *Meeting the Challenge: Performance Trends in California Schools.* Policy Brief 08-1, February 2008.

- Anne K. Driscoll. *Beyond Access: How the First Semester Matters for Community College Students' Aspirations and Persistence.* Policy Brief 07-2, August 2007.

- W. Norton Grubb David Stern. *Making the Most of Career-Technical Education: Options for California.* Policy Brief 07-1, April, 2007

- Haleh Hatami, Project Coordinator. *Crucial Issues in California Education, 2006: Rekindling Reform.* 2006