Leveraging Early Childhood Data for Better Decision Making

Access to data on early learners is not enough.

by Philip Sirinides and Missy Coffey

Americans share an expectation that government will serve the common good, creating inescapable pressure for public agencies—especially those that serve young children—to perform well. Yet education and human services agencies continually struggle to respond to the complex conditions in which children are born. How can they address the practical challenges of public administration and give a bright start for all young children?

One strategy for fostering effective, responsive government is evidence-based policy and decision making.[1] Just as data and analytics have been used to improve performance in private business, professional sports, and social media, state agencies that serve children and families have been building sophisticated systems to gather and link administrative data for over a decade. States have developed early childhood integrated data systems (ECIDS) to address the challenges.[2]

So how are they doing? It is clear there is still a gap in evidence use by public institutions that serve children and families.[3] We can discern this gap in the progressive shift in federal funding for early childhood agencies toward requirements for data and evidence use. Despite large investments in data infrastructure, evidence-based decision making has not taken hold.[4]

State agencies have been building systems that include a set of technical features, believing that technical specifications will position them to answer an endless list of questions—answers that have no actionable use and lead only to more questions. Technical and nontechnical factors prevent states from using their data effectively and sustainably. Specifically, there are three sorts of gaps: technical capacity for organizing data, analytic capacity for understanding data, and organizational capacity for learning from data. If innovative uses of data are to bolster public institutions, then each of these gaps must be closed.

Like other state decision makers, state boards of education must build the organizational capacity to learn from data, recognizing that to do so they must engage in an authentic process for rigorous problem diagnosis and needs identification that drives clearly stated goals. A data system doesn't replace the need for this hard work; it requires it.

What Is an ECIDS?

The term ECIDS arose in 2013 to differentiate the integrated data needs across

early childhood programs from the longitudinal link between early childhood programs and K-12 provided in the statewide longitudinal data systems (SLDS).[5] States like Pennsylvania had been working toward an ECIDS before 2009,[6] but at that point the U.S. Department of Education began providing grants to states to integrate early childhood, higher education, and workforce data into their SLDS.[7]

In 2009, 27 states received an average of $5.6 million each to integrate K-12 data with that of one other sector and 20 received an average of $12.5 million each in American Recovery and Reinvestment Act funds to integrate data from all sectors. Although this federal investment provided the initial opportunity for states to integrate early childhood programs, many states focused on preschool data. It was not until 2011, when 16 of the 20 Race to the Top Early Learning Challenge grant awardees applied to use part of their grant to support early childhood data systems, that the conversation across state agencies truly started.

An ECIDS "collects, integrates, maintains, stores, and reports information from early childhood programs across multiple agencies within a state that serve children and families from birth to age 8."[8] Since the U.S. system of early care and education comprises many service models and funding streams, families access a range of programs to meet their child's needs. Yet many states cannot provide a distinct count of the number of children served across programs. A common approach that states took when developing ECIDS was to focus on determining how many children were being served.

Another approach was to articulate and answer key research questions. A group called the Early Childhood Data Collaborative outlined five essential questions in 2010.[9] But as states tried to answer them, they were overwhelmed by the need to rephrase and expand the questions to address particular contexts, available data, or political priorities. Recently, the Center for IDEA Early Childhood Data Systems also listed critical questions to guide data systems development.[10]

Across the country, at least 37 states are working toward developing ECIDS. A handful have operational systems. North Carolina has prioritized work on its system to provide researchers with data aimed at informing policy and practice conversations. Minnesota created a public portal that makes early childhood program data available, and state staff are now working with local practitioners to develop uses for the data. For states such as these two that are further along, it is natural that the conversation shift toward data use.

Gaps in Capacity

Even as public agencies integrate and expand their collection of data, it's clear that ECIDS implementation has yet to achieve what many had envisioned. In a situation by no means unique to sectors that serve children and families, data producers are often disconnected from information users and thus fail to understand who uses the data and for what purposes.[11] Among early childhood agencies, there are clear gaps in their capacity to advance policy and programs through strategic use of integrated data.[12]

Technical capacity for organizing data: Grade B+. One reason public agencies struggle is that their technology does not organize data in ways that are useful for analytics and reporting. Front-end systems through which data are collected and stored must support back-end linking of information across systems. The current focus is on developing data models that connect data systems and elements. Newer state systems are doing better at integrating and organizing data.

Analytic capacity for understanding data: Grade C–. A second reason that ECIDS' potential has not yet been realized is that states are still devising strategies for analyzing and reporting the data they collect. Current analytics and information management systems have emerged more slowly, started later and often in response to the availability of the data. There is an emerging gap between the systems that collect data and states' capacity to access and report out data.

Organizational capacity for learning from data: Grade F. A third reason is that states often lack a coherent strategy to connect program analytics with policy and operations. Developing organizational capacity for learning from data requires the regular, systemic practice of reviewing and using data analytics. State administrators have positioned themselves

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as data producers rather than strategic planners. But if the definition of success in ECIDS is limited to making data available, state leaders risk providing data that no one understands or knows what to do with.

To address these capacity gaps, the Consortium for Policy Research in Education at the University of Pennsylvania, along with national experts and innovators, launched the ECDataWorks project with grant funding from the W. K. Kellogg Foundation. The project partners with states to develop and implement innovative reports from their ECIDS. It provides technical, financial, and organizational support for improving policymakers' use of data related to early childhood programming and policy.

The project's goal is to build states' analytic capability through new tools that close the gaps in early childhood data use. Together with teams from selected states, we conceptualize and develop solutions that address a state's priorities within the context of their ECIDS efforts. We are working with four states: Minnesota and Utah were in the first round (see box 1); round two brought us to Georgia and Texas.

Develop a Culture of a Learning Organization

What can be done to increase organizational capacity to learn from data? Nationally, policymakers of all stripes and taxpayers want evidence that public investments are being used effectively, practitioners are adequately supported, programs are held accountable, and the quality of services is continuously improving. Data are not just useful for providing this evidence; they can help accomplish these things.

For years, states have worked to develop the technical infrastructure of the ECIDS, yet they struggle to demonstrate its effective use. Discussion of leveraging ECIDS for evidence-based decision making creates uncomfortable pressure on state agency staff who build the systems to discover uses for whatever data are available—putting the cart before the horse.

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Begin with the End in Mind

ECDataWorks starts by helping states articulate their policy and program priorities, explore the obstacles to achieving the priorities, and design data reporting solutions to close the gaps in a practical manner. The overall aim is to bolster public institutions that serve children and families by defining a clear goal and leveraging state data for reporting tools that are anchored in use cases.

Initially, public institutions need to improve their ability to identify their information needs. Instead of asking for outcome data to judge

Box 1. Use Cases in Utah and Minnesota

In Utah, system leaders wanted to support local groups in their coordination, planning, and implementation of services. Local partners worked with state leaders to articulate actions they would take if new data were provided. They identified many diverse use cases related to community needs assessment, infrastructure development to address access gaps, advocacy efforts, and quality improvement. Utah is developing a community dashboard to give local users access to state data specific to them. Data in the report are organized based on four basic types of activities related to eligibility, access, services, and improvement. This framework will support specific decisions for improving local programs and services.

In Minnesota, impressive amounts of data are available in the state's system, but they have been underutilized. State and local leaders said they wanted to use data to communicate about state services. ECDataWorks project staff are designing a tool for Minnesota users to construct message points and stories with data. Through an innovative data hub and a story builder tool, users will have access to integrated data and be able to add narrative explanation and interpretation. Reporting solutions are also being developed for communications purposes, the intent being to let leaders support what they are saying more substantively with data.

whether a program is producing results, state agencies should ask for data about the integrity and efficiency of program inputs and activities. In other words, state boards of education (and other state agencies) should ask different questions of these systems. Where do we as a state, city, or district see ourselves in five years? What are the specific policies, operations, and outcomes that are envisioned?

Then consider what actions are needed to reach that goal. Logic models or strategic plans are useful methods for mapping the inputs and activities required to achieve a goal. It is critical that state agencies answer these questions before they design a data system or report. Only after they have a plan to achieve a clear goal will it be useful to consider how data can be leveraged to facilitate and enhance required activities.

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Without a clear strategy, evidence-based decision making will rely on data epiphanies. Rather than making data available with the hope they will be useful, it would be far better to design data systems and data reports with use cases in mind. A use case describes a report and how it is used. To develop such a use case, the system designer will need to articulate the specific data needed by a specific person to do specific job and achieve a specific outcome. Representatives from the intended user group are always required in the development of use cases. By working backward to identify goals, individuals, and planned activities, the group can design useful, actionable data reports.

Expect Incremental Progress

What does successful use of an ECIDS look like? People in the organizations that use it will be asking better questions and making course corrections based on the answers. An impediment to successful use of integrated data systems is the lack of capacity to operate as a learning organization and modify programs and behaviors based on the data. ECIDS work is expensive and time consuming. It can be hard to be reflective, especially when funding is sustained by a series of short-term grants.

As states develop systems to collect, maintain, and integrate early childhood information, they should not wait for more data to come online before mapping the use cases that will position those data for a role in day-to-day decision making. Often, data do not need to be comprehensive to be useful. States can cultivate the structures and practices that enable a virtuous cycle of reflection and learning about information needs.

Peer communities of practice, projects such as ECDataWorks, and national partners are discovering the contexts that enable states to use ECIDS for planning and evaluation. After more than a decade of work across the country in building ECIDS, it is time to match the technical tools with nontechnical capacity building: learning to use evidence to better serve children and families. ■

[1]John Fantuzzo and Dennis P. Culhane, eds., *Actionable Intelligence: Using Integrated Data Systems to Achieve a More Effective, Efficient, and Ethical Government* (London: Palgrave Macmillian, 2015); Margaret E. Goertz et al., "State Education Agencies' Acquisition and Use of Research Knowledge for School Improvement Strategies," *CPRE Research Report* #RR-77 (Philadelphia: Consortium for Policy Research in Education, 2013).

[2]Philip Sirinides and Ryan Fink, "Early Childhood State Data Systems: Putting Data to Work" (Washington, DC: U.S. Department of Education, Institute of Education Sciences, and National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Mid-Atlantic, 2014).

[3]Rebecca Maynard, "Presidential Address: Evidence-Based Decision Making: What Will It Take for the Decision Makers to Care?" *Journal of Policy Analysis and Management* 25, no. 2 (2006): 249–65.

[4]For example, see Diane Schilder, "Washington Race to the Top Early Learning Challenge Evaluation" (Boston: BUILD Initiative, 2015).

[5]Missy Coffey et al., "What Is an Early Childhood Integrated Data System?" on Statewide Longitudinal Data Systems Grant Program web page (U.S. Department of Education, National Center for Education Statistics, 2014), https://nces.ed.gov/programs/slds/pdf/whatisanecids.pdf.

[6]Philip Sirinides, "Pennsylvania's Early Childhood Data Systems: History, Uses & Opportunities," Working Paper (Philadelphia: Consortium for Policy Research in Education, 2013).

[7]U.S. Department of Health and Human Services and U.S. Department of Education, "Integration of Early Childhood Data: State Profiles" (November 2016).

[8]Coffey et al., "What Is an Early Childhood Integrated Data System?"

[9]Data Quality Campaign and the Early Childhood Data Collaborative, "Building and Using Coordinated State Early Care and Education Data Systems: A Framework for State Policymakers" (Washington, DC, 2010).

[10]Abby Winer et al., "Critical Questions about Early Intervention and Early Childhood Special Education" (Menlo Park, CA: SRI International, 2015).

[11]Samantha Custer and Tanya Sethi, eds., "Avoiding Data Graveyards: Insights from Data Producers and Users in Three Countries" (Williamsburg, VA: AidData, College of William & Mary, 2017).

[12]Early Childhood Data Collaborative, "2013 State of State's Early Childhood Data Systems" (2014).

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