



Case Study #1: Tulsa Community Action Project's Commitment to Data Driven Decision-Making

Carlise King, Kelly Maxwell, Jennifer Abrams, and Dale Epstein, *Child Trends*

The Community Action Project of Tulsa County (CAP Tulsa) provides a range of services, including early education programs, for low-income families and their children. This case study describes how the program links multiple types of data within their own program, as well as with public schools, to help them better support their teachers and adapt services for children. This case study highlights an example of linking data that involves merging two separate datasets into a single data file.

The organizational mission of Community Action Project of Tulsa County (CAP Tulsa) is to help children living in poverty achieve future academic and economic success. Since 1973, CAP Tulsa has been committed to supporting the needs of low-income families in their community. The agency provides support services and job training for low-income families whose children participate in their early education programs. During 2015-16, CAP Tulsa directly served approximately 2,000 children birth to four years and their families at multiple sites in 137 classrooms funded by Early Head Start, Head Start, the Oklahoma Early Child Program, and the Oklahoma state pre-kindergarten program. CAP Tulsa also serves about 350 children through its home visitation program funded by Early Head Start and Maternal, Infant, and Early Childhood Home Visiting grants.

To accomplish their mission, the agency has developed a strong data culture focused on using data to guide program improvement and strategic decisions. A strong data culture means leaders encourage the use of indicators and metrics to understand program goals. Teachers are engaged in collecting and interpreting data as part of their daily work and receive support to implement changes based on the data. As highlighted in the text box, data-driven decision-making is a core value of the organization. Agency leaders, instructional coaches, and teachers regularly use and share data that are linked¹

¹ In this resource, data are considered linked when information from two or more separate data systems or databases are shared, connected, combined, or merged. These data systems or databases may be housed in the same program or in multiple programs or agencies. Linking can occur in various ways ranging from simple, (e.g., sharing

together across several sources to track teacher professional growth as well as child and family participation. CAP Tulsa also works in partnership with the University of Oklahoma (OU) to conduct assessments and analyses. Research staff provides quarterly presentations so program leaders and instructional coaches can use data to support instruction and professional development. Teacher, child, and classroom data are collected in separate databases and then linked together to help program leaders and coaches individualize their support for teachers and children. These data include:

- Measures of teacher-child interactions are linked with program-specific teacher performance ratings of classroom management, instructional effectiveness, and family engagement to help instructional coaches target support for teachers;
- Child literacy and math assessment scores are linked from fall and spring each year the child attends the program to monitor children's growth and inform curriculum revisions as needed; and
- Attendance data collected from infancy to preschool are linked with the Early Development Instrument,² a measure of skills in kindergarten, to understand relations between children's early childhood program attendance patterns and school entry skills.

To create these and other reports, staff link data collected across multiple data sources. Child, teacher, and classroom data are combined to inform agency planning, improve practice in the classrooms, and individualize services based on children's needs. This case study highlights the steps CAP Tulsa has taken to link their child, teacher, and classroom data together and then use the linked data to support teachers and adapt services to improve outcomes for children.

Linking Data to Monitor Classroom Quality and Support Teacher Effectiveness

CAP Tulsa's Director of Research and Accountability is responsible for linking multiple data sources containing critical information about teacher and child characteristics, program quality, and child developmental assessments across early care and education (ECE) programs (see Figure 1). Program directors (e.g., Information Technology, Human Resources, Client Services) manage datasets with support from teachers and site directors to make sure the data are accurate. Site directors and instructional coaches regularly use linked data to understand classroom factors that could relate to classroom quality. For example, CAP Tulsa leaders were interested in understanding the relationship between teacher characteristics and classroom quality to help improve their ability to recruit, train, and retain high quality teachers. They linked data on early childhood certification, teaching experience prior to joining CAP, program tenure (i.e., how long teachers have worked at CAP Tulsa), performance ratings,³ and teacher-child interactions in each classroom as measured by the Classroom Assessment Scoring System (CLASS).⁴

By linking staff and classroom level data, program leaders found that teachers with 1-4 years of prior teaching experience tended to score higher on the CLASS measure of teacher-child interactions compared to teachers with less than 1 year or more than 5 years of prior teaching experience. They also found that a subgroup of new teachers at CAP initially scored low on a teacher performance rating from school leaders but improved their performance after the first year so that their performance scores were similar to other teachers. These findings led to important conversations among CAP Tulsa leaders about how best to support teachers with varying years of experience.

a spreadsheet) to more complex (e.g., merging two databases into a single file), to very complex (e.g., fully integrating data across multiple agencies). However, all linked data has the potential to provide useful information to support ECE program improvement.

² The Early Development Instrument is a teacher survey about children's skills in kindergarten. Reference: Janus, M, Brinkman.

³ Teacher appraisal scores include ratings by site directors on classroom management, instructional effectiveness, family engagement, professional growth, continuous improvement, interpersonal skills and leadership.

⁴ CLASS is an observational tool used to measure teacher-child interactions in toddler, preschool, and kindergarten to third grade classrooms. Pianta, R. C., La Paro, K., & Hamre, B. (2004). *Classroom assessment scoring system: Pre-Kindergarten*. Charlottesville, VA: University of Virginia Center for Advanced Study of Teaching and Learning.

CAP's Core Values

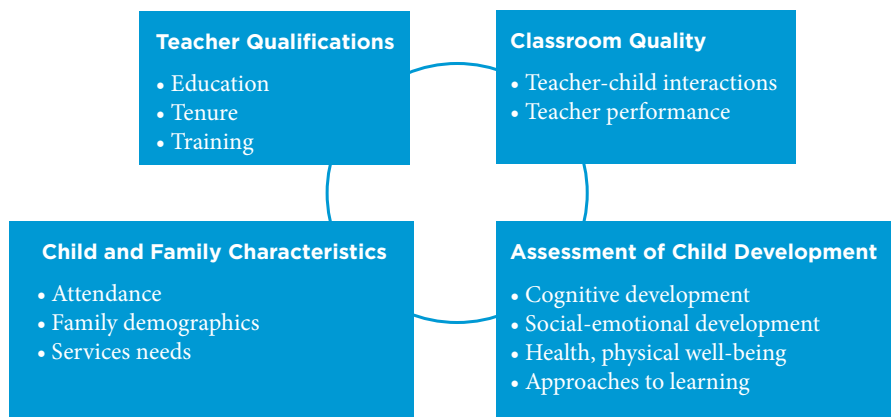
Data Driven Decision-Making

Using data to make thoughtful and well-informed decisions

- Set goals that are realistic and ambitious.
- Rely on internal and external data for validation and opportunities for improvement.
- Thoughtfully measure the success of work and use as input for decision-making.

Source: <http://captulsa.org/about-cap/core-values/>

Figure 1: Examples of data linkages



CAP Tulsa’s data culture promotes the use of both internal and external tools to help teachers reflect on their practices and individualize instruction throughout the year. To measure children’s developmental progress, they use both an internal instructional assessment tool completed by teachers (Teaching Strategies GOLD),⁵ as well as several formal assessments (e.g., Bracken school readiness,⁶ Woodcock Johnson⁷-applied problems, pencil tap) administered directly to children by the University of Oklahoma’s Early Childhood Education Institute staff. These multiple assessments are then linked with ratings of teacher-child interactions using the CLASS and with information from school leaders about teacher practice. The linked data guide conversations between instructional coaches and teachers about the classroom practices and interactions that support children’s learning. Examining data throughout the year gives teachers an opportunity to reflect on their practices and develop instructional plans to meet the changing needs of children in their classroom. As another example, program leaders wanted to examine developmental growth for children who attended their program over multiple years to better understand the needs of returning students. By merging a sample of data across years, program leaders were able to examine growth over time for children who had attended the program for two years. They found that children in 4-year-old classrooms who had also attended the program the previous year did not show the same level of growth in the second year of attendance on certain measures of school readiness (including the Bracken School Readiness assessment), though they were still performing well on other assessments and demonstrated growth in some areas such as vocabulary.⁸ Program leaders discussed possible reasons for this and made some adjustments to the preschool curriculum to better support learning over multiple years.

How does CAP Tulsa link these different types of data? In the next section, we describe the data that CAP Tulsa collects and the process they use to link the data.



⁵ Heroman, C., Burts, D. C., Berke, K., & Bickart, T. S. (2010). *Teaching Strategies GOLD® objectives for development and learning*. Bethesda, MD: Teaching Strategies, LLC.

⁶ Bracken, B. A. (2002). *Bracken School Readiness Assessment*. San Antonio, TX: Harcourt Assessment.

⁷ Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: Riverside.

⁸ Vocabulary development was measured with the Receptive and Expressive One Word Picture Vocabulary test. Table 1 provides a full list of measures used to assess children’s school readiness skills.

Steps to Linking Child, Teacher, and Classroom Data

CAP Tulsa's child, teacher, and classroom data are in multiple databases, housed within and sometimes outside of the program. To link these data, each database is first converted into Microsoft Excel or a statistical program called "STATA" to allow them to merge and analyze the data. Table 1 below describes five different data sources used by CAP Tulsa to examine the relationship between child assessment scores, child characteristics (e.g., age, gender), child attendance, teacher characteristics, and classroom quality measures.

Table 1: Data on children, families, teachers, and classrooms that CAP Tulsa links

Type of Data	Data Source	Description	Data Collection and Entry
Teacher Performance	Cornerstone software	Teacher effectiveness rating from 1 (ineffective) to 5 (superior) measuring classroom management, instruction, family engagement, professional growth, interpersonal skills, and leadership	School Leaders rate all teachers annually and new teachers twice during their first year. Scores are entered into a database maintained by Human Resources (HR)
Teacher Qualifications	Human Resources database	Includes data about teacher experience, education, training, and tenure	HR enters and maintains these data
Teacher-Child Interactions	Excel file from the Univ. of Oklahoma (OU)	External observers use the CLASS to rate teacher-child interactions in three domains: emotional support, classroom organization, and instructional support	OU collects and enters these data into a data file and sends to CAP Tulsa.
Child, Family, and Classroom Characteristics	CHILD PLUS database	Includes child/family and classroom information such as demographics, attendance, number of children, and referrals for services	Client services staff, teachers, disability specialist, and others collect and enter relevant child, family, and classroom data
Assessment of Child Development	Teaching Strategies GOLD software	Measures of children's development in six domains: social emotional, physical, language, cognitive, literacy, and math ⁹	Teachers collect and enter child observations and scores which are automatically electronically linked with the ChildPlus database
Assessment of Child Development	Excel file from the Univ. of Oklahoma	Devereux Early Childhood Assessment, ¹⁰ Expressive One Word Picture Vocabulary, ¹¹ Woodcock-Johnson Applied Problems and Letter Word subtests, ¹² Bracken School Readiness Assessment, ¹³ and pencil tap ¹⁴	OU collects and enters these data into a data file and sends to CAP Tulsa.

⁹ Teaching Strategies GOLD includes both observations of children as well as direct assessments of their skills

¹⁰ LeBuffe, P., & Naglieri, J. (2012). *Devereux Early Childhood Assessment (DECA)*. Lewisville, NC: Kaplan Press.

¹¹ Martin, N., & Brownell, R. (2010). *Expressive One Word Picture Vocabulary*. Austin, TX: PRO-ED.

¹² Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: Riverside.

¹³ Bracken, B. A. (2002). *Bracken School Readiness Assessment*. San Antonio, TX: Harcourt Assessment.

¹⁴ Diamond, A., & Taylor, C. (1996). Pencil Tap. *Developmental Psychobiology*, 29(4), 315-334. Teachers complete the DECA, while the remainder are direct assessments of children's skills.

¹⁵ Not all early childhood programs are required to comply with the requirements of FERPA and/or HIPAA when sharing or linking data. Requirements to comply with these privacy acts vary depending on the type of agency, the type of data to be shared or linked, and the intended use of that data. Consult the Privacy Technical Assistance Center for additional information on FERPA: <http://ptac.ed.gov/early-childhood-data-privacy>. Most early childhood programs are not subject to HIPAA unless handling certain kinds of health information. For more information on HIPAA, see: <http://www.hhs.gov/hipaa/>.

CAP Tulsa's Director of Research and Accountability and a research specialist are responsible for merging data across all data sources to gain a richer understanding of children's development and teacher effectiveness. They have expertise in quantitative research, data analysis, and evaluation. These positions are funded through the Oklahoma Early Childhood Program. These staff match child assessment, classroom evaluation, and child and teacher characteristics data based on common identifiers available in each dataset. For classroom-level data, a classroom ID along with teacher and program names are used across the datasets to combine needed information. A unique classroom ID is created by combining the school's name and the classroom number. For child-level data, children have a unique program ID.

To protect privacy and ensure the proper use of these data, CAP Tulsa has taken specific steps to inform families, control access, and provide security. At application all families are given CAP's privacy policy regarding sharing their children's data with other organizations. Families selected to be part of a research project sign informed consents. Access to data is limited based on staff roles and responsibilities, instead of giving all staff access to all of the data. For example, a teacher would only be able to access information about his or her classroom and students. When data are shared with other agencies, school districts, or researchers, CAP Tulsa uses a web-based file transfer and storage service that requires two forms of user authentication and is encrypted to prevent non-authorized users from accessing it. According to CAP Tulsa's privacy policy, these procedures for the storage, transfer, and use of data follow the guidelines provided by the Family Educational Rights and Privacy Act (FERPA) and Health Insurance Portability and Accountability Act (HIPAA).¹⁵ The policy includes information for parents about their right to review, inspect, and amend their child's educational record and right to access and keep health information private.

Monitoring Children's Transition into Kindergarten

In addition to using multiple kinds of data to support children while they are enrolled in the program, CAP Tulsa leaders wanted to know how well their children do in elementary school, after leaving CAP Tulsa's early childhood program(s). Specifically, they wanted to know whether children from their program entered kindergarten with the skills needed to succeed. To answer this question, CAP Tulsa research staff linked early childhood data for over 12,000 children who attended CAP Tulsa between 2001-2002 and 2010-2011 with data from the Tulsa Public Schools (TPS).

CAP Tulsa receives some funding from TPS for its services for 4-year-olds and knows TPS' unique child identification number, both of which facilitated the data linking process between CAP Tulsa and TPS. To assign the IDs, CAP Tulsa sent a list of their enrolled 4-year-old children at the beginning of each program year to TPS, and TPS then generated a unique ID for each child. This number was sent back to CAP Tulsa staff who entered the ID into ChildPlus for later matching.

To follow their children into elementary school for this project, CAP Tulsa sent TPS a list (with IDs) of all their program graduates during the 2001-2002 to 2010-2011 time periods. A staff member in TPS's internet technology department then located the children in the school's data system. Through this process, CAP Tulsa was able to match and follow 78 percent of the children enrolled in their program during this time period. After the children were matched, the data was merged with information about which elementary school the child attended, grade retention, course grades, test scores, and designations for special education and English Language Learners. This file was then sent to CAP Tulsa for analysis. The overall process of getting data from TPS took about one year.



CAP Tulsa leaders also used aggregate data to examine grade retention and achievement for their former students. They found that CAP Tulsa children represented 19 percent of all elementary children in TPS. Grade retention rates were similar for CAP Tulsa alumni as rates reported by the schools for all children from preschool through ninth grade. This finding was viewed by some as a success by CAP Tulsa because their program serves a large proportion of children who are at risk for later school difficulties, such as grade retention. Despite this, CAP leaders still believe the retention rates of alumni need to be reduced even further. Forty-four percent of CAP Tulsa's children scored proficient or above in reading skills and 39 percent scored proficient or above in math skills on their third grade state achievement tests. They also found that 6 out of

10 CAP Tulsa alumni children earned A's and B's in third grade.¹⁶ While CAP Tulsa leaders thought their children, overall, fared better than if they had not participated in the program, they would like to see percentages increase with the goal of all alumni children scoring proficient and above by 3rd grade. These results have also sparked conversations internally about not limiting measures of long-term success to school assessments. CAP Tulsa may expand measures of success to include other outcomes such as the percentage of alumni who graduate from high school, obtain employment, and are not involved in the criminal justice system. CAP Tulsa leaders have also used the findings to work with community leaders on ways the schools, families, and CAP Tulsa can collaborate to support children's growth and development over time. This includes working with families to improve attendance for children enrolled in CAP Tulsa and implementing a new math curriculum to improve children's math skills.

Summary

CAP Tulsa's success in using linked data and fostering a data-driven culture is due in large part to the strong commitment of their leaders and the capacity of their staff to translate data into actionable information. They credit their data systems staff and internet technology support for helping them pull the data they need, ensuring data quality, and protecting the security of the data. Research staff and partners such as the University of Oklahoma have been critical in analyzing and interpreting data for program planning. To read more about CAP Tulsa, please visit their website at www.captulsa.org

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¹⁶ See the 2013 report, CAP Tulsa Alumni Enrollment and Performance in Public Schools PowerPoint.