Teacher Perceptions of the Impact of the Data Team Process on Core Instructional Practices

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This paper documents the results of a mixed method study of teachers who participated in a survey and focus groups in a K-12 southwestern suburban school district during the 2011-2012 school year. The mixed method design contains elements of both qualitative and quantitative approaches, permitting the authors to collect qualitative and quantitative data in the same study. The teacher population (N=295) included intervention specialists, speech and language specialists and counselors at the pre-school, elementary, middle school and high school levels. The quantitative and qualitative results from this study are synthesized and triangulated in the Cross – School Results Triangulation Table (Table 1), and indicate that the district teachers assessed the impact of the Data Team Process (Reeves, 2006) on their curricular, assessment/feedback, instructional and leadership practices as positive. Teachers generally reported that the process positively impacted student learning, though results varied between pre-school, elementary, middle school and high school levels. Results were reasonably consistent within the pre-school and elementary levels, varied slightly within the middle school level, and were more variable at the high school level. The study exposed the need in the district to focus on the full ten-step Data Team Process, provide protected time to work in Data Teams, design teams carefully to allow same subject teaches to work together, enforce common norms of behavior and create school-wide Data Teams to orchestrate the efforts of subject/grade level teams within buildings.

Introduction

Educators today have both an unparalleled opportunity and an incredible challenge. The opportunity is to take advantage of powerful research studies using student achievement as the dependent variable to improve student achievement by all students while simultaneously improving the quality of core instructional practices. The challenge is to get teams of educators to focus collectively and collaboratively on what matters most using efficient and effective data processing strategies.

How can busy educators systemically and systematically work together to continuously improve the percentage of students who master the Common Core standards and the 21st century skills they will need in their future? What systems, processes, structures and protocols can districts and within-school teams use to simultaneously improve student achievement and build the range and repertoire of effective, research-supported instruction practices of all of its members? How can teams of educators follow the sage advice of Richard Elmore (2007): "The main thing is to keep the main thing the main thing"? The main thing, as Dufour (2009) advocates, is to ensure that all students achieve at high levels given sufficient time and support.

Data Teams and the Data Team Process (Reeves, 2006) can provide educators with the systemic and systematic structures and processes to meet that challenge. Systematically eliciting the feedback and contributions of the teachers responsible for delivering the curriculum and ensuring that all students achieve at high levels may be the most powerful leverage members of educational systems have to improve both learning and the quality of instruction.

Designing and re-designing the American educational system to meet the needs of our children, and, thus, American society, are not new endeavors. Throughout the history of American education, reformers, researchers and practitioners have designed, modified, and re-designed what students learn, how they learn, and how school systems were best structured to achieve the desired results of American society.

What can we learn from the history of educational reform efforts? How can educators draw from the findings of leadership researchers to guide their efforts to improve student learning? What lessons can be learned from the extensive research linking core instructional practices and improved student achievement? How can the literature on professional learning communities help teachers and administrators effectively and efficiently implement best practices? A brief summary of current thinking can provide a rock-solid foundation and support for the implementation of Data Teams and the Data Team Process by teams of educators who are committed to doing whatever it takes (Dufour, Dufour Eaker & Karhanek, 2010) to ensure that all students achieve high academic standards at high levels.

Educational Reform

American educators have been in the reform and improvement business for a long time. Reform efforts have typically reflected the economic, social and political contexts in which they were initiated and implemented (Hargreaves & Shirley, 2009; Wiliam, 2007). Each era of reform contributed to the evolution of American education, culminating in today's public education system (Elmore, 2007). Regardless of the era, students, parents,

educators and society at large have shared a simple desire—that students receive an education that would give them the skills and understandings they would need in school and in life (Spring, 2011). Similarly, common sense suggested that the better the teaching the better the learning. In order to teach better, educators needed a good curriculum, sensible assessment, effective instruction, and strong leadership to make it all happen. Thus, the question in the minds of thoughtful reformers was usually not what needed to happen, but how to make it happen.

Whole system reformers and researchers have found they should focus their efforts on the curricular, assessment, instructional and leadership sub-systems that will most probably have a profound impact on student achievement of all students, regardless of socio-economic background (Darling-Hammond, 2010; Reeves, 2004, 2011), and teaching quality (Fullan, 2008, 2010), thus fueling the globalized demands of the 21st century world (Pulliam & Van Patten, 2013).

Educational Leadership

Classroom, school, and district leadership practices are critical to whole system reform and improvement efforts in school systems, providing the first of four cornerstones for effective educational reform and subsequent student achievement gains. Together with curricular, assessment, and instructional practices (Marzano, 2007a, 2007b) leadership frameworks, structures, processes, and skills (Fullan, 2001, 2010; Marzano, Waters & McNulty, 2005) can positively impact student achievement (Marzano, 2003) and move systems closer to achieving their desired future (Cook, 2004; Dufour & Marzano, 2011).

Researchers suggest that schools and school districts need to collaboratively build a common mission, a shared vision of their collective future (Dufour, Dufour, Eaker & Many, 2006) and establish shared, evidence-based student achievement and core instructional practices (Dufour, 2009; Elmore, 2007) to lead to improvement goals. Action plans and success criteria (McNulty & Besser, 2010) should accompany improvement plans, and monitoring plans should focus on tracking progress on the student achievement and instructional goals.

Leadership matters (Marzano & Waters, 2009). Administrators and teachers, working in aligned teams at all levels of the system (Hord & Sommers, 2008) and involving all members of the school or district (McNulty & Besser, 2010), can positively impact student learning by sharing leadership responsibilities. As one astute researcher stated concisely, "…teachers often learn best, not from outsiders, but from one another" (Schmoker, 2006).

Curriculum

Curricular practices, the second cornerstone, provide the basis for effective systemic reform. The first question educators should ask themselves is, "What will our students learn?" (Dufour, 2009). Clarifying exactly what every student needs to know, understand, or be able to do at the end of the unit, course, and year or course sequence is essential (Dufour, Dufour & Eaker, 2005).

"Power standards" (Ainsworth, 2007, 2011; Ainsworth & Viegut, 2006) or "measurement topics" (Marzano, 2007b; Marzano & Kendall, 2008; Marzano, Yanoski,

Hoegh & Simms, 2013) and their related learning goals, are placed at the center of any planning process. Annual curricular pacing guides, collaboratively decided and implemented (McNulty & Besser, 2010; Reeves, 2006) ensure that all students receive a high quality, comprehensive, "guaranteed" curriculum (Marzano, 2003). Unit and lesson planning, specifically when focused on the achievement of essential power standards or measurement topics and learning goals (Marzano, 2007b; Wiggins & McTigh, 2011), needs to be collaborative and facilitate the sharing of instructional, assessment and curricular practices among members—perhaps establishing team learning as the most powerful vehicle to improve student achievement and teaching practices in education today (Dufour & Marzano, 2011; Reeves, 2010).

Assessment

Assessment practices provide the third cornerstone of effective systemic reform. The second question educators must ask themselves is, "How will we know they are learning?" (Dufour, Dufour, Eaker & Many, 2006). The assessment sub-system, and its related practices, performs two essential functions. The first function is to provide specific, timely performance feedback (Hattie & Timperley, 2007; Leahy, Lyon, Thompson & Wiliam, 2005) to students on their progress and toward mastery of the essential knowledge. The second function is to provide specific, timely student performance feedback to the teacher, thereby allowing teachers to connect the instructional core strategies they employed with their students' achievement (Black & Wiliam, 1998; Guskey, 2007; Reeves, 2009; Stiggins, 2007). Assessment sub-systems and practices, when coupled with the curricular sub-system and practices, create a powerful influence on student achievement (Wiliam, Lee, Harrison & Black, 2004) and form a sort of "glue" between curricular, instructional and assessment systems (Ainsworth, 2007; Marzano, 2007a, 2010; White, 2007).

Instruction

The systemic uses of powerful instructional strategies that are linked to improved student achievement (Hattie, 2009; Marzano, 2007a) provide the fourth cornerstone of effective reform and student learning improvement efforts. The third critical sequence of questions educators must ask is: "What instructional strategies will we use with all of our students initially, what strategies will we use when they don't learn initially, and what strategies will we employ to deepen understanding for those students already proficient?" (Dufour, Dufour & Eaker, 2008).

Using sophisticated research methodologies, researchers have identified the connection between specific approaches, instructional strategies and student achievement (Hattie, 2009; Marzano, 2007b; Saphier, Haley-Speca & Gower, 2008). Properly implemented by at least 90% of a school or district (Reeves 2009), all students can achieve at higher levels. Instruction and teaching quality make a difference. Better instruction yields better learning.

Teaching-Learning Cycle

The improvement of student achievement requires the continuous improvement of teaching quality (Dufour, 2009; Elmore, 2007; Fullan, 2008; Reeves, 2006). Teaching quality includes the use of specific, core curricular, assessment, and instructional practices that are supported by the research, are selected based on student performance data, and are combined into a teaching-learning cycle (Ainsworth, 2011; McNulty & Besser, 2010; Reeves, 2006). A hybrid teaching-learning cycle, developed organically over a period of years by the southwestern district in this study, combines elements from previous cycle frameworks into a cohesive whole that effectively describes how all four sub-systems operate together to improve student achievement and teaching effectiveness. The cycle is firmly focused on individually and collectively answering four systemic focus questions: a) What must all of our students learn? b) How will we know our students are learning? c) What core instructional strategies will we use to help all students learn initially? d) How will we respond when some of our students do not learn initially, and how will we deepen understanding or improve competence for those students who are already proficient (Dufour, 2009)?

The teaching-learning cycle advocates (Ainsworth, 2009; McNulty & Besser, 2010; Reeves, 2006) agree with Fullan (2010) that the development of the collective capacity of all members of the system to ensure each student's mastery of the system's academic standards is critical to any reform effort. The seminal research by Reeves (2009) supports such capacity building, and suggests that unless an innovation is implemented with fidelity to the essential components by 90% of educators, the innovation will likely fail. The challenge for educators is to develop ways that teachers, principals and central office administrators can work effectively, efficiently and harmoniously to implement the most promising strategies on a large scale (Elmore, 2007).

Professional Learning Communities

The most important variable in the achievement of students is the quality of instruction (Hattie, 2009; Marzano, 2003). Quite simply, to ensure that more students achieve at higher levels, educational leaders must improve teaching. Researchers have found that districts and schools that operate as learning communities (Dufour, 2004; Hord, 2009), sharing leadership and responsibility for the learning of all students and colleagues, produce consistently higher student achievement and higher quality teaching practices (Marzano, Waters & McNulty, 2005; Reeves, 2005; Wiliam, 2007). When teams of teachers and administrators work together, students throughout the system learn more (Fullan, 2010). Professional learning communities can, according to educational researchers and practitioners, be the foundation with which to build a shared moral purpose (Fullan, 2001), a shared vision of the future for students and one another, a set of relevant student and adult improvement goals, and a set of implementation plans that are realistically embedded in goals of its members (Dufour, 2009; Dufour, Dufour & Eaker, 2008).

Data Teams

Data Teams (Reeves, 2006) are one form of a professional learning community. The Data Team Process, in the context of the teaching-learning cycle, is a vehicle by which teachers and administrators can collaboratively plan for the learning of all students (Marzano, Waters & McNulty, 2005; Peery, 2011; Reeves, 2005).

The full 10-step Data Team cycle (Marzano, 2009; Reeves, 2006; Wiggins & McTigh, 2005) integrates all elements of a teaching-learning cycle or coherent system, (Fullan, 2010) and includes:

1. Generate Measurement Topics and related learning goals for each course in each subject; create a Proficiency Scale Rubric for each Measurement Topic.
2. Strategically schedule Measurement Topics into an Annual Curriculum Pacing Plan.
3. Design the first Unit, centering on critical Measurement Topics for that Unit.
4. Design the Summative Assessment of Measurement Topics for that Unit.
5. Administer the Unit Summative Assessment as a pre- assessment, score it and place the scores on the team Data Team Process Data Chart for analysis.
6. The Data Team analyzes the results of the pre-assessment, sets SMART Goal(s), reaches consensus on instructional strategies, and creates Results Indicators.
7. Design and implement lessons, administer formative assessments, adjust instruction to meet student needs; meet at a Data Team to analyze and adjust instruction mid-unit.
8. Administer the Unit Summative Assessment, score and chart the results.
9. The Data Team analyzes the results of the Unit Summative Assessment, designs lessons to help students who have not yet reached proficiency and deepen understanding for those already proficient.
10. Return to the Annual Curriculum Pacing Plan to begin the next Unit cycle.

Data Teams and the Data Team Process provide the structures, processes, procedures and protocols for education teams wishing to implement whole school reform and operate effectively and efficiently (Reeves, 2009). Districts and schools can be professional learning communities, and Data Teams are the means by which they can implement the best practices research and experience offer. In addition, the tri-level (Fullan, 2010) interdependent Data Team system (when used as the primary vehicle to integrate all other whole and sub-system reform efforts) can be a powerful mechanism by which leaders at all levels can help transform American education, close the achievement gap (Darling-Hammond, 2010), and maximize student achievement and success in preparation for the 21st century (McNulty & Besser, 2010).

Purpose of the Study

The purpose of this study was to determine teacher assessment of the impact of the Data Team Process (Reeves, 2004) on curricular, instructional, assessment, and leadership practices in pursuit of improved student achievement in a mid-sized, southwestern school district.

The research questions addressed were:

1. How do Data Team members assess the impact of the Data Team Process on their curricular practices?
2. How do Data Team members assess the impact of the Data Team Process on their assessment/feedback practices?
3. How do Data Team members assess the impact of the Data Team Process on student achievement?
4. How do Data Team members assess the impact of the Data Team Process on their instructional practices?
5. How do Data Team members assess the impact of the Data Team Process on shared leadership in the school and district?

Method of the Study

District Background. The district in this study was a suburban high achieving K-12 school district in the southwestern United States. During the timeframe of this study, scores on national normative tests in this district typically manifested median percentile scores above 90%. The students who typically met or exceeded on reading, writing and math state-mandated tests across the district totaled 90%. Approximately 5,170 students attended the largely middle to upper middle class school district. Open enrollment policies allowed students from surrounding school districts to attend district schools; approximately 24% of the students attended under open enrollment.

The district was comprised of one pre-school, four elementary schools, two middles schools, and one high school. For the 2011-2012 school year, the pre-school had approximately 130 students ranging in age from three-years to five-years. Each elementary school had between 430 and 525 students in grades K-5. Each of the middle schools had approximately 600 students in grades 6-8. The high school had approximately 1740 students in grades 9-12.

Over the previous nine years, the district in the study had systematically implemented current and best practices through a series of curricular, assessment, instructional, and leadership initiatives in pre-school through grade12, including the Data Team Process.

District Teacher Population. All (100%) of the eligible teacher population of the district was considered highly qualified. All teachers were certified by the state of Arizona for the area and subjects they taught. Approximately 26% of certified teaches were in their first five years of teaching while another 19% had between six and ten years of experience. Of the teaching population, 55% had more than ten years of experience.

Data Teams. All (100%) of the eligible teacher population participated in the Data Team Process for the length of the 2011-2012 academic year. Teachers at the pre-school level met in teams based on shared age levels or shared students. The teaching team at each grade in the elementary level most often comprised the Data Team for that grade. Special area teachers, those who taught art, music and physical education, typically comprised a Data Team. Special education teachers and reading specialists typically joined a grade level Data Team, met with other special services providers, or created a cross-school specialist team. Data Teams at the middle school and high school

levels were formed based on teachers' common students, common course, common improvement goals, and/or common subjects.

Data Teams met every two weeks for 60-90 minutes per session for the entire academic year. The principal selected one member of each Data Team to be the Data Team leader. Data Team leaders and the building administrator met monthly for 60 minutes to problem solve and to celebrate successes. Data Team leaders received a one-day training prior to assuming the responsibilities of Data Team leaders. Follow-up trainings and support sessions from Data Team leaders occurred during the year.

Survey. A mixed method survey, the Data Team Process Survey containing 35 Likert-scaled items and five open-ended questions, was used to document the teachers' assessment of the impact of the Data Team Process on their core instructional practices in 2011 (Appendix A). Participants assessed each item as Strong Agree (SA), Agree (A), Neutral (N), Disagree (D) or Strongly Disagree (SD), which corresponded to point scores of 5, 4, 3, 2 or 1, respectively. The survey was distributed to all 295 pre-school through grade 12 district classroom teachers, speech and language specialists, intervention specialists and counselors. The district teachers who participated in the survey totaled 206 (70%). Survey items reflected current best educational practices and specific district expectations for practices in classrooms and in schools.

Area 1 of the survey asked participants to indicate the degree to which they agreed or disagreed that the Data Team Process helped their Data Team to build annual curricular pacing plans, units and lessons. Area 2 of the survey asked teachers to assess how the process helped their Data Team to collaboratively build, administer, analyze, and respond to classroom student achievement data that was generated from common formative and summative assessments, as well as how the process helped them to provide specific performance feedback to students and parents. Area 3 of the survey asked participants to indicate the degree to which they agreed or disagreed that the Data Team Process helped their team to collectively focus on individual student achievement of the district academic standards, on helping students not yet proficient to become proficient, and on deepening understanding for those students who were already proficient. Area 4 of the survey asked teachers to indicate the degree to which they agreed or disagreed that the process helped their team collaboratively plan instruction, make causal connections between specific instructional strategies and student achievement of district academic standards, and collegial sharing of instructional strategies. Area 5 of the survey asked participants to assess how the Data Team Process helped their Data Team to pursue the district mission, vision, goals, and action plans, as well as how the process helped them collaborate with district and school administrators to support student achievement and teacher professional growth. Area 6 of the survey was open-ended, containing five questions.

Focus Groups. A simple random drawing of 19 district teachers was conducted in order to create two focus group interviews. Focus group members were randomly assigned to one of two groups. Group members responded to seven questions. Questions 1-3 asked participants to assess the personal and collective impact of the Data Team Process on their curricular, assessment/feedback, instructional and leadership practices. Question 4 asked teachers to assess the impact of the process on their implementation of district initiatives. Question 5 asked participants to reflect on the impact of the Data Team Process on student learning. Question 6 asked teachers to share their perceptions

of the benefits and challenges of being a part of a Data Team. Question 7 elicited any revisions teachers would suggest to make the process more effective and efficient.

Results

Data from the Data Team Process Survey were analyzed utilizing SPSS software by calculating the mean score and standard deviation for each survey item for the set of 35 items for each level. The survey mean scores (M) represent the average score for the entire set or sub-set of scores, while the standard deviation (SD) scores are measures of how different a score is from the average score in the set or subset of scores. The data were examined using the Kolmogorov-Smirnov Z to test for normality of the data. None of the sample distributions were significantly different from normality. The skewness statistic was also computed to determine if there were substantial amounts of skewness in the data. Statistical analysis showed very small indications of negative and positive skewness in the data as well as the absence of skewness. These amounts were deemed inconsequential in their effects on the estimation of the means in the present study.

Data for the entire set of 35 Data Team Process Survey Likert-scaled items are listed by research question and level in Appendix (p. 171). Data from the five open-ended questions contained in the survey and from the seven focus group questions were summarized, triangulated and are also displayed in Table 1.

Table 1
Cross - School Results Triangulation Table

Research Question Impact of the Data Team Process	Survey Area Mean Scores	Survey Area Standard Deviation	Open-Ended and Focus Group Questions
1. Curricular Practices	Pre-school: M= 3.0667 Elementary: M= 3.5978 Middle School: M= 3.3065 High School: M= 3.1825	Pre-school: SD= .8861 Elementary: SD= .9079 Middle School: SD= 1.0919 High School: SD= 1.3317	Results were generally positive. All levels reported: • A focus on common student achievement goals • Shared practices to ensure all students achieved mastery of the target goal • Collaboratively planned units and lessons • Note: Middle school and high school responses were inconsistent
2. Assessment/ Feedback Practices	Pre-school: M= 3.0667 Elementary: M= 3.5978 Middle School: M= 3.3065 High School: M= 3.1825	Pre-school: SD= .8793 Elementary: SD= .6690 Middle School: SD= .8669 High School: SD= .9960	Results were mostly positive. All levels, with the exception of high school, reported: • Created and used common student assessment data to plan instruction • Re-teaching and interventions as part of the Data Team Process • Note: High school teachers whose teams utilized the Data Team structures and protocols also used common assessment data to drive

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			instructional decisions; some high school teachers reported the development of common assessments and the use of data to drive instruction in their content area teams instead of Data Teams
3. Student Learning	Pre-school: M= 3.0667 Elementary: M= 3.5978 Middle School: M= 3.3065 High School: M= 3.1825	Pre-school: SD= 1.0412 Elementary: SD= .6899 Middle School: SD= .8278 High School: SD= .9188	Results at all levels were generally positive. All levels reported: • The process could or did impact student learning • Collaborated to ensure all students achieved mastery • Strived to focus intervention efforts on not-yet-proficient students and those already proficient • Note: Middle school teachers expressed a need for more common planning time and Data Team time in order to provide the follow-up support • Note: High school teachers almost universally expressed the desire to ensure that all students achieve mastery, but varied considerably on the structured process that would most effectively achieve that aspiration
4. Instructional Practices	Pre-school: M= 3.0667 Elementary: M= 3.5978 Middle School: M= 3.3065 High School: M= 3.1825	Pre-school: SD= .1.1585 Elementary: SD= .7381 Middle School: SD= .8348 High School: SD= .9128	Results at all levels reported a positive impact, especially for Data Teams aligned with process procedures and guidelines. All levels reported: • The process facilitated sharing of teaching practices and materials • Note: Middle school teachers reported time constraints inhibited follow through and comprehensive development of interventions • Note: Preschool teachers reported a focus on working together and sharing of materials; some commented that more time should be spent on interventions • Note: High school teachers that aligned with Data Team Process protocols reported shared strategies and materials, as well as explicit causal connections between strategies and student achievement
5. Leadership Practices	Pre-school: M= 3.0667 Elementary: M= 3.5978	Pre-school: SD= .4738 Elementary: SD= .6838	Results at all levels were mostly positive. All levels reported: • Common student achievement goals • Common assessments • Common data analysis procedures • Shared responsibility for achievement

	Middle School: M= 3.3065	Middle School: SD= .8652	of all students
			• Increased sense of shared leadership for learning, at least in the context of the targeted common student achievement goal improvement plans
	High School: M= 3.1825	High School: SD= .9649	• Note: Some teachers at all levels suggested a broader or more comprehensive process, thereby allowing them to apply the principles of collaborative data-driven decisions to a wider range of academic standards / measurement topics

Discussion

Educators in the study district were challenged, as are educators nationwide, to help all students achieve high academic standards. This study was designed based on the premise that student achievement can only be accomplished by improving the quality of teaching and leadership practices on a large scale throughout the study school district. A mixed methods research design was used to assess the impact of the Data Team Process on teacher curricular, assessment/feedback, instructional and leadership practices in support of improving student achievement. Results from the study revealed, while teachers in the district consistently favor working in collaborative Data Teams to improve student achievement and their teaching practices, a number of suggested improvements in the process design and support systems that offer potential benefits to teachers and administrators could ultimately improve student achievement.

Several implications arose from the study findings. First, the variance between levels in the implementation of the Data Team Process will predictably exist unless teachers consistently implement the process with fidelity across the system. The second implication is that administrators and teachers need to work collaboratively in grade level/department teams, which then align with building level Data Teams, which can then be aligned with a district level Data Team to create a coherent system of curricular, assessment/feedback, instructional and leadership sub-systems that use common student achievement to drive all decisions throughout the district. The third implication is that teachers, like all human beings, thrive when everyone commits to the same set of team norms, behaviors, dispositions, and expectations, which are then enforced by all involved. Finally, individuals, grade level/department, whole school and district teams must commit to a continuous and unrelenting focus on improving student achievement by improving the collective capacity of all members of the system to improve the quality of their teaching and leadership practices.

Researchers, educational reformers and educational practitioners have discussed the critical need for teams of educators, consisting of teachers and administrators, to work together in a structured process with an intentional focus on student achievement (Dufour, Dufour, Eaker & Many, 2006; Marzano, 2009; Marzano, Waters & McNulty, 2005; McNulty & Besser, 2010; Reeves, 2006). The study explored teachers' assessments of the Data Team Process on their curricular, assessment/feedback, and instructional and leadership practices in pursuit of improved student achievement.

The researchers in this study offer six recommendations based on the astute and practical assessment data provided by the teacher participants in this study. First, the full ten-step Data Team Process should be prioritized as the primary means to improve student achievement and teaching practices. Narrative data from the study showed that teachers at all levels assessed structured collaboration as a high impact strategy for the improvement of teaching practices, and, thus, student achievement. Second, schools should establish a school-wide Data Team to orchestrate and support the work of smaller, grade level/department area Data Teams. Third, time for whole staff and grade level/department Data Teams must be scheduled, prioritized, and protected. Participants in this study almost uniformly recommend more time to collaborate in Data Teams and/or content team meetings. Fourth, Data Teams are most effective when they are comprised primarily of teachers who teach the same subject, course, or students. Fifth, this study confirmed that norms, expectations, commitments, and guidelines for the Data Team Process must be established, enforced, and reinforced at the building and grade/department levels. Teachers in this study at all levels reported that some peers do not manifest the behaviors, attitudes, and perceptions necessary to have student learning needs drive individual and collective instructional decisions. Teachers need to adhere to a mutual set of norms of behavior and expectations, and administrators need to consistently enforce adherence to those norms if teams expect to optimize their time together. Finally, the depth and rate of implementation of curricular, assessment/feedback, and instructional and leadership practices depends heavily on teachers receiving systematic training in the full ten-step Data Team Process, focusing particularly on what must be the same throughout the system, and what may be flexibly adjusted at the building and grade level/department levels.

The practical implications of this for higher education, district and building level professionals are clear and focused. Teachers highly value the opportunity to work collaboratively in Data Teams with their peers to improve their teaching and, thus, their students' achievement. Building administrators can significantly improve student achievement and teaching quality by establishing and systematically supporting a school-wide Data Team as the primary means by which educators improve their craft and focus on student achievement. District administrators wishing to implement large - scale teaching quality improvement efforts can utilize district level Data Teams in support of individual school Data Team efforts. University educators wishing to provide new teachers with the tools they need to succeed not only as classroom teachers, but also as teacher leaders in professional learning communities can infuse training in the Data Team Process into the pre-service training curriculum.

The K-12 teachers in this study, across all grades and subjects, assessed the Data Team Process as powerful, efficient and important to their students and one another. Listening to their wisdom and advice may well be the most important finding from this study.

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Appendix A
Data Team Process Survey

Area 1: Curriculum *The Data Team Process helps our Data Team:*	SA 5	A 4	N 3	D 2	SD 1
1. Use the district Standards / Measurement Topics and Benchmarks to build common annual/semester/course curriculum pacing plans / timelines					
2. Use district Standards/Measurement Topics and district Benchmarks to build curriculum units					
3. Utilize district Standards/Benchmarks to build lessons					
Area 2: Assessment/Feedback *The Data Team Process helps our Data Team:*	SA5	A 4	N 3	D 2	SD 1
4. Use district rubric scales to assess how well each student achieves district Standards / Measurement Topics and district Benchmarks					
5. Collaboratively build common pre-assessments					
6. Collaboratively analyze data from common pre-assessments					
7. Collaboratively build ongoing common formative assessments					
8. Collaboratively analyze data from ongoing common formative assessments					
9. Collaboratively build common summative assessments					
10. Collaboratively analyze data from common summative assessments					
11. Use district rubric scales to provide specific performance feedback to students					
12. Use district report cards to provide specific performance feedback to students					
Area 3: Student Learning *The Data Team Process helps our Data Team:*	SA 5	A 4	N 3	D 2	SD 1
13. Collaboratively focus on each student's achievement of district Standards / Measurement Topics and Benchmarks					
14. Identify individual students who have not yet reached proficiency on Standards / Measurement Topics and Benchmarks					
15. Adjust instruction for individual students who have not yet learned Standards / Measurement Topics and district Benchmarks					
16. Make systematic intervention plans for groups of students who have not yet reached proficiency on Standards / Measurement Topics and /or Benchmarks					
17. Design academic tasks that deepen student understanding of district Standards / Measurement Topics and district Benchmarks					
18. Design academic tasks that help students apply Standards / Measurement Topics and district Benchmarks in meaningful assignments / projects					
19. Increase the percentage of students achieving district Standards / Measurement Topics and district Benchmarks					
Area 4: Instruction *The Data Team Process helps our Data Team:*	SA 5	A 4	N 3	D 2	SD 1
20. Collaboratively design instructional strategies that work to improve student achievement of district Measurement Topics and district Benchmarks					
21. Make explicit causal connections between specific instructional strategies and student achievement of district Measurement Topics and district Benchmarks					

	SA	A	N	D	SD
22. Model and share specific instructional strategies to other members of the Data Team					
23 Observe one another teach lessons to students					
24. Design differentiated strategies to meet the needs of individual students					
Area 5: Leadership *The Data Team Process helps our Data Team:*	SA 5	A 4	N 3	D 2	SD 1
25. Pursue the mission of ensuring every child achieves proficiency on district Measurement Topics and district Benchmarks					
26. Create a shared vision of what we want our students to be able to know, understand and do					
27. Set shared goals for student achievement					
28. Set shared goals for instruction					
29. Implement shared action plans to achieve shared goals					
30. Create shared values / norms to guide collaborative work together					
31. Build a positive student learning environment					
32. Collaborate with the principal to support student learning					
33. Collaborate with building administrator to support teachers' professional growth					
34. Collaborate with building administrator to support school improvement plans					
35. Build collective capacity to help every child achieve at high levels					

Note. SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree

Area 6: Open–Ended Questions

1. What impact does the Data Team Process have on how you design and implement curriculum, assessment/feedback and instruction individually and collectively as a Data Team?
2. How does the Data Team Process affect student achievement of district Standards/Measurement Topics and district Benchmarks?
3. What impact does the Data Team Process have on how teachers work together to help all students learn?
4. What is the overall impact / advantages / costs of being part of a Data Team?
5. What revisions in the Data Team Process do you make to better meet student needs, and what changes would you recommend to improve the effectiveness of the Data Team Process?